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Equisetaceæ.

Equisetum arvense, L.—Only seen barren. Alt., Coast to 500 feet. E., Disco, Dark Head, Wilcox Point. W., Cumberland Gulf, Scott's Bay.

E. variegatum, Schleich.—Only seen barren. Alt., 100 feet. Soil granitic. W., Inland from Cape Searle.

Lycopodiaceæ.

Lycopodium annotinum, L.—Aug. Only seen once, and at an elevation of 200 feet. W., North side of Winter Harbour, Kingite, in Cumberland Gulf.

L. alpinum, L.—Coast to snow-line; seen in all parts of these regions visited by me. Common on both sides.

IV. *Remarks on Disease of the Beech.* By Mr R. G. Foggo.

The author remarked—For two or three years preceding 1858, my attention was directed to a disease which had proved fatal to some very fine specimens of beech in a gentleman's park in the county of Suffolk. The trees in question were greatly valued by the proprietor as objects of ornament, and various means were tried to effect a cure, and, if possible, to arrest the further progress of the disease, but without any beneficial result. The beech is one of the most accommodating trees as regards soil and situation, and it was evident that the disease did not arise from any peculiarity in the soil, which consisted of the sandy loam, with subsoil of chalk and gravel. In hot dry seasons the trees suffered much from drought. I mention this fact because I have seen the same form of disease among trees growing in wet, low-lying districts; and when seeking information from foresters and others interested in such matters, they have invariably attributed it to dampness of situation. The disease is caused by minute insects, and not as some have thought, by a species of fungus. The trunk of the tree is first attacked, and while some portions of it to all appearance remain in a healthy state, those which the insects infest gradually assume a dry appearance, and when closely examined, the bark will be found to separate from the wood, and become dry and lifeless. Other unfavourable influences may, of course, favour the speedy decay of the trees, but it soon becomes evident that future healthy development is arrested, and when the trees are cut down the ravages of the insects cease with the life of the bark. This is, I think, the most curious circumstance connected with the disease, and may under careful investigation go some length to make us acquainted with means to effect its destruction. While the ravages of the insects seem to be confined to patches and districts of

of the rhizome, which spreads more widely, and throws up its small tufts of upright fronds at greater intervals than *C. fragilis*. Just now (June 1862) the plants are in good condition, but the fronds seem not quite so like those of *C. alpina* as they were last year. Though this fern is evidently different from the common forms of *C. fragilis*, and in several respects approaches the so-called *C. tenuis*, in others *C. alpina*, it may perhaps prove to be only an extreme form of *C. fragilis*. But it shall be carefully watched as it grows, in order to fix its identity. At all events, in its present form, if it is not *C. alpina*, it is intermediate between that species and *C. fragilis*, and as worthy of being raised to the rank of a separate species, as many other varieties that have been so treated.

plantations, their existence is pretty widely spread throughout the country, and on trees growing under all circumstances. Attempts to effect a cure or to prevent the occurrence of the disease have, as far as I can ascertain, proved a failure. Other trees more valuable than the beech are in some places affected with a disease to all appearance similar: as, for example, the silver firs on the estate of Dunmore, near Stirling. Amongst the many plans adopted there, the only one which has succeeded to any degree is that of brushing with a *hard* brush the parts infected, when the bark was dry.

Remarks on Marsilea macropus, (the Nardoo Plant,) which had germinated in the Edinburgh Botanic Garden. By Mr JOHN SCOTT.

Sporocarps of this plant were sent to the Botanic Garden by Mr James Seales, 1 Cassels' Place, Leith, and they sprouted in a moist situation in the hothouse. The spore-fruits of the *Marsilea* consist of short legume-like capsules, containing sporangia of two kinds—antheridial and ovulary—on short receptacles arranged in a biserial manner on a mucilaginous cord. The antheridial spores consist of single cells, containing a great number of small granules, the functionary import and developmental history of which is differently explained by authors. Thus Lindley and Valentine regard them as abortive ovulary spores; while Hofmeister believes them to be the male organs of the plant, stating that each of the granules produces a number of spermatozoa. Schleiden, on the other hand, while agreeing with Hofmeister in regard to the functions they perform, maintains that they develop tubes somewhat similar to those produced, as he formerly supposed, by the pollen-grains of Phanerogams, one of which penetrates the ovulary spore, and is developed into the young plant. The ovulary spore, according to Schleiden, presents the following structure:—"A very large cell with firm walls, containing large grains of starch, mucilage, and oil. The embryo-sac is surrounded by a white coriaceous membrane, which is formed of very minute scarcely distinguishable cells. This membrane forms at one extremity a papilla, which is covered by a membrane open at the point, and called the simple coat of the bud." The spore-fruits immersed in water at a mean temperature of 65° Fahr. burst in two days, and emitted a gelatinous cord, one extremity of which was free, the other attached to the base of the fruit. This cord, through the absorption of moisture, expanded rapidly in various degrees—in one instance, under our own observation, it formed a filament two inches long by two-eighths of an inch in diameter; this, however, according to Schleiden, must be a minimum of the size it usually attains, as he states that it forms a round filament from one or two lines thick, and four to five inches long, exceeding in volume twenty or thirty times the whole fruit. It is on this cord, as formerly stated, that the receptacles bearing the antheridial and ovulary spores are arranged, the latter being confined entirely to their interior sides, the former covering the others; nevertheless, though a peculiar, they are not an exclusive, product of this part, as receptacles frequently occur void of ovulary spores, their places being then occupied by antheridial cells, and in general they are irregularly intermixed on this part with the latter—a fact which favours the conjecture of Lindley, that they are simply abortive ovulary spores. On detaching an ovulary spore from a receptacle, a small opaque papilla is observed protruding, which is the point from which germination invariably takes place. If a few of these receptacles are placed on moist soil, in a mean temperature of 65°, the papillæ are developed in a few hours into truncated conical tumours of green cellular tissue, usually a line long, covered with a delicate transparent membrane. This is called the prothallus, which is here, as in the *Lycopodiaceæ*, confluent with the spore. The development of the pro-