

AUTUMNAL MIGRANTS ON THE CAMPECHE BANK

BY RAYMOND A. PAYNTER, JR.

INTRODUCTION

EXTENDING for approximately 400 miles along the western and northern coasts of the Yucatán Peninsula is a vast area of shoals and islets known as the Campeche Bank. Within the bank there are but four groups of small islands which are sufficiently above the sea to support a permanent terrestrial flora and fauna. These groups are known as Cayos Arcas ($20^{\circ} 13' N.$, $91^{\circ} 58' W.$), Arrecifes Triángulos ($20^{\circ} 58' N.$, $92^{\circ} 20' W.$), Cayo Arenas ($22^{\circ} 07' N.$, $91^{\circ} 24' W.$), and Arrecife Alacrán ($22^{\circ} 23' N.$, $89^{\circ} 40' W.$). All lie between 80 and 100 miles from the mainland and, because of their extreme isolation and the dangerous nature of the surrounding water, are visited only by an occasional fisherman and the ship which supplies the lighthouse keepers seven or eight times each year.

The only publications relating to the avifauna of this area appear to be those of Dampier (1700), Marion (1884), Ward (1887), and Kennedy (1917). The first three merely mention the resident avifauna of the Triángulos and Alacrán in passing; the last is concerned with a brief visit to Arrecife Alacrán in May, 1912, during the nesting season of the numerous seabirds. Goldman (1951) collected on both Cayos Arcas and Arrecifes Triángulos in June, 1900, but his ornithological observations have never been published, although his specimens have been used in taxonomic and faunal works.

After several years of negotiation in an attempt to arrange for transportation to these islands, I had the good fortune to secure the assistance of American Vice-Consul Abraham Katz, of Mérida, Yucatán. Mr. Katz obtained the generous coöperation of Captain Aaron Rodriguez V., captain of the port of Progreso, Yucatán, who permitted me to accompany the government-chartered ship, the "Oscar Coldwell," on one of its regular visits to supply the lighthouses.

Although my primary objective in visiting the islands was to observe the resident avifauna, which consists solely of seabirds, it was discovered that migrants were present in abundance. This provided an unusual opportunity to obtain information bearing on the problem of migration across the Gulf of Mexico, which in the past few years has become a controversial topic with Lowery (1945, 1946, 1951) taking the stand that spring trans-Gulf migration is of regular and normal occurrence, while Williams (1945, 1947) holds that it occurs irregularly and accidentally. Autumnal trans-Gulf migration has not been con-

sidered so thoroughly, but its existence is less disputed with even Williams admitting (1947: 218), ". . . I have long known that some birds (especially young ones) cross the Gulf in autumn."

In this paper, I wish to treat of my observations of autumnal migrants, reserving an account of the resident birds for a general study of the avifauna of the Yucatán Peninsula, now in preparation.

OBSERVATIONS

On the afternoon of August 27, 1952, in company with Mr. John C. Pallister, of the Department of Insects and Spiders of the American Museum of Natural History, and Andrés Beeza, my local collector, we sailed from the port of Chicxulub, Yucatán. At 6:30 that evening, while about 3 miles from the coast and slightly west of Sisal, Yucatán, the first of the migrants was sighted. It was a medium-sized bird, flying a few feet above the water, which came from due north and was headed for the mainland.

The ship followed the coast of Campeche during part of the night and then turned abruptly to the west toward Cayos Arcas, arriving within sight of the islands at noon. Unfortunately, with only the aid of a compass, navigation was conducted by dead reckoning, and it is not possible to state with accuracy the position of the boat at any given time while at sea.

Beginning at 7:00 a.m. on August 28, with no land visible, the sea was carefully scrutinized for birds. Other than for a period between 11:30 and 11:50, when I was having lunch, observations continued until we entered the harbor at Cayos Arcas at 1:30 p. m. During the six hours of observation, 75 migrants were seen. None was seen before 8:10, 54 birds had passed by 9:45, and 70 by noon. The wind was from the south, rather brisk, and all the birds came from due north and headed directly south, flying between 2 and 20 feet above the water, with the majority not higher than 10 feet. Six birds were observed singly, while 37 came in groups of two to six birds and the remaining in flocks containing 9, 10, and 13 birds respectively.

Because the birds were flying close to the water, it was difficult to see them before they were quite near to the ship. This, coupled with the fact that the ship lurched violently, made careful observation with binoculars impossible; but one Prothonotary Warbler, seven Hooded Warblers, and two Barn Swallows were identified without question. Water-thrushes, Summer Tanagers, and Baltimore Orioles were questionably identified, and the fact that they were later seen on the islands lends support to the identification. The remaining birds were small, probably warblers, or possibly Bank Swallows.

The two Barn Swallows followed the ship, often alighting on the ropes, from 11:00 until we were within 2 miles of the islands, when they flew off in that direction. Four small birds passed in a flock at 1:07, when the islands were in clear view, but they made no attempt to deviate from their path and flew past them.

We landed on Cayos Arcas at 2:30 in the afternoon and worked there until the following evening, spending the entire time on the largest of the three cays, which is roughly 1200 yards in length and 400 yards in width. The island is, for the most part, covered with low fleshy plants, the only vegetation of any stature being a few coconut palms (*Cocos nucifera*), Australian pines (*Casuarina* sp.), and sea grapes (*Coccolobis* sp.), which grow near the lighthouse and its outbuildings. Migrants swarmed around these few trees and bushes and were found in lesser numbers in the clumps of sea lavender (*Limonium* sp.) which are scattered over the island.

A list of the 25 migratory species observed is given in table 1. Because of the dense concentration of birds, it was impossible to count the more numerous species with any degree of accuracy. Those figures in table 1 which are followed by the sign "±" represent very conservative estimates of the numbers present and are more useful as indications of the order of magnitude. On Arrecifes Triángulos and Cayo Arenas, two very small islands, the populations were smaller and more dispersed, and the counts probably represent a fairly accurate census.

Some indication of the density of the population may be obtained from the following calculations. The clump of sea grapes occupied an area of about 300 square yards and, with the exception of the swallows and martins, at least 90 per cent of the passerine birds were in those shrubs. Therefore, as a conservative estimate, roughly 350 birds were in the area, or slightly more than one per square yard. The actual concentration was even greater because there is no natural source of fresh water on the island and the birds clustered around a pan of water placed under the bushes for the chickens kept by the inhabitants. It was not unusual to see 10 warblers drinking simultaneously from the pan, with dozens waiting in the branches above.

The lighthouse keepers claimed that each year migrants arrive in great numbers but all die within a short time of their arrival because of the lack of water and food. A few birds were found dead, and many were in poor condition with their wings spread and bills open, obviously suffering from the intense heat made worse by patches of glaring white sand. However, I believe that many of the birds live to reach the mainland since houseflies (*Musca* sp.) abounded in the

vicinity of the buildings and were present in clouds inside the buildings. Without fear of exaggeration, it may be said that the floors of the houses were black with flies. Neither Mr. Pallister nor I had ever seen the equal. Hooded and Yellow-throated warblers readily entered the buildings to feed, and as we sat outside on the stairs many species pursued flies fearlessly in the sand at our feet.

The heavy mortality noticed by the keepers probably occurs among the swallows and martins, which flew incessantly over the island, although no flying insects were noted a short distance from the buildings. All swallows and martins collected had empty stomachs and none had even a trace of fat. Without doubt, few of these birds leave Cayos Arcas, but those birds feeding on the flies may well reach the mainland after spending a short time on the island. The lack of birds noticed by the inhabitants later in the season is probably due to a combination of mortality and of a renewed migration to the mainland.

Among the migrants observed and collected there are several of more than usual interest. The Bank Swallow has never been recorded from the mainland of the Yucatán Peninsula and only once from Cozumel Island, Quintana Roo (Salvin, 1888: 257). The Western Sandpiper is another species which has been recorded only on Cozumel (Salvin, 1889: 379). The Golden-winged Warbler has been observed on a few occasions in other parts of Mexico but never on the Yucatán Peninsula.

We left Cayos Arcas in the early evening of August 29 and arrived within sight of the lighthouse on Arrecifes Triángulos about 6:30 the following morning. Unfortunately, this schedule afforded little opportunity to observe migrants over the open sea while en route, but at 6:40 a Barn Swallow came aboard and shortly after, a Green Heron circled the ship several times, then flew to the island. Neither bird was seen to arrive, and therefore the direction from which they came is unknown.

The Arrecifes Triángulos contain three isolated small reefs, one to the east, one to the west, and one to the south. The lighthouse is situated on the western reef, Triángulo Oeste. The cay is about 700 yards long and 200 yards wide and composed of masses of broken coral and a little sand. The only vegetation is sea lavender which grows in a small strip.

A landing was made on Triángulo Oeste at 8:15. The broken coral was hot and bright, and most of the birds were found near the house where there was a little shade and a few flies. There were several dead migrants beneath the light, and the living birds appeared weakened and hungry. Insects were almost entirely wanting except

for a few grasshoppers. As Mr. Pallister disturbed the grasshoppers during his collecting, a Barn Swallow followed him and quickly devoured any it could catch.

We sailed for Cayo Arenas at 1:00 p. m. but saw no migrants until 6:30 p.m., when a Barn Swallow was noticed circling the ship a few times. It was not seen to leave and the direction in which it headed is not known.

The light on Cayo Arenas was sighted during the night, but we were forced to lie off-shore until dawn because of the dangerous reefs. At 5:50 a. m. a small bird was seen and three more during the next 15 minutes. All were flying south into a strong southeasterly wind.

At 7:00 a. m. on the 31st we landed on the cay which is roughly circular with a radius of approximately 300 yards. One-third of the island is composed of sand, while the remainder is of coarse broken coral. There are two large patches of cactus (*Opuntia* sp.) and scattered clumps of sea lavender which together cover only one-fifth of the island.

As on Triángulo Oeste, the few migrants present were concentrated near the buildings. During the morning three Green Herons in a flock and a single Eastern Kingbird were seen to approach from the north and land on the island.

In the early afternoon we left the harbor of Cayo Arenas. A Barn Swallow which followed the boat for a few minutes late in the afternoon was the only migrant observed until the following morning, when between 6:00 and 8:00 a. m., 10 small birds were seen. It was possible to identify one Water-thrush and three martins. All of the birds were headed due south with a strong southeasterly wind impeding their flight. The trees on Isla Pérez, of the Alacrán group, could be seen by 9:00 when a Parula Warbler came aboard to rest for a few minutes.

Arrecife Alacrán is a large elliptical reef about 17 miles long and half as wide at its greatest breadth. There are five small islands located on its western and southern sides. Isla Pérez, the largest, is one-half mile long and 200 yards wide, situated at the southern end of the reef. It is covered fairly thickly with low bushes; a line of Australian pines runs the length of the island. The lighthouse with its associated buildings is in the center of the island. A few miles to the southeast of Isla Pérez are two very small grass-covered cays known as Isla Pájaros and Isla Chica. Three miles to the northwest of Isla Pérez is Isla Desertora, another small cay. Approximately 3 miles from the northern end of the reef is Isla Desterrada, second in size to Isla Pérez in the group. It is roughly 400 yards in length, half as wide, and with a scant covering of sea lavender.

We remained at Arrecife Alacrán from mid-morning of September 1 until mid-morning of the third, spending most of the time on Isla Pérez. Short trips were made to Islas Pájaros and Desterrada where the only migrants were a few Barn Swallows and Ruddy Turnstones, plus a single Wood Pewee on the former island. Isla Chica and Isla Desertora were approached closely in a boat and found to be devoid of migrants.

Although there is more vegetation on Isla Pérez than on any of the other islands on the Campeche Bank, the migrants were not so abundant as on Cayos Arcas. Insects were only slightly more common than on Triángulo Oeste and Cayo Arenas, and fresh water again was not present. Several species not found on the other islands were recorded, and the Cerulean Warbler was collected, apparently representing the first record of this species from the Yucatán area since it was collected by Schott at Mérida over 80 years ago (Lawrence, 1869: 200).

We arrived at Chicxulub early in the evening of the third, but during the entire 80-mile trip from Isla Pérez the only migrant seen was a single Barn Swallow about one hour after we had left the island.

DISCUSSION

The number of migrants observed at sea and the times when they were seen offer material for interesting speculation. It is unfortunate that travel between the islands could not have been during the same hours each day, thereby providing a greater degree of uniformity in the periods of observations, but controlled observations were, of course, impossible. Nevertheless, it will be noted that more migrants were observed in the mornings than in the afternoons and the one full morning of observations showed a peak movement between 8:00 and 10:00 a. m. This would seem to indicate that most of the birds left land at more or less the same hour, but to determine the hour with any degree of accuracy is impossible with the data at hand.

Although it may be imprudent, it is still of interest to speculate a bit. Considering the migrants observed on August 28 while we were en route to Cayos Arcas, it will be seen that if their direction of flight remained constant from the time of their departure from land until they were sighted from the ship, the nearest land from which they could have come is the coast of Louisiana, a distance of roughly 650 miles. Small birds are usually considered nocturnal migrants. If, however, the birds began their flight at dusk on the Louisiana coast, only approximately 12 hours were available for them to make the flight of 650 miles. This would require a flight-speed of over 50 miles

per hour which seems an excessive requirement, especially in view of the fact that for at least part of the time they were flying into a brisk wind.

It may be argued that the flight did not begin on the coast of Louisiana but elsewhere along the Gulf Coast. However, the only manner by which the distance from land to the observation point could be shortened sufficiently to permit a significantly lower flight-speed would be to assume that the birds departed from the coast of Mexico somewhere in the State of Veracruz. This would involve the spurious assumption that the birds flew due east from Veracruz and then turned at a right angle in order to approach the ship from due north.

An alternative assumption, which better fits the few data available, is that the birds observed began their migration across the water during the day and may have been in flight as long as 24 hours. Individual variations in flight-speed and the time of departure would account for the scattered observations during the entire day. Undoubtedly migrants passed during the night but were not observed.

The observations made during the morning of August 28 provide material for estimating the number of migrants which may have been passing over a considerable area of the Gulf at the same time. It will be noted that the ship was traveling on an east-to-west course, or, in other words, directly across the path of migration.

During the entire period of observation I was seated amidship on the starboard (north) side which permitted a clear view in an arc from east to west. The area was scanned for migrants, and when one was sighted binoculars were used in an attempt to identify it. It is doubtful whether these small migrants could have been seen with the unaided eye for more than an eighth of a mile, which would mean that a total of one-quarter of a mile across the path of migration could be kept under observation. An eighth of a mile may appear to be a very short distance for observing birds in an unobstructed field, but it should be recalled that the birds were flying close to the water. From the deck of even a small ship, low flying objects are seen below the horizon, *i. e.*, against the water, while still a considerable distance from the observer and are difficult to see. This, of course, is the principle employed by airplanes in attacking warships.

The peak of the flight occurred from 8:10 to 9:45, a period of 95 minutes, during which time 54 migrants passed. It was difficult to ascertain the speed of the ship during this time, but the captain, a man of considerable experience with his ship, estimated that we were traveling at approximately 7 statute miles per hour. This would

mean that in 95 minutes we covered 11 miles across the migration path. There is no reason to believe that within these 11 miles at sea we were passing through any strict flight-line or that we would not have seen 54 birds if we had been standing still. Therefore, for the sake of simplicity, it is possible to consider the 54 migrants as having passed an east-to-west line one-quarter of a mile in length. Expressed differently, migrants crossed at the rate of one every $1\frac{3}{4}$ minutes, or 34.21 birds per hour. Projecting this in terms of the numbers crossing a line one mile long, it would be nearly 137 birds per hour.

It is unknown over how wide an area these migrants were passing on the morning of the 28th, but since on succeeding days migrants were observed the entire distance from Cayos Arcas to Arrecife Alacrán, a distance of somewhat more than 200 miles, it appears warranted to assume that they were probably crossing at least a 200-mile stretch of the Gulf. Flight-lines are assumed to be lacking over open water, and therefore it is more than likely that migrants were rather evenly distributed along the entire line. Even if these assumptions are only approximate, it would mean that at the height of the flight on August 28 more than 27,000 migrants per hour passed between Cayos Arcas and Arrecife Alacrán. Going one step further, if migrants cross in direct lines, landing on the entire Gulf coast of the Yucatán Peninsula, which is about 500 miles in length, an estimated 68,000 birds reached the shore during each hour of the peak period.

If the fall migration pattern which was observed during the entire trip is the normal one, probably about one-half of the migrants pass during a two-hour period with the remainder scattered throughout the day. (Nocturnal migrations over the open Gulf must be neglected because of the lack of observations.) This would mean that over 137,000 birds arrive on the Peninsula in each daylight period. It is unknown how long the migration period is, but it must last at least a month. If flights of the same order of magnitude as those observed occur during only 10 days of the period, there would be a minimum autumnal migration of 1,370,000 birds.

Although highly speculative, these estimates do not appear unreasonable and are undoubtedly very conservative. Nevertheless, they do provide a basis for future studies and are presented with the hope of stimulating discussion and research in an already highly provocative phase of ornithology.

To this point, the stand has been taken that autumnal trans-Gulf migration is a regular and normal event, but what is the evidence leading to this belief?

The one irrefutable fact that is evident from these recent observations is that the migrants over the open sea and on the islands either were performing, or had performed, a trans-Gulf migration. Whether or not this was a normal phenomenon may be debatable, although all the evidence seems to indicate the affirmative.

The occurrence of non-pelagic birds over the open Gulf of Mexico in the autumn has long been known (see Lowery, 1946, for a full list of records to that date; also Paynter, 1951, for several later records). The lighthouse keepers on all the islands visited by me had witnessed these migrations annually and did not consider the 1952 season in any manner extraordinary. However, the mere fact that there are many observations of this phenomenon does not in itself testify to its normality, but coupled with other data a strong argument is created favoring the hypothesis that migration across the Gulf is a normal route for many species in the autumn. Spring trans-Gulf migration is another matter and will not be considered here.

During the period of observations on the Campeche Bank there were no marked meteorological changes along the Gulf Coast of the United States which may be said to have "forced" coastal migrants out to sea—an argument frequently used to contest the normality of spring trans-Gulf migration. There was a rainy area in the middle of the Gulf on August 26, but as it did not originate on the coast it could hardly have influenced the migrants before they left the mainland. An occluded front moved down to the coast in early September, and a hurricane swept along the east coast of Florida in late August, but these disturbances were either too late or too distant to have influenced the birds observed in migration.

Further arguments in favor of the normality of the migration may be found in the fact that very few of the birds circled or settled on the ship, which may be interpreted as an indication they were not exhausted waifs searching aimlessly for a resting place. Also, the consistency of the direction of the flight along the entire 200 miles of the Campeche Bank which was visited appears indicative of a normal migration. If the birds had been forced out to sea, a disturbance at least 200 miles in breadth would have been necessary to produce such a pattern.

Therefore, there seems little reason to doubt that the autumnal trans-Gulf migration observed on the Campeche Bank is a normal and yearly event. While data are not abundant enough for us to more than speculate on the magnitude of this migration, they do indicate that it is far more than a casual affair and fully warrants additional research.

TABLE 1
AUTUMNAL MIGRANTS ON THE ISLANDS OF THE CAMPECHE BANK

<i>Species</i>	<i>Arcas</i>	<i>Triángulo</i>	<i>Arenas</i>	<i>Alacrán</i>
American Egret (<i>Casmerodius albus</i>)	1			
Snowy Egret (<i>Leucophoyx thula</i>)		1		
Green Heron (<i>Bulorides virescens</i>)		2	4	10 ±
Yellow-crowned Night Heron (<i>Nyctanassa violacea</i>)				1
Black-bellied Plover (<i>Squatarola squatarola</i>)				5
Ruddy Turnstone (<i>Arenaria interpres</i>)			10	50 ±
Spotted Sandpiper (<i>Actitis macularia</i>)	2	2		
Western Sandpiper (<i>Ereunetes mauri</i>)	5			
Sanderling (<i>Crocethia alba</i>)	2			5
Yellow-billed Cuckoo (<i>Coccyzus americanus</i>)	1			1
Belted Kingfisher (<i>Megaceryle alcyon</i>)		1		1
Eastern Kingbird (<i>Tyrannus tyrannus</i>)	2	1	1	15 ±
Least Flycatcher (<i>Empidonax minimus</i>)	10 ±			
Wood Pewee (<i>Contopus virens</i>)	10 ±*	3		15 ±*
Bank Swallow (<i>Riparia r. riparia</i>)	100 ±*			8*
Barn Swallow (<i>Hirundo rustica erythrogaster</i>)	300 ±*	10	50 ±	200 ±
Purple Martin (<i>Progne s. subis</i>)	40 ±*	1		5
Wood Thrush (<i>Hylocichla mustelina</i>)		1		
Veery (<i>Hylocichla fuscescens</i>)	1			
Red-eyed Vireo (<i>Vireo olivaceus</i>)				1
Black and White Warbler (<i>Mniotilta varia</i>)	10 ±		1	
Prothonotary Warbler (<i>Protonotaria citrea</i>)	1*		3	
Golden-winged Warbler (<i>Vermivora chrysoptera</i>)	1			1*
Parula Warbler (<i>Parula americana</i>)				1
Eastern Yellow Warbler (<i>Dendroica petechia aestiva</i>)	1*			
Magnolia Warbler (<i>Dendroica magnolia</i>)	50 ±			
Cerulean Warbler (<i>Dendroica cerulea</i>)				2*
Blackburnian Warbler (<i>Dendroica fusca</i>)			1*	
Yellow-throated Warbler (<i>Dendroica dominica</i>)	15 ±			
Oven-bird (<i>Seiurus aurocapillus</i>)	25 ±			5 ±
Northern Water-thrush (<i>Seiurus noveboracensis</i>)	50	1	2	50 ±
Kentucky Warbler (<i>Oporornis formosus</i>)	25 ±			
Hooded Warbler (<i>Wilsonia citrina</i>)	200 ±	15 ±		100 ±
American Redstart (<i>Setophaga ruticilla</i>)	5		3	5 ±
Baltimore Oriole (<i>Icterus galbula</i>)			1	
Summer Tanager (<i>Piranga r. rubra</i>)	2*	1		

* Specimen collected

± Conservative estimates

SUMMARY

From August 27 to September 3, 1952, a visit was made to the four small groups of islands known as Cayos Arcas, Arrecifes Triángulos, Cayo Arenas, and Arrecife Alacrán, which lie on the Campeche Bank between 80 and 100 miles from the mainland of the Yucatán Peninsula.

Thirty-six species of migratory birds were recorded from the islands (table 1). Migrants were particularly abundant on Cayos Arcas, and to a lesser extent on Arrecife Alacrán. Food is scarce and natural sources of fresh water are entirely lacking on the islands. On Cayos Arcas many species fed on houseflies, but swallows and martins appeared to be entirely without food. Mortality is undoubtedly high, but it is believed that where houseflies are available many birds live to reach the mainland.

The number of migrants seen over the open sea, all coming from due north, was impressive, although observations were made irregularly. Approximately half of the migrants appeared over the Campeche Bank between 8:00 and 10:00 a. m., while the remainder came at intervals throughout the day. Nothing is known of nocturnal migrants. During the peak period of the flight on the morning of August 28 it is estimated that the birds were passing at the rate of 137 per mile per hour. If the birds were approaching uniformly along the entire 500 miles of the Gulf coast of the Yucatán Peninsula, 68,000 migrants per hour were passing at the height of the daily flight. If the fall migration pattern which was observed during the trip is the normal one, it is calculated that approximately 137,000 birds arrive daily on the Peninsula. The length of the migration period is unknown, but it must last for at least one month. If flights as large as those observed occur on only 10 days, there would be a minimum autumnal migration of 1,370,000 birds. Although highly speculative, these estimates are probably not unreasonable and are undoubtedly very conservative.

The abundance of records of autumnal migrants in the open Gulf, the lack of meteorological conditions on the northern Gulf coast which could have "forced" migrants to sea, and the consistency in the direction and manner of flight point toward the normality of autumnal trans-Gulf migration.

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Peabody Museum of Natural History, Yale University, New Haven, Connecticut, December 8, 1952.

LETTER TO THE EDITOR OF THE AUK

Dear Sir:

Ornithologists whose memories go back four decades or more will recall with glee, the animated controversy, carried on through the pages of scientific literature, on the subject of concealing and revealing coloration. See particularly, 'The Auk' for 1911 (vol. 28). The chief disputants were a distinguished naturalist, who was also a former President of the United States, and a well-known nature artist. Others joined the discussion on both sides and even the Editor of 'The Auk' was constrained to participate.

The undersigned, authors of the paper "A Trans-Gulf Migration" (*Auk*, 69: 34-39), have no desire to amuse or entertain their colleagues by engaging in a similar controversy with Mr. George G. Williams of The Rice Institute, Houston, Texas. We are completely satisfied that great numbers of North American migratory birds regularly, both spring and fall, cross the Gulf of Mexico. Mr. Williams is of the contrary opinion, which is, of course, his privilege. In this, reference is made to his cleverly written paper in 'The Auk' for October, 1952 (pp. 428-432).

Evidence in support of the trans-Gulf concept is accumulating rapidly and will be judged on its own merits by students of bird migration. They will be interested to know that ornithological observations on the M-V Oregon in the Gulf of Mexico, are continuing, and much additional important data, covering the spring and fall migrations of 1952, are now at hand. As this letter is written (April 13), the vessel is again at sea with an interested and qualified bird observer aboard.

We do, however, wish to take this opportunity to correct one error in our paper above cited. The footnote to Table 2 (p. 36) states that "Specimens of those species marked by an asterisk were retrieved from the water by means of a dip net; the figure following in parenthesis is the number so recovered." The Vermilion Flycatcher (*Pyrocephalus rubinus*) is marked by an asterisk although there is no parenthetical number. Placing the asterisk before the name of this species was a typographical error that was not caught in correcting the proof. It was not in the original manuscript which is still in our possession. Although we are satisfied with the accuracy of the identification, it was entirely visual and is not backed up by the specimen. We will, therefore, be glad if all readers of 'The Auk,' make the necessary correction on page 36 of our paper.

HARVEY R. BULLIS, JR. AND FREDERICK C. LINCOLN,
Fish and Wildlife Service, Washington, D. C.