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OBSERVATIONS ON TERRITORIAL AGGRESSION IN THE ROBIN

BY MARION J. PHILLIPS

The study reported here was undertaken to investigate aggressive behavior in the Robin, *Turdus migratorius*, and was primarily oriented toward observing intraspecific strife. Most of the data were based on the activities of two territorial males observed from April 10 through May 20, 1961, in Lawrence, Douglas County, Kansas. A stuffed Robin or parts of a Robin were placed near the nest of the territorial male, and his reaction to this model was noted. Observations on fighting between living Robins were made in the above locality and period, and on June 24, 1961, in London, Madison County, Ohio.

The terms "Robin" and "aggressor" refer herein to the territorial male Robin; the terms "model" and "intruder" refer to the stuffed Robin or any parts of the Robin placed in the territory for the purpose of study. Regarding aggressive behavior, "attack" denotes the activity of the Robin resulting in physical contact, "hits," with the intruder.

For the purposes of order and simplicity, the various aspects of the study are described and evaluated on the basis of three arbitrary categories. These categories are by no means independent entities, but interplay to produce the final complex of behavior called aggression or fighting. They are as follows: (1) the physical expression of aggression, (2) the attributes or characteristics of the intruder which incite aggression, and (3) the extraneous factors which serve to modify the attack.

PHYSICAL EXPRESSION OF AGGRESSION

There are several physical manifestations of aggressive behavior in the Robin, and any one aggressive act may consist of various combinations of these. As discussed later, the use of a model seems to prolong and exaggerate various postures and displays. Such use facilitates observation, but at the same time it elicits behavior unlikely to be seen in natural conflict. Young (Ibis, 98, 1956:449) studied "several hundred" territorial conflicts and concluded (italics mine) that "exaggerated posturing is *not* a major feature in territorial behaviour in the robin."

Generally, the first discernible sign of aggression was a sharp chattering, either while the bird was flying toward the intruder or while on the ground near it. However, one individual often attacked without vocalization. The primary display, which preluded the attack or occurred between attacks, consisted of strutting in front of and around the model (with or without vocalization), often accompanied by a slight upward-flicking of the tail. The head was held very high, although the bill was parallel to the ground. Young (*loc. cit*) described what he considered one of the most typical threat positions as "one in which the head is lowered, with the bill directed forward, and the tail is stiffly erected." This particular posture was not observed by me in any of the situations where a stuffed bird was used.

In some instances, apart from the strutting action, the tail-flicking was more pronounced. This display, in which the tail was flipped upward at an angle of roughly 70 degrees to the ground, occurred often between attacks when the aggressor was perched on a fence post—a harsh note was repeated and the tail flipped upward on each note. This display has been described by Howell (Amer. Midland Nat., 28, 1942:544). Generally, the tail-flicking occurred in a series consisting of one to five flicks in rapid succes-

sion, without accompanying vocalization. The series itself was observed to occur as many as ten consecutive times, with a pause of less than 15 seconds between each series. On one occasion pronounced tail-flicking was seen when the model was placed on a ledge above the nest and the Robin remained in the tree; no attack, vocalization or other display was apparent.

The attack each time consisted of the bird's flying onto or across the back of the intruder and clawing at or hitting this model. The flights originated from the ground in most attacks; however, when the model was placed on a perch 6 inches from the ground, the Robin often repeatedly flew down from a nearby tree or fence post.

On several occasions the aggressor was observed to behave in a manner which might be interpreted as a combination of, or as a conflict between, attacking and fleeing tendencies. Such a Robin flew approximately 5 inches off the ground, hopping or touching down every foot or so, roughly like a pebble skipping across water. During this action the tail was fanned and directed downward, the wings were fully spread, and the head was lowered. The bird thus described a series of jumps, similar to actual jumping onto the back of the model. However, the path of this action was in a direction away from the intruder. The Robin did not persist in this ambivalence, and following each such action returned to the model to display or attack.

Finally, associated with the entire aggressive act were numerous, seemingly irrelevant, gestures in the form of gathering or picking at food, scratching on the ground, or flights to a tree, where often the bill was wiped across a limb. Such displacement was, in fact, the facet of behavior most regularly encountered and was the only behavioral expression common to all aggressive acts.

Attacks perhaps best considered as redirected fighting were made against members of other species. Twice a pair of Starlings, *Sturnus vulgaris*, was attacked, and once a Blue Jay, *Cyanocitta cristata*, was the target. These attacks interrupted displays of aggression toward the model, and have chief meaning within the context of the highly aggressive state of the Robin at the time.

Characteristics of the Intruder Which Incite Aggression

A study was initiated to determine what physical characteristics of a Robin might serve to identify that individual as an intruder, and thus be responsible for releasing aggression in the territorial male. The technique, that of using a model in various poses and component parts, was adopted primarily from the procedure used by Lack (The Life of the Robin. Penguin, London; 1953) in his studies on the European Robin, *Erithacus rubecula*.

The data incorporated in Table 1 show the response of the attacker to various situations. In considering this table it must be kept in mind that, owing to the death of one Robin, most of the observations based on parts of the model were limited to one territorial male. Lack (1953:153–154) observed marked individual differences in the birds he studied, and it is highly probable that, were more American Robins studied with use of the model, individual variation would become apparent.

Table 1 shows that a Robin is likely to display before, or attack, any whole intruding Robin (18 tests—Section A). However, such models placed in the territory at dusk (5 tests—Section A) usually do not elicit attack or display. Although a headless model may be attacked (4 tests—Sections D–E), a model with the head present and in a submissive position probably will not be reacted to aggressively (2 tests—Section B, and observations of instances in which the model was attacked vigorously enough to knock the head into a submissive position, following which the attacker stopped fighting). As long as the torso is intact, the model will probably be attacked, even though head, tail, and/or wings are removed (8 tests—Sections C–E). A model that consists of less than the torso is not attacked (13 tests—Section F).

It is impossible, on the basis of this study, to select any single characteristic of the intruder which serves as a "sign stimulus" in releasing aggression. Such a one-to-one correlation of stimulus to response, indeed, may not exist.

Modifying Factors

The most obvious consideration which might tend to modify the aggressive pattern is the fact that the model cannot respond to the attack. Two observations were made on Robins meeting at a territorial boundary. The reaction of both in these encounters was

wing-flapping and calling while they scurried toward each other on the ground. Brief physical contact was made in one fight, but none was evident in the other. After each fight both birds retreated from the apparent territorial boundary. This obvious, rapid recognition of territorial rights in these living birds suggests, as previously mentioned, that aggressive behavior against the non-responsive model is exaggerated in style.

One variable observed was the physical condition of the Robin. One of the two studied had selected a territory well within the Lawrence city limits, and was thus subjected to DDT regularly sprayed in the last three years on the trees and ground. His

TABLE 1

REACTIONS OF ROBINS TO MODELS

Physical Characteristics of Model	Number of Tests	Exposure Time[1] per Test (min.)	Attacks[2] per Exposure	Hits per Attack	Comments[3]
A. Whole bird, aggressive stance	1	3	1	14	
	4	5	1	6	(average)
	1	3	1	5	
	1	20	9*	1	Attacks occurring in first ten minutes
	1	30	5*	1	" " "
	1	30	4*	1	Extreme display, especially tail-flicking
	4	3–10	0*		Model on ledge above nest, display only
	1	20	0*		Dusk, display only
	3	30	0*		Model in tree above nest, exposure at dusk
	1	45	0*		Model on ground, dusk
B. Whole bird, head down	1	20	0		Attempt to mount
	1	5	0		Approach, but no observable display or attack
C. Tailless and/or wingless	2	3	1	3	(average)
	1	35	0*		
	1	3	1	7	
D. Headless and/or Tailless	3	X	X	X	Attacks in all three tests, no figures available
E. Torso	1	3	1	4	
F. Breast, Head and Wings	1	10	0		Approach, chatter notes, departure
Breast	3	10	0		In one test, model was within 12" of nest, Robin on nest
Breast and Head	2	10	0		
Head	4	3	0		
Wings and Head	1	20	0		
Wings, Head and Back	1	20	0		
Wings	1	20	0		

* Robin that died of DDT poisoning (see text).

[1] Exposure time was measured from the time when the Robin was in a position from which the model was visible to the time when the model was removed.

[2] An attack was considered to be terminated when the aggressor engaged in displacement activity, displayed, left the area of observation, or remained and resumed its chores of incubation, feeding the young, etc., and thus appeared to ignore the intruder.

[3] Unless otherwise stated, failure to attack implies failure to respond in any way to the intruder.

evenual death, and those of his three young, were directly or indirectly a result of this spray. The male was observed at the time of death and showed symptoms of such poisoning.

It can be assumed, since this poison is cumulative, that the general well-being of the bird was undermined, especially during the two weeks prior to his death when his aggressive behavior was under consideration. In comparison with the presumably "healthy" Robin, the "sick" one relied much more on display and less on physical contact with the intruder. His attacks were more intermittent and more broken up by displays and prolonged displacement activity. The pronounced tail-flicking characteristic of this "sick" Robin was not observed in the "healthy" one.

The experience of the Robin immediately preceding exposure to the model appears also to modify aggression. If, following an exposure and concomitant, vigorous and immediate attack of approximately three minutes duration, the model was removed and not replaced until 10 or 15 minutes later, a second attack was much more likely to be forthcoming. If, on the other hand, the model was left in the territory for 20 minutes, the Robin either failed to re-attack after his initial attack, or did so with considerably less vigor. This was true even though the model was moved around in the territory.

Another phenomenon seems to be closely related to this behavior. On two of the aforementioned occasions when the Robin successfully attacked a bird of another species (Starling and Blue Jay) he immediately re-attacked the model with a renewed effort, even though the model had been in place for 20 minutes.

These two influences of length of exposure and success of attacks in modifying subsequent behavior suggest several tentative explanations. It is possible, with prolonged exposures, that the Robin somehow became "habituated" to the presence of the intruder. Another possibility is that the internal mechanism responsible for aggression can be "saturated," that is, that the Robin needs a time of recovery from this highly excitable state before effective aggression can be manifest again. One or both of these possibilities could account for the quantitative and qualitative variation in aggression between cases where the intruder remained in the territory as compared to those where it was removed and replaced later.

A third possible explanation, however, is that success somehow encourages more vigorous aggression on future attempts, and on the other hand, that failure may tend to inhibit or lessen any immediately subsequent aggression. Such "feed-back" would not only account for the variations of response during different times of exposure, but also for the renewed attacks after a successful encounter with another species.

The pattern of the Robin's fighting behavior was altered depending on what the bird was doing when the intruder appeared. When gathering food for the young, the male once attacked and displayed for 20 minutes with food in his bill before he returned to the nest. On many occasions when the male noticed the intruder, he first flew past the nest, then returned to display or attack. His trip past the nest was followed by the female's leaving the nest to gather food.

Another factor that might modify aggressive behavior patterns is the time of day. Three exposures at sunset either failed to elicit a response, or resulted only in display without attack. The position of the intruder (on the perch, close to the ground, or in a tree) necessarily modified the method of attack.

Observations were limited to periods subsequent to egg-laying and hatching of young. A study of fighting behavior in the time of pair-formation and nest building might show qualitative as well as quantitative differences. No differences were seen between fighting behavior in time of incubation and that in time of brooding young.

MUSEUM OF NATURAL HISTORY, THE UNIVERSITY OF KANSAS, LAWRENCE, MAY 30, 1961.

Recent Observations from the Cheyenne Bottoms.—From August, 1960, to May, 1961, various students and I have made numerous, brief visits to the Cheyenne Bottoms, Barton County, Kansas. Our observations probably are too incomplete to provide either accurate migration dates or reliable estimates of species numbers. However, some of our observations may be of interest.

Podiceps auritus: Horned Grebe.—One in winter plumage was seen on April 16.

Plegadis chihi: White-faced Ibis.—We saw a single bird on May 18.

Aix sponsa: Wood Duck.—One male in changing plumage was present on August 28.

Aythya marila: Greater Scaup.—At least two were present among hundreds of Lesser Scaup on April 16.

Falco peregrinus: Duck Hawk.—We flushed one from a freshly killed Franklin Gull on October 13.

Charadrius hiaticula: Semipalmated Plover.—Observed as follows: 1 on August 28; 2 on September 25; 1 on October 13.

Pluvialis dominica: American Golden Plover.—Observed as follows: 1 on September 25; 10–12 on October 2; several hundred birds on October 13.

Squatarola squatarola: Black-bellied Plover.—Present in small numbers on each of the following dates: September 25; October 29; November 4, 6, 19; May 18, 20.

Arenaria interpres: Ruddy Turnstone.—Five birds (two together and a group of three) were seen on May 18. On May 20 two singles were present and a male in full breeding plumage was collected.

Erolia fuscicollis: White-rumped Sandpiper.—Small groups were seen on May 18. On May 20 it was the most abundant "peep" in the area and three were collected.

Limosa fedoa: Marbled Godwit.—Three birds were seen on September 25 and several small flocks were seen April 23.

Micropalama himantopus: Stilt Sandpiper.—A flock of about 20 birds was present on May 18.

Crocethia alba: Sanderling.—Recorded as follows: Single birds on August 28 and September 25; a total of seven (all singles) on October 2; two singles on November 4; three or four singles on May 18; at least six birds on May 20. Two birds were collected on the latter date.

Lobipes lobatus: Northern Phalarope.—A total of five birds was seen on October 2. "Glaucous Gull"—A large, white gull with gray mantle and upper wings was clearly observed on March 12 and again on April 16. It was not present on April 23 when a concentrated search was made for it.—CHARLES A. ELY, *Department of Zoology, Fort Hays Kansas State College, Hays, Kansas, June 4, 1961.*

Recent Observations From Hays and Vicinity.—Observations on birds at Hays, Ellis County, Kansas, between October 27, 1960, and June 3, 1961, are outlined briefly below.

Gymnorhinus cyanocephalus: Piñon Jay.—Three birds were present briefly on the campus of Fort Hays Kansas State College on November 12.

Bombycilla garrulus: Bohemian Waxwing.—Up to 12 birds were present on campus and in town between November 17 and early February. Birds were most common in the first part of this period and were usually present in larger flocks of Cedar Waxwings (*B. cedrorum*). Two specimens were collected.

Lanius excubitor: Northern Shrike.—One was observed on the college farm February 24.

Vermivora peregrina: Tennessee Warbler.—A few were observed between May 7 and 19.

Vermivora ruficapilla: Nashville Warbler.—One was observed on campus May 19.

Dendroica virens: Black-throated Green Warbler.—Singing males were observed on May 11, 12, 15 and 17.

Dendroica castanea: Bay-breasted Warbler.—Single males were present on campus on May 11 and 15.

Dendroica striata: Black-poll Warbler.—Fairly common on May 19 and 20. Two were collected.

Dolichonyx orizivorus: Bobolink.—Two singing males were present on the college farm on May 15.

Hesperiphona vespertina: Evening Grosbeak.—The first bird was seen on campus on October 27. Flocks built up until at least 40 birds were present in town and on campus during much of November and December. A few stragglers and small flocks remained to April 5. Two specimens were collected.

Carpodacus cassinii: Cassin Finch.—Flocks of three to 19 birds were present on campus between December 27 and late February. Stragglers continued to visit the campus until late April. Four specimens, the first for the State of Kansas, were collected, including singing males on March 14 and April 28. Although usually in flocks by themselves, a few birds were found in flocks of Purple Finches (*C. purpureus*).

Carpodacus mexicanus: House Finch.—A male was seen on campus on December 9.

Pinicola enucleator: Pine Grosbeak.—Groups of two to six birds were frequently observed on campus (chiefly during snowy periods) from November 17 through December. A few birds were present to at least February 8. Five specimens taken through this period are, in my opinion, of the northern race *P. e. leucura.*

Spinus pinus: Pine Siskin.—West-central Kansas had an extensive siskin invasion this winter with birds recorded at all localities visited. By early April it became apparent that nesting activities might be underway. Courtship activity, singing and territorial behavior became very noticeable. Scattered pairs were located in the vicinity of ornamental conifers throughout Hays and on campus. On April 21 I found a nest containing three juvenals ready to leave the nest. This nest was hidden among needles at the tip of the limb of a Ponderosa Pine and about 13 feet above ground. Subsequently, we found five additional nests, all in ornamental pines between 3½ and 10 feet above ground. Four of these nests were found during the early stages of construction. Nests were constructed in about two days and the female spent most of her time on the nest both before and during the egg laying period. Incubation began with the laying of the first egg. One nest was parasitized by Brown-headed Cowbirds, *Molothrus ater* (2 eggs), with the ultimate loss of all three siskin eggs. Later, it and three other nests were destroyed by heavy winds. One nest fledged a single young (banded) on June 3.

Pine Siskins have nested on campus on at least two previous occasions. On March 23, 1939, Andrew Riegel and others banded and released an incubating female taken on her nest. In March or April, 1958, a nest with young and juvenals out of the nest were found on campus, according to M. V. Walker.

Loxia curvirostra: Red Crossbill.—A male was collected from a flock of six or seven in Hays on October 20 and 22. Small flocks of five to seven birds (occasionally more) were present on campus and in town from April 16 to at least early June. Specimens were collected April 16, 27; May 7, 21. Philip Heuser and other local birders report that the birds were still present on June 2.

CHARLES A. ELY, *Department of Zoology, Fort Hays Kansas State College, Hays, Kansas, June 6, 1961.*

Purple Martins as Food for a Pilot Blacksnake.—On July 19, 1961, we found a Pilot Blacksnake (*Elaphe obsoleta*) coiled in one of the compartments of a colony house for Purple Martins (*Progne subis*) located on the grounds of the Laboratory of Aquatic Biology of The University of Kansas, Lawrence, Douglas County, Kansas. The snake measured 57 inches from tip of snout to tip of tail and was tightly wedged in the compartment, which measures 8.5 × 8.5 × 9 inches and was half-full of nesting material. The compartment had also contained four Purple Martins 20 days old. We dissected the snake and found the four martins in its stomach; the birds had been banded earlier and were thus individually recognizable.

Pilot Blacksnakes are reputed to be one of the most proficient climbing snakes in Kansas (Smith, Univ. Kansas Publs. Mus. Nat. Hist., Miscl. Publ. 9, 1956:247). Real agility was demonstrated by the individual taking the young martins, for it had to negotiate vertically a painted, galvanized steel pole two inches in diameter for 13 feet before reaching the bottom of the martin house. The temporary occupancy of the martin house by this snake is also known to be within the range of behavior of Pilot Blacksnakes; they occasionally assume short-term residence in cavities in trees.

There seems to be no other record of the blacksnake, or of any snake, taking Purple Martins of any age for food. The possibility is not even considered by Allen and Nice (Amer. Midland Nat., 47, 1952:648–649), probably because the present, predominantly urban nesting habits of the martin in eastern North America place martins beyond the local distribution of snakes in general. However, the grounds of the Laboratory of Aquatic Biology are adjacent to a considerable tract of broken, deciduous woodland, suitable as habitat for Pilot Blacksnakes. The instance of predation here reported is within expectation for this locality.

Parenthetically, we can assume that recent instances of predation on martins by climbing snakes are rare, but such predation must have been of some consequence to martins in that time when they used natural cavities in trees and cliffs for nesting. The likelihood is high that incubating and brooding adults also fell to such predators. These considerations suggest the presence of yet another adaptive advantage to martins in

relinquishing ancestral nesting habits in favor of the artificial cavities provided by man, that is to say, the reproductive advantage of nesting in artificial sites was enhanced by the relaxation of predation by snakes.—RICHARD F. JOHNSTON and ABBOT S. GAUNT, *Museum of Natural History, The University of Kansas, Lawrence, July 31, 1961.*

Probable Breeding of the Black Tern in Kansas.—On June 27, 1961, we took two Black Terns (*Chlidonias niger*) at a small marsh three miles north and one mile east of Lawrence, Douglas County, Kansas. We had watched the birds for about ten minutes, during which time the two stayed strictly together, foraging over small patches of open water. No other terns were seen that afternoon, but individuals, perhaps these in part, had been recorded several times through May and June, 1961, on this marsh.

The specimens (♂, KU 38851, testis 5 × 2.5 mm., wt. 61.5 gm., heavy fat, regressing brood patches; ♀, KU 38852, ova to 2 mm., wt. 58.7 gm., heavy fat, regressing brood patches) seemingly represented a mated pair. When taken, the two were in non-breeding, probably post-breeding, condition; the large amounts of subcutaneous and perivisceral fat and regressing brood patches are indications of this. Nevertheless, several features point to the likelihood that the pair had in fact bred, to wit: the brood patches in both male and female were totally bare of feathers (although not vascular), the colors of the feet and gape were those of breeding birds, which is to say red to dark red, and there is no evidence of molt of the breeding plumage or regrowth of feathers anywhere on the skins. Thus, the birds cannot be considered oversummering, non-breeding individuals.

The real question about these birds concerns the actual place of attempted breeding. If the birds bred locally it must be presumed that the nesting attempt was abortive, for no young terns have been seen, and the two birds were not active in carrying prey to some site on the marsh. The marsh itself could this year have supported breeding terns, owing to local precipitation nearly double that of normal years. To this we can add that the date, June 27, is exceedingly early for southbound migrants.

The occurrence of these two birds in post-breeding condition constitutes the best available evidence for the breeding of the Black Tern in Kansas. Such breeding is almost certainly a response to locally favorable conditions, such as heavy rainfall on a relatively undisturbed marshland, and ultimately should be documented in satisfactory detail.—RICHARD F. JOHNSTON and ERWIN E. KLAAS, *Museum of Natural History, The University of Kansas, Lawrence, July 27, 1961.*

NOTES AND NEWS

Mrs. Geneva I. Kingkade writes from Wichita that Red-headed Woodpeckers seem more numerous this year than they have in the recent past through southern parts of the Flint Hills. She wonders if the trend in population numbers of this species is on the upswing. Northeastern Kansas has about as many Red-headed Woodpeckers as it has had for the last four years; the numbers in Lawrence are normal for the area, and Buck Carson writes from Topeka that numbers there are stationary. This suggests that it would be of some value to have actual counts made of this species in the breeding season. Members of the K.O.S. who are interested in participating in a statewide census of the Red-headed Woodpecker should write the Editor, who will act as coordinator of the program; instructions concerning techniques and critical areas in which to count will be sent on request.

The population of Robins in Lawrence is now approaching the ultimate low. No Robins have been reported since late May from the old, established residential sections of Lawrence, where the density of elm trees is highest. It is, of course, in such places that the concentration of DDT in the soil is greatest, because this insecticide is washed from trees, where the Lawrence park department has sprayed it in an effort to control beetle vectors of Dutch elm disease. Peripheral parts of Lawrence or those areas where elm trees have been planted in low density, still have Robins, and several such areas far from the center of town have many Robins. Central Lawrence, however, lacks Robins.

Mortality of all other songbirds affected by DDT in Dutch elm disease control programs is about that characteristic for Robins alone (Hickey and Hunt, Jour. Wildlife

Manag., 24, 1960:259–265). Thus, a measure of the decline in numbers of songbirds can be gotten from censuses of breeding Robins and estimates of the productivity of nesting pairs. The table below summarizes information on these matters for Robins in Lawrence from 1959 to 1961. It should be noted that dead and dying Robins, as well as other species of birds, were seen on the study plots in all years covered by the table; those birds seen dying showed the typical symptoms of DDT poisoning (muscular paralysis, involuntary tremors, and general ataxia), and there is no reason to suspect any causes of subsequent mortality other than DDT poisoning.

CENSUSES OF ROBINS IN LAWRENCE, KANSAS, 1959–1961*

No. pairs of Robins	1959	1960	1961
Early April	40	24	6.5
Late May	—	11	1
No. Pairs Raising Young to Fledging	33	16.5	0

* Average values for two plots each of six rectangular blocks in central, residential Lawrence.

The censuses briefly reported here were made by Robert McMahon, Stanley Hunter, Gary Williams, and Emery Corbett, students in Ornithology (Zoology 152) at The University of Kansas.

Buck Carson has recorded (Topeka Audubon News, 15(4), 1961:2–3) similar notable mortality among Robins in Topeka; in all, heavy casualties in the Robin and lesser casualties in other songbirds, have been reported from at least 45 additional localities in the midwest (*New Scientist*, No. 226, March 16, 1961:665). This unhappy situation has attracted the attention of people all over the world; the *New Scientist*, cited above, is a semitechnical publication printed in England, and stands as a case in point.

Fall Field Trip.—The Fall Meeting of the Kansas Ornithological Society will be held on November 12, 1961, at Wyandotte County State Lake, Wyandotte County, Kansas. The meeting will be held jointly with the Burroughs Club of Kansas City. Details concerning the exact point of rendezvous and the times at which coffee and doughnuts will be available will be sent to members shortly before the meeting.—R. F. J.

Erratum.—The address of Mr. and Mrs. Charles S. Billings is 2733 Maryland Ave., Topeka, not 2733 Highland Ave., as listed in the Membership Directory printed in the last number of the Bulletin. If other addresses were incorrect as listed, please inform the editorial offices of the Bulletin. Members living in Kansas City should check to be sure their addresses as listed give the correct state and postal zone.—A. S. G.

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