

hills where they dwell. The change is mainly effected by a moult of the feathers, and not by the colour being absorbed or thrown out, as is the case to a certain extent with the Sandpipers; but on this subject, one of especial interest, Mr. Wheelwright, who has seen so much of the bird in its native haunts in Lapland, shall have his say. I will only premise that the mutations which take place in the birds of that country equally occur in those of our own.

"The change from the winter to the summer dress is a true moult, and not a change of colour. It is difficult to say what is the real summer dress of the Ptarmigan; for they appear to be in a continual state of change during the whole of that season, and to bear no one dress for any length of time; so irregular is the change that you scarcely ever see two exactly alike: on the same day in the end of July, you may kill some in the early summer dress, and others with many blue autumn feathers. Up to the 9th of July all the old males killed were brownish black on the back, speckled with lighter brown, especially on the head, breast, and sides, the darkness of the breast being much more conspicuous in some than in others; belly pure white. By the 20th the entire body had become much lighter; and by the end of the month was changing to blue-grey, but still speckled with brown, especially on the head. By the 6th of August the males had assumed a totally different dress; head still speckled with yellowish brown; back bluish grey, watered with black and white; belly pure white. This blue-watered dress becomes of a fainter grey-blue until the end of September; but the white winter feathers gradually show themselves.

"Much as the males vary in plumage, the females vary still more, and merely retain a standing dress for about three weeks in June, just when they are laying; the body is then blackish brown, every feather broadly edged with yellow, brown, and white, giving the bird a very light yellow-brown appearance; breast much lighter; belly *never* pure white as in the male, but, as well as the sides and breast, covered with black zigzag lines on a rusty yellow and white ground. By the second week in June this dress is complete, but varies so much in tint that scarcely any two birds are alike; all at once they become much darker, and by the beginning of July the female has assumed a totally different and darker costume. About the end of the month she is far more handsome than the male, her dress being brown-red variegated with blue-grey, which often on the back appears in patches. But the females vary so much in colour that a minute description of one would not apply to another. I fancy both sexes retain this blue dress longer than any other. It gradually becomes lighter as the season advances, till at length the old female is quite blue, but always with some rusty mottled yellow feathers on the sides; and about the middle of October the blue dress gives place to the pure white of winter.

"The plumage of the young in the downy state is rusty yellow, with longitudinal markings and minute spots of black; the first dress after that is black mottled with rusty yellow and white above, underneath pale rusty brown with blackish wavy lines; wings greyish brown. Early in August the body-plumage becomes greyish blue, finely streaked with black, and the pinions white instead of brown; this grey plumage gradually becomes lighter, as in the old birds, till, like them, they assume their winter livery, and by the 1st of November there is no perceptible difference between old and young birds.

"It appears, therefore, that the Swedish Ptarmigan has three distinct dresses in the course of the year, and so many intermediate changes that they appear to have a different dress for every summer month.

"The Ptarmigan may truly be said to be a child of the snow; for its real home is the higher fell tract, and in the middle of summer on their very highest snow-clad summits. In the spring they come down to the lower fells to breed, but you never find them there in the end of summer. The pairing-season appears to begin early in May, and to last a fortnight or three weeks. During this time the hoarse laughing love-call of the old male may be heard at the earliest dawn on any of the fell-tops. This is soon answered by the finer 'i-i-ack, i-i-ack' of the female, and the love-chase commences.

"Both the Ptarmigan and the Willow-grouse are strictly monogamous. Some naturalists appear to have an idea that both, when pairing, have a kind of "lek" or play, like the Capercaillie and Blackcock, both of which are polygamous; I can only say, I never saw anything of the kind. The Ptarmigans certainly have their favourite pairing-grounds on the fells, and here the birds assemble at daylight in the early spring, in small but widely scattered flocks. The old males utter their peculiar love-call, which is answered by the female, and they draw together; but, although there are several males in the neighbourhood, each one seems to have his own particular stand and his own favourite female, and if by chance another male intrudes on his ground, he drives it off."

The first Plate represents the Ptarmigan in its full winter dress; the second, both sexes with their brood as they appear at midsummer, or about a week later (the figure of the male being taken from an individual I obtained on the Dovrefjeld, which is darker than is generally the case with Scotch examples); the third, the autumn dress—the state in which the bird is seen in August, September, and October. All the figures are of the natural size.