

many birds migrate at night, some high up; that the young birds going the first time can have no knowledge and experience of the route; when they leave here in September the trees are yet full of leaves and the fields not empty, whereas the landscape looks entirely different in April or May, when no leaves are out and the fields are bare, etc. Some seem to follow the coast line or the rivers, especially day migrants, but this can not explain all. The solution of the problem seems to be, that they have a *sense of direction*, and their instinct—whatever that is—seems to impel them in the right, usually for them best direction. That they must have such a sense, we can see from the Carrier or Homing Pigeon. This may be put into a box, taken aboard a train and carried on it hundreds of miles to a place where it never has been, neither can it see the physical features of the way, yet on being liberated it will find its way back with most unerring directness.

At what *height* do the birds travel during migration? A balloonist has seen an eagle soaring about at a height of 9,000 ft.—which does not say it was migrating. Some observers have seen large bands of migrants at an altitude of 5,000 ft. An experimenter with kites has seen large migrations of ducks at from 1,300 to 1,500 ft. high. Many birds are killed by flying against lighthouses no more than 100 ft. high. So, no one answer can be given to this question. Some species always, and others perhaps only when the air is heavy and foggy, fly very low, not more than perhaps 100 ft. over all trees and houses. We can hear their voices plainly at night during migration. But the bulk of it seems to be going on at a *height of from 500 to 1,500 ft.* They want to stay below the lowest clouds. That they are sometimes bewildered and driven out of their course by fog and strong winds is equally certain.

At *what rate of speed* do the birds proceed southward and northward? That this must be very variable we can see at once when we look at the wings of the warbler, thrush or rail and at those of the swallows, gulls and hawks. If we divide the distances travelled by the number of days spent in migration, we obtain a rate of from about *25 to 150 miles a day.* This does, of course, not mean, that the birds get up into the air, fly straight ahead for a day and then are only so much farther on than the day before.