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III. Notes in Reference to the Bursting of the Spathe of *Seaforthia elegans*

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reason to believe that such is the case." He had submitted the matter for examination to Mr W. R. M'Nab, and to Mr James Hardy, Penmanshiel. Mr Hardy says—"The cottony substance sent is produced by *Coccus fagi*, Walker, List of Homopterous Insects in the British Museum, p. 1086, No. 32, with the specific character, 'yellow, elliptical, covered with white powder; length of the body two lines.' This is the second time it has come under my notice. At first I had it from Mr C. M'Intosh, then of Dalkeith, and gave an account of it in the second volume of the "North British Agriculturist." It occurs near London. Can it have been introduced from abroad with foreign beech plants? I find the cast wrapper of a caterpillar among the cotton of the Coccus, and formerly there was one alive concealed by it; whether it feeds on it, I cannot say, but it is not unlikely. The Coccus will be difficult to extirpate, for it is not easy to scrape the bark and apply hot water to a beech.

Mr W. R. M'Nab remarked that Mr M'Intosh had noticed a similar diseased condition of the beech-trees in Dalkeith Park, and had recorded the facts in the first volume of the "North British Agriculturist." He seems to have considered it a fungus. The cottony matter was at that time sent to Mr Hardy, who ascertained that it was owing to an insect, and gave a description of it in the second volume of the same journal. Mr M'Nab thinks the *Coccus fagi* appears only on trees in an unhealthy condition, or at least in situations where they are confined in their growth by close planting. Dr Balfour stated that the same species of Coccus had destroyed some beech-trees in the Botanic Garden, which had been planted very closely, and were hemmed in by shrubs and trees. It seems to attack healthy trees. The only remedy suggested was the application of spirit of tar or tobacco-juice. Dr Balfour remarked that the species of Coccus were often very destructive. One of them in 1842 destroyed the whole orange-trees in the island of Fayal, one of the Azores. The usual exportation of fruit from Fayal was 12,000 chests, but in 1842 there was not one. The insect extended its devastations to St Michael's. It was *Coccus hesperidum*. Specimens of the beech-insect and of the cottony matter were shown.

III. *Notes in Reference to the Bursting of the Spathe of Seaforthia elegans.* By Mr JOHN SADLER and Mr WILLIAM BELL.

In this communication the authors first referred to an article which had lately appeared in the "Gardener's Chronicle" from the pen of Dr Seemann, describing the bursting of a spathe of *Seaforthia elegans*, with an audible report, "almost loud enough to have proceeded from a pistol," in the Palm-House at Kew—the explosion being attributed to "a great accumulation of heat, developed by the anthers whilst inside the spathe." The authors then stated that they had had ample opportunities for observing the flowers of the *Seaforthia* in all their different stages of development in the Palm-House at the Edinburgh Botanic Garden, and as yet had never seen anything which gave the least indication of a sudden rupturing of the spathe. In some cases they had seen the old foot-stalk of the leaf which covered the spathe fall off two or three days before the spathe showed any signs of bursting; and when it did burst, it opened gradually from the base to the apex, generally on the dorsal aspect; indeed, they had only observed a single instance where the rupture occurred on the ventral side. Again, they had seen the spathe burst two or three days before the old foot-stalk fell off, and when it fell upon the floor it generally gave a pretty sharp crack, which they thought had been probably regarded as proceeding from the bursting of the spathe, as Dr Seemann states that the spathe in bursting "forced off the remnant of the old leaf-stalk." When the spathe bursts previous to the fall of the

foot-stalk that covers it, as soon as it is removed the branches of the spadix immediately expand, and, to all appearance, it looks exactly as if the spathe, in the act of bursting, had knocked off the foot-stalk. Dr Seemann supposes that the report was due to an accumulation of heat, produced by the anthers. This, however, the authors thought could not be the case, as a considerable time elapses between the bursting of the spathe and the opening of the flowers; this they had never observed to be less than three weeks, and generally more than a month. A tree in the Palm-House at the Botanic Garden burst its spathe five weeks ago, and had not yet a single flower expanded. After the bursting of the spathe the branches of the spadix continue to increase both in length and thickness; and until they have reached their maximum development, they had never seen a single flower expand. Dr Lindley, in his "Introduction to Botany," and Dr Balfour, in his "Class-Book," both state that the greatest amount of heat during the period of flowering is when the anthers are ready to discharge their pollen, after which it gradually declines. At the time the spathe bursts, the flowers are in a very imperfect state, the stamens being very immature, with no traces of pollen. The observations of the authors went to show that there was rather less heat inside the spathe before it bursts than there was in the surrounding atmosphere. They had inserted a thermometer by a narrow slit into an unburst spathe, where they allowed it to remain upwards of twenty minutes, and when taken out it stood at $57\frac{1}{2}^{\circ}$, while the surrounding atmosphere was 55° . Taking into consideration the structure of the spathe, the authors showed that it was incapable of sustaining any great amount of pressure, as it was found, when in a fresh state, to tear lengthways with as little resistance and with as little noise as a piece of soft paper.

IV. Notes regarding some New and Rare British Mosses.

By Mr JOHN SADLER.

Mr Sadler stated that, as he had received several letters from correspondents during the last few months, containing valuable information respecting some interesting British mosses, he thought it well to bring before the Society a few extracts from these communications, in order that they might be recorded in their Proceedings.

(1.) From Mr WILLIAM WILSON, Paddington, near Warrington.

"We have near Warrington an excavation at the side of the railway whence the embankment of the railway is supplied. In the marsh thus formed has appeared, along with *Bartramia fontana*, a new and allied species *B. (Philonotis) caespitosa*, which Schimper has found in Sweden; but it seems otherwise a stranger. There are also many good mosses in this swamp not known to grow very near to it elsewhere. On the other hand, several mosses, which do grow not far off in similar situations, do not grow there; but *Bryum bimum* and *B. pallens* are there in great plenty, and in very fine state. *B. annotinum* is there also, and bears fruit.

If *Philonotis caespitosa* does not bear fruit this spring, I shall send you living plants (male and female) to be nursed up to perfection in your stoves. I think that *Hypnum elegans* may also require some such treatment. It is plentiful enough in Britain; but the fruit is very rare. The plant resembles *H. cordifolium*, and has been overlooked as a variety; but it is a dioecious moss. The bog at Wybunbury, in which it occurs sparingly in fruit, has been recently drained, and will soon be destroyed as a station for mosses."