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listric—Burnbrae old quarry. We thus have the fern from the Wardie Shale section of the Lower Carboniferous series, and the Calderwood section of the Lower Carboniferous Limestone (Marine) series.

II. *On the Contents of the Crop of the Capercailzie (Tetrao urogallus).* By M. DUNN, the Palace Gardens, Dalkeith.

Having had an opportunity of examining the crops of several capercailzie, with reference to their destructiveness to forest trees, it has been suggested that the results of my examination might be of interest to the members of this Society, and in accordance therewith I have drawn up the following note.

In the crop of a male bird, which I examined on November 15, 1873, I found the contents to be as follows:—203 points of shoots of Scotch fir with the leading bud entire, some of the shoots being fully 3 inches long, and 2 inches wide, measured across the leaves as taken out of the crop; eleven pieces of young wood, $1\frac{1}{2}$ to $2\frac{1}{2}$ inches long, and about an inch in circumference at the thick end, each having some leaves attached but no terminal bud; and fifty-two buds: making in all the enormous number of 266 shoots and buds of Scotch fir, besides a large handful of detached single leaves of the same, devoured by one average-sized bird at a single meal. The bird weighed $11\frac{3}{4}$ lb., the crop weighing 9 oz., and measuring 6 inches in length, 5 inches in breadth, and 3 inches in depth; its circumference being 15 inches the longest way and $12\frac{1}{2}$ inches the shortest. The leaves, buds, and shoots, were all quite fresh and green, apparently selected with good taste from healthy growing trees.

I examined the crop of another rather small male bird on April 16, 1874, and found the contents to consist entirely of the young shoots, buds and leaves of larch, excepting three small bits of lichen, probably picked off the same tree. I counted five pieces of young shoots, each over an inch long, and the extraordinary number of 918 buds with or without leaves attached, and an ordinary sized teacupful of

tender young leaves. The contents in this case were very moist and sticking together in small bundles, but separated easily. All were plump, juicy, and fresh, evidently the produce of a free healthy growth. The bird weighed $9\frac{1}{2}$ lb., its crop when full weighing $7\frac{1}{2}$ oz., the weight of the contents being $6\frac{1}{2}$ ounces. Its length was $4\frac{1}{2}$ inches, breadth $2\frac{3}{4}$ inches, depth $2\frac{1}{4}$ inches, and circumference, the longest way 12 inches, the shortest way $7\frac{1}{2}$ inches.

By the above analyses of their crops, which are similar to many I have examined in the winter and spring, it will be seen that where Capercailzie are numerous they must do considerable injury to larch and Scotch fir plantations, although their food is by no means confined to the produce of those trees, as at other seasons I have examined crops which contained (besides larch and Scotch fir) various sorts of berries, such as junipers, mountain ash, or "rowans," haws, hips, brambles, cranberries, blackberries, &c., generally mixed with a few leaves of the same plants; and sometimes the leaves and buds of birch, hazel, and oak, but the latter is rare. In July and August I have found some crops filled with nothing but the young tops and bloom of heather, *Erica cinerea* and *E. Tetralix*, both species generally intermixed, neither seeming to be preferred. In birds of the first year there is generally found a large quantity of fern fronds and less of the Scotch fir, which at all times afterwards seems to form their staple food. The fern fronds are almost wholly the common Polypodium (*Polypodium vulgare*), but occasionally I have found small quantities of the male fern (*Lastrea Filix-mas*) the lady fern (*Athyrium Filix-femina*) and *Lastrea dilatata*. Barley and oats are also found in the crops of birds when got in the neighbourhood of cultivated land, but I have never found them in any quantity; and in all the specimens I have examined, young or old birds, I have never found a single morsel of spruce fir, although the bird is said to feed freely upon it in Norway.

From my own observation, and in reply to inquiries I have made of people who are in the habit of observing the capercailzie feeding in the northern forests, I believe it prefers to feed upon the healthy young "sappy" growth of vigorous trees, and they have been known to return to the

same tree day after day until they had completely denuded it of healthy young buds and points of shoots; however, I believe cases of such severe injury are rare, and, generally speaking, if the birds are not too numerous, the injury they do is trifling compared with the great pleasure and gratification of seeing such a magnificent bird again becoming common in the forests of our native country.

[Mr Dunn opened before the meeting the crop of a female capercaillie which had been shot in Perthshire the previous day. The crop was filled with the leaves and buds of the Scotch fir.]

III. Notes on *Pinus Austriaca*, &c., in Scotland. By Sir JOHN MURRAY NASMYTH, Bart.

I believe I induced the late Mr Lawson to bring to Scotland seeds of *Pinus austriaca*. I corresponded for him with Professor Hess, at Vienna, having passed some time there in 1825, and visited the district where the "Schwarzkiefer" grows. I then thought over the possibility of introducing this beautiful pine to Scotland. Being a zealous planter, I arranged with Mr Lawson to have the first crop of plants, and accordingly, in the spring of 1836-7, I planted forty Scots acres, mixing the Tyrol larch with *P. austriaca*. In the spring of 1852 nearly the whole of this young wood was burnt, in consequence of workmen smoking whilst making a road in this part of the wood. Mr Lawson, however, made a great mistake in planting the *P. austriaca* on a very high and exposed part of my hills. What remains of this wood has never succeeded well; they are mere sturdy stumpy trees, and are year by year dying out. Subsequently I planted very extensively over my woods (which average 800 to 1000 feet above the sea), as well as through the lower grounds. The result of my experience is that *P. austriaca* will never make a lofty tree in this hilly country. Even in its limited habitat (in Lower Austria, between Vienna and the Sömmerring Mountain Pass) it is always a low-growing, and never a large tree.

This tree, as is well known, is so rich in resin (called by the Germans *harz*) that its chief use in the country