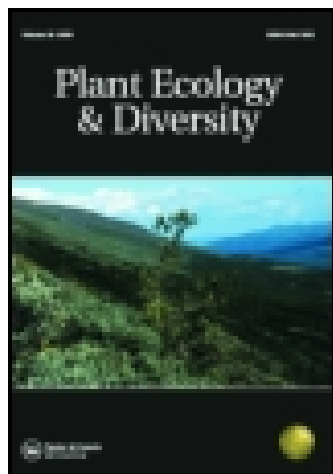


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Transactions of the Botanical Society of Edinburgh

Publication details, including instructions for authors and subscription information:

<http://www.tandfonline.com/loi/tped18>

III. On the Propagation and Irritability of *Drosera* and *Dionæa*

Mr John Scott

Published online: 01 Dec 2010.

To cite this article: Mr John Scott (1863) III. On the Propagation and Irritability of *Drosera* and *Dionæa*, Transactions of the Botanical Society of Edinburgh, 7:1-4, 429-430, DOI: [10.1080/03746606309467878](https://doi.org/10.1080/03746606309467878)

To link to this article: <http://dx.doi.org/10.1080/03746606309467878>

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show the amount of cell-multiplication which has occurred. *Emb*, *susp*, and *b*, as before.

Fig. 6. Portion of young germ at a later period. The conical and pointed placental process (*pr*) now tapers considerably at its extremity; its root-like elongation is commencing. The suspensor has been broken off short. Lettering as before.

Fig. 7. Section of a portion of a young seed (*s*), and placenta (*pl*). The placental root (*pr*) is now considerably elongated, and has reached the placental vascular bundle (*vb*), along the inner side of which it already runs for a short distance. The extra-seminal root (*esr*) is much elongated, and is seen to perforate the seed-coats a little to the outer side of the micropyle (*mic*). Vascular bundle of the raphe, *r*. The young cotyledons are now distinctly visible on the embryo (*emb*). *Susp*, Suspensor.

II. *Remarks on the Bursting of the Spathe of Palms and Opening of Leguminous Fruits.* By Mr JOHN SADLER.

Mr Sadler gave the views of different authors regarding the bursting of the spathe of palms with an explosive report. That some species of palms in their native habitats may make, while bursting their spathes, a sound, caused by compressed air, audible to a very attentive ear, he did not deny; but he was of opinion, from certain experiments which he and others had made on the palm cultivated at Edinburgh and Kew as *Seaforthia elegans*, but which appears to be *Seaforthia* (*Ptychosperma*) *Cunninghami*, that in this country no indication of a report (as affirmed by some) was met with. The author then explained that the crackling sound of various leguminous fruits while shedding their seeds was not (as supposed) due to heated or compressed air, but to the shrinking or tension of the tissues. He concluded by reading extracts from a letter which he had received from Mr William Bell, of Saharunpore Botanic Garden, in which he stated that, from all the information he had gathered at Ceylon, Calcutta, and elsewhere, he could find nothing to support the theory of explosion caused by heat developed within the spathe.

III. *On the Propagation and Irritability of Drosera and Dionæa.* By Mr JOHN SCOTT.

The author, after a few introductory observations on the distribution of *Droseraceæ*, remarked that the modes of propagation and means of dissemination of *Drosera* (sundew) and *Dionæa* (Venus' fly-trap) were varied. Thus, independently of reproduction by seeds, the leaves of a number of the *Droseras* present a remarkable aptitude for the production of adventitious buds. This property is well illustrated by the British species, all of which produce with the greatest facility young plants on the surfaces of their petioles and laminæ. So frequent is this mode of propagation, that it must be familiar to all who have collected these plants in the later summer or autumn months, when the earlier developed leaves are beginning to decay. These falling on the moist mossy bed are reimbued with the formative force, and along their surfaces small cellular protuberances first make their appearance with a few pale fawn-coloured scales,

after which one, or usually two leaves, are developed, and then a little rosette of undeveloped leaves, beset with scales, forming a pseudo-hibernaculum. The young plant up to this period is generally attached to the generative leaf, so that its nourishment is entirely derived from the parent. The vital activity of the recipient plant now in a great measure ceases, the generative leaf undergoes decay, and leaves it a free and independent organism, which, ere spring returns, may have been transported to some distant nidus by the floods, which generally sweep their habitats during winter. As illustrating susceptibility to mechanical irritation, he gave the following experiments on *Drosera rotundifolia* (round-leaved sundew), performed in a temperature of 65° Fahr. :—"Selecting a vigorous plant, I carried on a gentle irritation of the hairs for a short time; their collapsing soon became evident, and in half an hour they were all curved in upon the surface of the laminæ. Again, placing an insect upon the surface of another, the hairs had begun to collapse in twelve minutes, and in twenty minutes nearly all those near the base of the leaf had their glands applied to the insect, while those on the apical part had undergone little or no change. This had been occasioned by the position of the insect, which had been accidentally placed on a line with the petiole near the base of the lamina. Thus it would appear that the *Droseras* do not possess the communicative powers of either their ally the *Dionæa*, the lobes of which collapse on the touching of a single hair, or of the *Mimosa*, which exhibits the same rapid communicability to the other pinna of the leaf when the equilibrium of one is disturbed." The author also detailed some experiments in support of Dr Nitsche's statement, "that their susceptibility to irritation is invariably proportionate to the activity of their secretions, and dependent on the process of assimilation." None of the author's experiments with chemical stimuli elicited any susceptibility to irritation, though he seemed to think that chloroform had an anæsthetic influence. In one of his experiments he placed two portions of the leaf of *Drosera binata* under a bell-glass exposed to the vapour of chloroform. In four minutes no perceptible change having taken place in either, he took one of them out, and found that the hairs were completely anæsthetised. In treating of the cause and functional import of these movements, he was inclined to suppose that in regard to the former no merely physical hypothesis was sufficient to account for the phenomenon, but that it was due entirely to the vital force; and in regard to the latter, he thought Mr Knight's view, that decomposing animal matter might be necessary for certain of the functional requirements of the plant, very plausible, on considering how peculiarly adapted the leaves of *Drosera* and *Dionæa* were for the purpose of catching insects. —

IV. *Notice of Plants collected in the Neighbourhood of Elie, Fife.* By
Mr J. W. BROWN.

Mr Brown gave a list of the rarer plants met with in the district, and noticed several which had not before been observed in that quarter. The list included the following: *Diplostaxis tenuifolia*, *Koniga maritima*, *Senebiera Coronopus*, *Sisymbrium Sophia*, *Lavatera arborea*, *Sagina maritima*, *Geranium pyrenaicum*, *G. pusillum*, *Genista tinctoria*, *Lysimachia vulgaris*, *Mertensia maritima*, *Lycium barbarum*, *Satureia Limonium*, *Beta maritima*, *Rumex aquaticus*. He accounted for the appearance of *Statice Limonium*, *Senebiera Coronopus*, *Lycium barbarum*, &c., by their introduction with ballast.