

Chapter 21

Use with Section 3

ENRICHMENT

● Birds

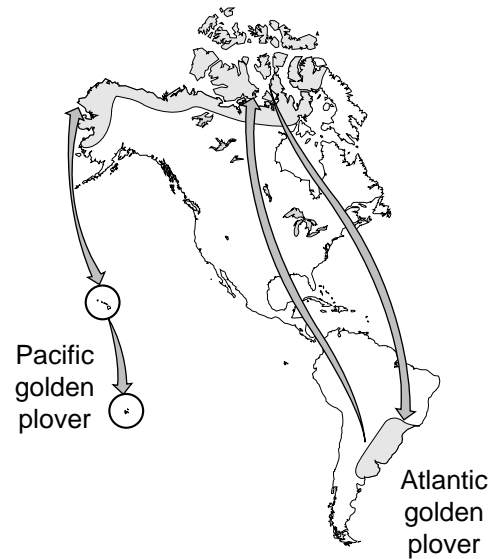
Migration of Birds

Many animals, particularly birds, have a remarkable ability to migrate over thousands of miles of land and sea. Yet we know very little about how they do this. Clearly these animals must have special mechanisms of navigation and orientation.

The Atlantic golden plover flies over 8000 miles from the northernmost part of Canada, its arctic breeding ground, to an area of the southeastern part of South America. Perhaps it is even more extraordinary that the Pacific golden plover finds its way from the Western region of Alaska to the Hawaiian and Marquesas islands—relatively small pieces of land in the vast Pacific Ocean.

After much research, scientists have determined that these birds migrate by the sun and stars. Some species of birds cannot migrate successfully in cloudy weather. However, many other species continue to migrate under clouds and through fog. This posed another problem for scientists.

After many experiments, it was confirmed that by combining information from two sources, birds can point themselves in a particular compass direction. These sources are the sun or constellation of stars, and their “internal clocks,” which are related in some way to 24-hour periods. But even this does not explain birds’ ability to migrate on a cloudy day or starless night.



There is much experimental evidence that birds can detect Earth’s magnetic field and orient themselves with it. Very little is known about how birds detect magnetism. However, bits of magnetite, a magnetic iron ore, have been found in the heads of pigeons. It is assumed at present that the magnetite is involved in some way in the pigeon’s “magnetic sense.” Indeed, scientists have upset a pigeon’s flight pattern by attaching a small magnet to the bird.

Much has been learned about navigation and orientation of birds and other animals. Yet scientists are far from understanding how birds can migrate with such accuracy for great distances year after year.

Question and Observations

1. Until fairly recently how were birds thought to orient themselves on a long, migratory flight?

2. What recent discovery helps to explain how birds can fly in a particular compass direction?

3. How does a homing (messenger) pigeon find its way from the coast of France to its cage on the roof of a London apartment house?
