Homeward Bound

What happens if someone takes a breeding Laysan albatross 3,000 miles away from its nest and releases it? It comes back within 10 days. What happens when one displaces a homing pigeon almost 1,000 miles away from its nest? It returns in a day and a half. And what happens if one removes a mourning dove from its nest and releases it a just a few miles away? It can't find its way back. Poor mourning doves—they're just not as smart as their cooing cousins. But that's another story.
What about this amazing navigational ability of some of our birds? How they accomplish it has been the subject of countless studies during the past century.

Homing behavior is not restricted to the birds, of course. Squids, lobsters, ants, bees, fishes, bats, and mice all possess a remarkable facility for finding their way home. But birds have been studied more than most critters—not surprising considering the spectacle of billions of migrating birds that happens twice every year around the world.

Numerous studies have revealed that birds employ a number of environmental cues to find their way. Visual landmarks certainly play a role. Like recreational pilots using maps to track rivers and highways, birds often follow coastlines and the shores of water bodies during migration. It's one of the reasons

that so many end up at famous
birding spots like Cape May, New
Jersey, and Point Pelee, Ontario.

Birds definitely use the sun.
Pigeons fitted with frosted contact lenses to prevent them from seeing clear images beyond 10 feet away were still able to fly over 100 miles to their lofts using the sun's position. Equally well used by nocturnal migrants are the stars. The classic experiments by Cornell University professor Stephen Emlen, who placed indigo buntings bursting with migratory restlessness in circular cages in a planetarium, clearly illustrated that the star patterns for a winter sky caused the birds to orient south and then in the opposite direction for a spring celestial pattern.

So when the daytime sky is overcast
or the night sky is filled with
clouds, how do migrating birds still
manage to maintain their orientation?
They do it by detecting the
earth's geomagnetic field using
hundreds of millions of needle shaped,
iron-containing objects
located on their anterior brain, in
their neck muscles, and around their
olfactory nerves.

Even more recent is the discovery
that patterns of polarized sky
light detected after the sun goes
down may be the ultimate directional
cue for nocturnal migrants.

The latest thoughts by migration
experts are that migratory birds
are born with a migratory direction
coded to two reference systems:
the earth's magnetic field and
celestial rotation assessed by the
stars at night and the sun by day.
In short-term flights of nocturnal
migrants, the birds would use the
magnetic system to navigate. Homing pigeons, however, likely use the
sun compass first, followed by the
magnetic compass when the sky is
overcast.

Homing Pigeon Heroes?

Pigeons have a homing
instinct that has led them to play a
significant role in a number of wars,
notably in both World Wars and the
Korean War. Tens of thousands of

pigeons lost their lives, and many
more were wounded, participating
in wars from which they obviously
had nothing to gain.

"War pigeons" were dropped
behind enemy lines in containers attached to small parachutes, to be used by resistance fighters to return critical information to the Allies. The birds were also released from mobile lofts, tanks, and aircraft to carry vital messages back to headquarters over long distances in all kinds of weather. Naturally, carrying strategic messages and/or bearing miniature spy cameras attached to the front of their breasts to photograph areas of hostile territory made the pigeons targets for enemy soldiers, who hunted them with guns and trained falcons.

Speaking of falcons, World War
II took its toll on them as well.
Peregrine falcons almost disappeared
from the British landscape
in the early 1940s.
An edict signed by Winston
Churchill himself ordered all peregrines
shot or poisoned to prevent
them from killing message-bearing
pigeons from sailors stranded at sea.
In any case, a number of homing
pigeons became feathered folk
heroes for their help during the war effort.

The migration season in central Texas is just beginning. Many birds travel thousands of miles to arrive at the exact place they spent the breeding season last year. What a miracle.
Taken in part from Bird Watcher's Digest article by David M. Bird.