

### Bird Migrations

➤ AMONG the many things that man has in common with the animals is a tendency to stay put. In some primitive human societies tribes of nomads and hunters have been known to follow the seasons in limited migrations. Some animals make similar adjustments to seasonal changes.

But the great migrations over long distances are made by birds and fishes. Both perform prodigious feats of navigation and endurance, but the more spectacular, possibly because the evidence is more readily apparent, are the seasonal comings and goings of the birds.

The lengths that birds go to to find a climate that suits their taste are simply staggering. Petrels, a kind of sea bird, nest on islands in the Antarctic region. For the winter, they fly all the way up to North America. Golden plovers raise their young on the shores of the Arctic Ocean. Before the long winter freeze sets in, they take wing for the Argentine pampas. They do not cover this tremendous distance, as you might expect, in a straight line "as the crow flies." The first leg of their journey is easterly, following the northern coastline of the continent. Not till Labrador do they

start heading south. But once pointed in the direction of their winter home, they stay on course even though this means flying over open sea for 2400 miles.

Another great traveler, probably the greatest of all, is the Arctic tern. He travels from the Arctic to the Antarctic, covering more than 20,000 miles on the round trip.

The ducks, at which thousands of Americans are blasting away from damp and chilly duck-blinds all over the country, are here for the winter from their nesting grounds in northern Canada. It is a grim commentary on the bitterness of the northern winter that the birds still prefer to risk the deadly barrage that awaits them in our milder climate.

What guides the birds on their lengthy migrations remains a mystery. The usual answer is "instinct," but that merely names the phenomenon without explaining it. There are many arguments to disprove the theory that they follow familiar landmarks. The most convincing is the fact that the last birds to leave are the young birds born that year. The older birds who have made the flight before are gone. And yet the youngsters follow the traditional flyway unerringly.

Recently the explanation has been suggested that the birds are guided by the magnetic field of the earth. This theory

has been neither proved nor disproved. It would carry more conviction if all birds flew in direct north and south lines. On the contrary, each kind of bird has its own characteristic flight path. For example, there are two kinds of palm warbler which summer in eastern and western Canada, respectively. The western type winters in the West Indies, the eastern type in the Gulf States. Their paths cross at right angles over Alabama and Georgia. It is hard to square this fact with the magnetic field theory.

Science News Letter, November 26, 1949

### NUCLEAR PHYSICS

## New Instrument to Detect Nuclear Rays Demonstrated

➤ NUCLEAR rays of atomic bomb fame can be detected with a new instrument demonstrated at the National Bureau of Standards to a group of scientists. The instrument has also many other applications.

It can be used by medical men to follow the course of isotopes injected into the human body and to record the output of vacuum phototubes and in the measurement of light intensities for ultraviolet or visible spectrum analysis.

The new instrument is a product of the Brown Instrument Division of Minneapolis-Honeywell Regulator Company and will be known as the Brown electrometer. Walter Wills of the Brown Company stated that it can measure and record the flow of current or radiation without attendants and the maximum deviation from accuracy will never be more than 0.3 millivolts in one day.

A single instrument without any alteration has a hundred variations in currents which it will measure, by means of a range-changing switch. With mercury switch mechanisms added, signal lights or alarms can be turned on, he stated, when dangerous rays are detected or electrical current becomes too high or too low.

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### Quick-Reading

## Temperature-Conversion Tables

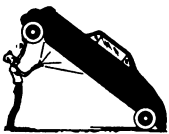
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