

and claws are well adapted for running and scratching. The hen may be called a ground bird, and in common with others of like habits, usually has strong feet fitted for running or scratching.

How many toes has the hen? The first toe, which corresponds to the big toe in man, projects backward; the second is the innermost of the three projecting forward; the third and fourth follow in order. How many phalanges has each toe? Compare the arrangement of the toes with the arrangement in man.

Compare the feet of the hen with those of the turkey, partridge, duck and goose. Which of these birds are runners? The duck and goose are more at home in the water, so it is hardly fair to compare them too closely with ground birds. Note the number of toes in each. Which birds have skin stretched between the toes, and between which toes? For what are these webbed feet especially adapted? Note that the position of the legs of the duck and goose is favorable for aquatic life. As they are inserted far apart on the sides of the body they may be likened to paddles, and being well towards the posterior end they act like a propeller. This is a good arrangement for swimming but very poor for running or walking. Among other types of feet may be mentioned the strong feet with long sharp claws of birds of prey; the feet of woodpeckers for clinging to the bark of trees; the feet of perching birds for grasping a twig or perch; and the small weak feet of aerial birds, e. g. those of swallow.

In a similar way lessons may be given on the wings of birds.

Ground birds are at best poor fliers. The hen, being derived from progenitors of this general group, has through domestication become a ground bird in the strict sense of the term. She now uses her wings only as an aid in running. The turkey is but little better off in this respect.

Direct your pupils in the study of the ostrich. Note its small wings, and how they are used in running, and also its conspicuously modified wing and tail feathers. What form do these feathers take in the other birds we have studied? In the wild state, their speed is remarkable, reaching sixty miles per hour, and their single strides may measure more than twenty-five feet."

Compare the ostrich with the emu of Australia, and the rhea of South America. Among other birds with small wings may be mentioned the Penguins of the Antarctic regions. And in New Zealand we find the wingless Apteryx.

The ostrich is valued for its beautiful plumes. In South Africa, ostrich farming is an industry of considerable value. In 1904 there were over three hundred and fifty thousand tame ostriches, which yielded an annual income per head of about eighteen dollars. Ostrich farming is now successfully carried on in California, Arizona, Arkansas, North Carolina and Florida.

The bills or beaks of birds may be dealt with in a similar manner. Even our native birds supply a great variety of form and adaptation, ranging from the long slender needle shaped bill of the humming bird to the large strong hooked beak of the eagle. Illustrations of all the forms are found in good bird books. Among the many nice adaptations of nature we find the woodpecker's bill fitted to chisel into the solid wood, the crossbill's to tear the tough scales from the spruce cone, the humming bird's to suck nectar from the flower, and the hawk's to rend its prey. Look for other equally striking adaptations.

The eyes of birds deserve something more than a passing notice. Note their position on the sides of the head. How many colors are there in the hen's eye? Describe the pupil and the iris. Do hens wink as we do? Watch for the film lid, mentioned in last REVIEW. From which corner does it come?

Explain why the bird turns its head to one side when looking at an object. Can it see objects directly in front of it, and with both eyes at the same time? How does its power of sight compare with your own? Have you noticed hens or turkeys sighting a hawk or eagle? How are they warned? How do they protect themselves? You have noticed that the presence of a sparrow hawk in the grove quiets every song. Why?

There is a sharp keen struggle for existence among animals, and the fittest (not necessarily the strongest) survive. The more advanced pupils, in High School grades, should be told something about that struggle, and Darwin's estimate of its importance as a factor in evolution.