

SOME FACTS AND FANCIES ABOUT THE MIGRATION OF BIRDS

BY EMMET R. BLAKE
ASSOCIATE CURATOR OF BIRDS

BIRD migration is of almost universal interest to observant persons throughout the temperate areas of the world. In the United States the study of birds has attracted a host of amateur devotees from all walks of life, a fact that is reflected by the numerous popular bird guides available today and by the increasing number of local bird study clubs formed in recent decades. Many clubs are most active during the migration seasons, when organized "bird hikes" become, for a time, the chief interest of countless thousands of the faithful who gladly undergo rigorous excursions afield to observe birds in migration.

Twice each year during the spring and fall months, the Museum's ornithologists become conscious of a marked increase in the popular interest in birds. From long experience they have come to expect, usually in February, a telephone call in which an excited voice announces the arrival of the "first" robin, bluebird, or other migrant in the Chicago area. With the season's advance these calls become more frequent as enthusiastic local observers report on the progress of migration or discuss problems of identification. Similarly, in the fall, there is a resurgence of public interest in birds that is correlated with their annual southward flight.

The widespread appeal of bird migration to the human imagination is not entirely a recent development. On the contrary, the seasonal movement of birds between their summer breeding grounds and winter homes probably attracted the cave man's attention during the Pleistocene and certainly has been the subject of comment throughout much of recorded history.

BIBLE REFERENCES

Numerous references to bird migration are found in the Bible, that of Job (XXXIX, 26) being perhaps the first of the general references. One of the earliest specific migration records (Exodus, XVI, 13) concerns the sudden appearance of quails upon which the Israelites fed in the desert of Sinai, a date estimated by competent authorities as April, 1580 B.C. The biblical account indicates that approximately nine million birds may have been gathered within thirty-six hours on that occasion, a figure that will not greatly surprise present-day enthusiasts who attempt to count migratory birds at the peak of a "wave" in early spring.

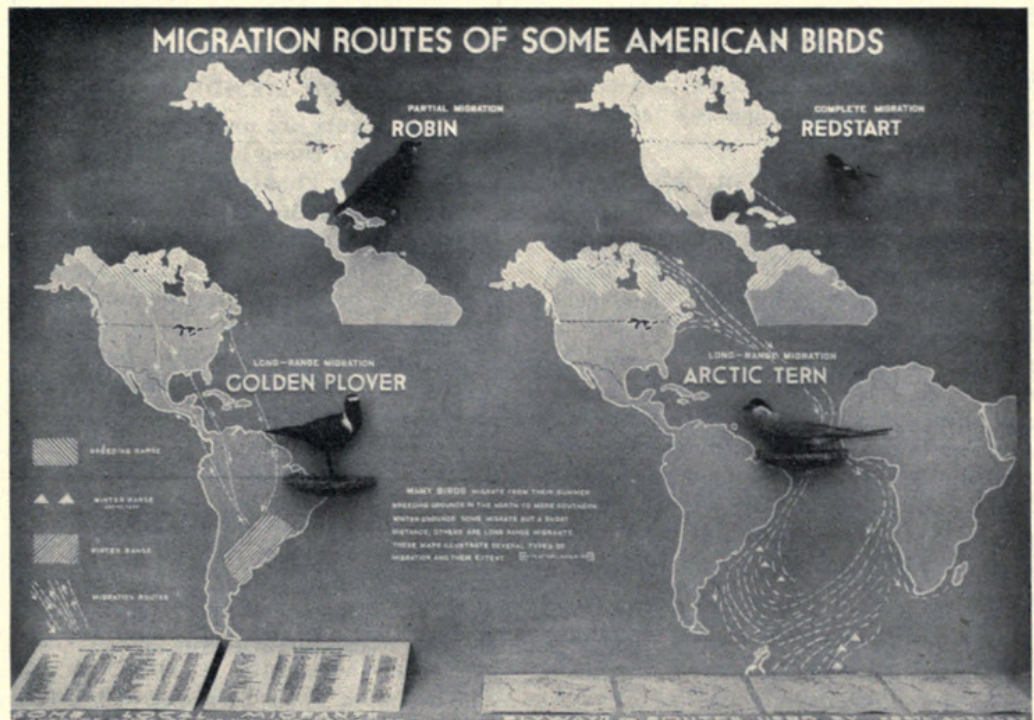
Ancient man advanced various theories to account for the sudden appearance and equally sudden disappearance of migratory birds that came to his attention. Having no knowledge of nocturnal migration, many held that swallows and various other species that normally congregate near marshes before their fall migration merely hibernate in

the mud or change into frogs each winter. Early literature contains many accounts by glib eyewitnesses in support of this theory. Other scholars of the time believed in direct transmutation, arguing that birds change from one to another with the seasons, and thus explained the arrival and departure of various species within a period of hours.

A more ingenious theory, but one less generally accepted, was that which fixed the

and winter homes are now well known. With many, even the extreme and average dates of arrival and departure in various communities are now a matter of established record.

An exhibit recently installed in Hall 21 illustrates graphically four of the principal types of migration found among North American birds. The robin's seasonal movements are an example of partial migration



AIR ROUTES AND SCHEDULES—FOR BIRDS

Exhibit illustrating graphically the principal known facts about migration

moon as the wintering quarters of migratory birds. The details of this remarkable journey were set forth in a pamphlet published in 1703 by one known to history only as "A Person of Learning and Piety." According to this anonymous raconteur, migratory birds require two months for the lunar journey and, once beyond earthly distractions, manage to sleep while in full flight. Until relatively recent times no one imagined that small birds are capable of extended flight, and so was born the general belief that the smaller species are transported on the backs of the larger, like Aeneas' father! Occasionally, even today, this theory is accepted by the credulous.

ROUTES HAVE BEEN TRACED

The phenomenon of bird migration has undergone close scientific scrutiny in recent decades and much of its mystery has disappeared. Largely through the "banding" activities of the Fish and Wildlife Service, supplemented by the co-operation of amateur observers throughout the country, the routes followed by most North American species in migrating between their summer

duplicated by many other species that breed principally in the north and winter in the southern states. With these, the summer and winter ranges overlap somewhat. A few individuals sometimes remain in the breeding area throughout the year, and these account for many observations reported as "first" arrivals.

Redstarts illustrate a second type of migration pattern (complete migration) that is also very common among North American birds. Most species of this category breed in the far north and journey southward annually to the West Indies, Mexico, or beyond. Golden plovers and Arctic terns, also featured in the exhibit, are even better examples of birds that perform complete migrations requiring journeys of several thousand miles twice each year. The latter is perhaps the champion long-range migrant of all, for it breeds principally within the Arctic Circle and must travel as much as 10,000 miles to reach its winter home in the Antarctic. Also included in the exhibit are maps illustrating the principal waterfowl "flyways" of North America and charts

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SCIENCE AND TRAVEL LECTURES, SATURDAY AFTERNOONS, MARCH AND APRIL

The annual Spring Course of free illustrated lectures for adults will be given in the James Simpson Theatre of the Museum on Saturday afternoons during March and April. There are nine lectures, and all begin at 2:30 P.M.

Color motion pictures will accompany all but one of the lectures. Limited accommodations make it necessary to restrict the lectures to adults. Members of the Museum are entitled to reserved seats on application. For children, free motion pictures will be presented on the mornings of the same Saturdays by the Raymond Foundation.

Following are the dates, subjects, and lecturers:

March 5—ALASKAN HOLIDAY

C. J. Albrecht

Mr. Albrecht will tell the story of the Mr. and Mrs. William S. Street Zoological Expedition to the Alaska peninsula to collect a new group of Kodiak bears for Chicago Natural History Museum. The films, made by Mr. Albrecht, who was formerly a member of the Museum staff, show the scenery en route to Mother Goose Lake and such animals in their native habitats as polar bears, walruses, fur seals, moose, caribou, beavers, otters, and myriads of birds. Kodiak bears, the world's biggest species, were photographed, at close range, fishing, and there is a sequence showing a salmon run.

March 12—BROWN PEOPLES OF THE BLUE PACIFIC

Robert E. Ritzenthaler

This is the story, in colorful films and narrative, of an expedition to the Micronesian area of the South Pacific. Features of the films are the people of Yap, with their famous stone money, and village life in the islands of Palau, scene of much action in the recent war. Mr. Ritzenthaler is assistant curator of anthropology at the Milwaukee Public Museum.

March 19—CAJUN COUNTRY

Alfred M. Bailey

"Cajun Country" is an all-color film showing the beauties of the moss-hung live-oak country of southern Louisiana, the land of Evangeline, where the Acadians, banished from Nova Scotia, have made their thriving communities. It is a pictorial story of the bayous and marshes teeming with wildlife. Hordes of geese, the nesting communities of marsh- and island-dwelling birds, alligator hunting, and the life of the Acadians of this romantic southland are shown, all filmed by a naturalist-photographer. Dr. Bailey, formerly a member of the staff of this Museum, is now Director of the Colorado Museum of Natural History in Denver.

March 26—CARAVAN TO TIBET

Nicol Smith

Mr. Smith was in Tibet shortly before the

Dalai Lama sealed the border against all foreigners in December, 1947. He was the last American to leave the country, bringing a full pictorial record of the western section of that exotic land. His color films and lecture are the record of the search for the

RESERVED SEATS FOR MEMBERS

No tickets are necessary for admission to these lectures. A section of the Theatre is reserved for Members of the Museum, each of whom is entitled to two reserved seats. Requests for these seats should be made in advance by telephone (Wabash 2-9410) or in writing, and seats will be held in the Member's name until 2:30 o'clock on the lecture day.

"real-life Shangri-La"—the fabulous Valley of Hemis. The film shows the long and arduous journey through the lofty mountains, over jagged and narrow rock passes, and the arrival finally in the hidden Valley of Hemis where exotic religious rites and dances before a thousand-year-old golden Buddha were performed.

April 2—COCONUTS AND CORAL

Alexander Spoehr

The native peoples of Micronesia, their past cultures, and their present problems are presented by Dr. Spoehr, who is the Museum's Curator of Oceanic Ethnology. He portrays in detail the life of the Marshall Islanders, among whom he lived as an anthropologist studying their ways of life.

Note: Mr. James B. Pond was originally scheduled to lecture on "Jamaica, Island of Contrasts," on this date, and is so announced in many posters and circulars printed early, including that enclosed with this BULLETIN. Because of serious illness, Mr. Pond was forced to cancel his engagement, and Dr. Spoehr is taking his place.

April 9—A MULTITUDE OF LIVING THINGS

Lorus J. Milne

Dr. Milne and his wife, Margery, are well known for their recent book appearing under the same title as this lecture. The Milnes' color film is a record of adventures in natural science from Florida to Puget Sound. It is principally a series of intimate studies of small mammals, birds, crustaceans, and other creatures, not impressive for their size but fully as interesting as the largest

big game animals. Presented are fascinating close-up views of the insect life revealed when a log is turned over, the queer denizens of sun-baked desert sands, the life of toads, crabs and spiders—the population of all out-of-doors—woods, mountains, and sea coasts.

April 16—JOURNEY TO JAPAN

Telford H. Work

For many years before the war, Japanese authorities prevented the making of photographs in Japan and its possessions. Dr. Work's film is rare in being one of the few color-picture documents made in Japan since modern color photography has been perfected. The pictures and narrative start with an air trip to Hawaii, the Marshall Islands, and Guam. Then there is a voyage aboard a Navy oil tanker to Japan. There the life of people in cities and rural areas is recorded as well as hundreds of scenic features, including the "Sacred Mountain," snow-capped Fujiyama.

April 23—A NATURALIST IN CHANGING NEW ZEALAND

Robert Cushman Murphy

Dr. Murphy, who is chairman of the Department of Birds at the American Museum of Natural History in New York, presents in his lecture and films the story of an expedition to collect both fossil and modern birds. The collection he obtained is regarded as one of the most significant in recent paleontological history.

April 30—ANTARCTIC ADVENTURE

Commander Finn Ronne

In 1947-48, Commander Ronne led a party of twenty-two scientists and fellow-explorers aboard a former Navy tug on a 7,000-mile journey to Palmerland, Antarctica. They took with them three airplanes for use in geographic exploration and aerial mapping. This lecture and color film is the record of the expedition. The principal studies undertaken were in connection with weather phenomena, geological formations, terrestrial magnetism, tidal readings, seismograph recordings, and cartography. Commander Ronne flew 39,000 miles on mapping missions through air so pure that a pilot could see 200 miles ahead. The expedition discovered 250,000 square miles of hitherto unknown territory. Commander Ronne's wife, Edith, was a member of the expedition and the new-found land was named in honor of her. For eighteen months in the polar area the expedition carried, among other things, 6,500 pounds of filet mignon!

It has taken 55 years to collect the material in the Museum's exhibits. Don't try to see it all in a day. Come repeatedly, and avoid fatigue by limiting yourself to an hour or two on each visit.

BIRD-OF-PARADISE FLOWER

By THEODOR JUST

CHIEF CURATOR, DEPARTMENT OF BOTANY

One of the most conspicuous flowers often seen in greenhouses or in florists' shops is a native of the coastal region of South Africa, variously known as queen's bird-of-paradise flower, bird's-tongue flower, queen-plant, crane flower, or as geel pisang in the Boer language. Introduced in 1773 at Kew in England by Sir Joseph Banks, this plant was named *Strelitzia reginae* in honor of Queen Charlotte Sophia, wife of England's King George III and daughter of the Prince of



MEMBER OF BANANA FAMILY

The bird-of-paradise flower (*Strelitzia reginae*) is a native of South Africa. The Museum exhibit pictured above was reproduced from nature by Curator of Exhibits Emil Sella from specimens presented by Garfield Park Conservatory.

Mecklenburg-Strelitz. It is justly regarded as one of the most beautiful members of the banana family (Musaceae).

This plant is on display in Martin A. and Carrie Ryerson Hall (Plant Life—Hall 29) in the case showing members of the banana family. The Museum exhibit was modeled by Curator of Exhibits Emil Sella after a living specimen received from Garfield Park Conservatory.

The striking irregular flowers and large banana-like leaves give this trunkless plant its exotic appearance. The flowers are borne near the top of the flower-stalk, which normally is as long as the petiole and about 3 feet high. At first completely surrounded by the green, boat-shaped bract, the flowers emerge one by one as older flowers die off. Their orange-yellow sepals are lance-shaped, 3 to 4 inches long, and stand in marked contrast to the three dark-blue petals. The latter are unequal; the median (odd) one is shorter, dome-shaped, and covers the entrance to the honey, while the paired ones are so closely placed that they overlap and appear to be halves of a single arrowhead-like organ (the "tongue"). The stamens lie in the groove formed by these petals, whereas the deeply cleft style usually projects in front of them. The "tongue," stamens, and stigma are composed of slightly hardened tissues and are rather stiff.

Like its nearest relatives, the banana

and the traveler's tree, *Strelitzia* is bird-pollinated. Certain sun-birds (*Nectarinia afra*), the African equivalents of the American hummingbirds, have breasts colored like *Strelitzia* flowers. When visiting these flowers the birds first touch the exposed stigma, then come to rest on the "tongue" (functioning as a "landing platform"), and, by walking on its flanges, separate them and thereby release the stamens. As a result, their breasts are dusted with pollen as they bend down to reach the honey buried under the dome-shaped petal. Apparently a single visit is sufficient to effect pollination. Although bees and other insects frequently suck the gummy juice exuding from the bract, they are more likely to be eaten by birds than to bring about pollination in *Strelitzia*, but they may do so in the banana. The peculiar floral structure, the presence in its flowers of complementary colors, which are supposedly best suited to bird vision, the large amount of honey present, and the fact that one visit by a bird ensures pollination substantiate the claim that *Strelitzia* possesses the most advanced type of pollination by birds.

BIRD MIGRATION—

(Continued from page 3)

listing the average dates of arrival and departure in the Chicago area of one hundred common migratory birds.

TRAVEL HAS HAZARDS

Some of the mystery formerly associated with bird migration has been swept away by the work of competent observers stationed throughout the world. From their reports we now know that migration occurs at night as well as by day, although many species prefer one period or the other. Civilization has considerably increased the normal hazards encountered by night migrants. Tall buildings, factory chimneys, and particularly lighthouses take a heavy toll of low-flying birds annually, a circumstance that was widely publicized last autumn when hundreds of small song birds flew to their death against the skyscrapers of Rockefeller Center in New York. Similarly, as many as seven hundred migratory birds have been destroyed by striking the Statue of Liberty in a single month and, in former years, a single night's mortality caused by the Washington Monument sometimes exceeded one hundred birds.

Contrary to popular opinion, birds are unable to foretell adverse weather. Migrants not infrequently continue northward or delay their departure for more clement areas regardless of conditions that may lead to their destruction. Occasionally a species is so decimated by catastrophic weather conditions encountered during migration that its status over a large area may be affected for several years thereafter. In March, 1907, approximately 750,000 Lapland long-

STAFF NOTES

Mr. Karl P. Schmidt, Chief Curator of Zoology, has been elected a corresponding member of the Zoological Society of London. ... For "unusual and outstanding work in the field of botany and conservation," Dr. Julian A. Steyermark, Associate Curator of the Herbarium, has been elected to honorary membership in the Friends of Our Native Landscape.

spurs lay dead on the ice of two small Minnesota lakes, the victims of unexpected inclement weather. At the same time, lesser concentrations of frozen birds were reported over an area covering 1,500 square miles. In October of the previous year a sudden drop of temperature destroyed countless thousands of small migrants on Lake Huron, as many as 5,000 bodies to the mile being found along the shoreline. Similar catastrophes periodically have befallen migratory woodcocks, bluebirds, purple martins, and many others.

FLIGHT SPEEDS

The altitude above sea level at which birds migrate and their speed of flight have long been subjects of controversy. In recent years much has been learned about both by the use of telescopes and theodolites and from observations made by aviators. Birds have been recorded at 29,000 feet above sea level, but it is now known that the vast majority migrate well below altitudes of 5,000 feet. Migratory speed generally is moderate, being considerably below the rate that may be achieved by the species for short distances. Small birds average only 23 miles a day initially in passing up the Mississippi Valley in spring, but may travel 200 miles a day during the latter part of their journey. On the other hand, many large birds normally fly several hundred miles each day during migration.

Much less is known with certainty of the origin and evolution of bird migration. Various theories have been propounded, some naively simple and others very involved, but even today there is no general agreement among those who seek an absolute answer. It seems certain, however, that a phenomenon of such complexity had no single origin but developed through the interactions of numerous factors.

The new case was designed by the Division of Birds and prepared by Miss Norma Lockwood, Staff Illustrator, and Mr. Kenneth Woehlek, Assistant Taxidermist.

Visiting Hours Change March 1

Beginning March 1, spring visiting hours, 9 A.M. to 5 P.M., will replace the winter schedule of 9 to 4. The new hours will continue in effect until April 30.



Reynoso, Alvaro. 1949. "Some Facts and Fancies About the Migration of Birds." *Bulletin* 20(3), 3–5.

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