As pointed out by Arnold (1978) and confirmed by Banks (pers. comm.), there is no importation record for this species and it apparently never occurs in zoos or animal exhibits. We canvased local residents and pet dealers and contacted local birders through the Richmond Audubon Society chapter's newsletter, but no potential source was located.

Neocrex erythrops is known from widely scattered sites east of the Andes in Venezuela, Colombia, eastern Brazil, Paraguay, northwestern Argentina, Bolivia, Surinam and Ecuador (Meyer de Schauensee, The Species of Birds of South America and their Distribution, Livingston, Narberth, Pennsylvania, 1966:68–69; Blake 1977; Ripley, Rails of the World, David R. Godine, Boston, Massachusetts, 1977:228–229; Meyer de Schauensee and Phelps, Birds of Venezuela, Princeton Univ. Press, Princeton, New Jersey, 1978:63). From the northern part of its range, the rail would have to travel more than 3200 km to reach the Richmond area. Because of the curvature of the earth and the position of the continents, this is a shorter distance than the Texas specimen must have traveled. I know of no weather conditions which might have brought the bird to Virginia, although the winter prior to the discovery of the bird was unusually warm. As Arnold (1978) suggests, the importance and credibility of extralimital records of such unusual birds depends upon repeated occurrences. Even though rails are noted for their extralimital occurrences, the recent rash of foreign rail sightings indicates that some unusual phenomenon may be at work in stimulating such wide dispersal. If the present record does represent a natural occurrence, and at this point I have no reason to believe it does not, this constitutes the second specimen for the United States.

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House Sparrows kleptoparasitize digger wasps.—Interspecific stealing of food, or kleptoparasitism, is a specialized feeding pattern for a few birds (Arnason and Grant, Ibis 120:38–54, 1978; Hatch, Ibis 117:357–365, 1975; Meinertzhagen, Pirates and Predators, Oliver and Boyd, London, England, 1959; Nelson, Living Bird 14:113-155, 1975) and an occasional source of food for many opportunistic species (Brockmann and Barnard, Anim. Behav. 27:487–514, 1979). I know of only 1 brief reference to birds stealing prey from digger wasps. Ristich (Can. Entomol. 85:374–386, 1953) observed House Sparrows (*Passer domesticus*) and American Robins (*Turdus migratorius*) stealing the katydid prey of great golden digger wasps (*Sphex ichneumoneus*) at a large nesting aggregation on the campus of Cornell University. The birds chased wasps that were carrying prey to their nests, causing them to drop the food, which the birds then retrieved and ate. In this paper I describe observations of House Sparrows systematically stealing prey from great golden digger wasps at a nesting site in Minnesota. I also speculate on the possible origins of this behavior.

Background.—The great golden digger wasp is a large (2–3.5 cm), solitary species found throughout the United States. The female digs a burrow in the ground with a terminal chamber which she provisions with food for her offspring. After constructing the burrow she flies from the nesting area to open fields where she hunts any of a number of species of the smaller, locally available katydids (Orthoptera, Tettigoniidae) and occasionally a tree cricket (Gryllidae). After stinging and paralyzing the katydid, the wasp returns to her nest with the prey clasped beneath her. If the prey is small she flies directly to the nest, but if large, the wasp either walks across the ground or climbs trees and launches herself in a descending

TABLE 1
THE FREQUENCY AND SUCCESS OF DIFFERENT KINDS OF KLEPTOPARASITIC BEHAVIOR

Kleptoparasitic behavior of sparrow	No. (%) of prey stolen by this method	Numbers of attempts	Success of this method (catches/attempts)
(1) Flies directly at flying wasp	46 (58%)	58	79%
(2) Flies at wasp dragging prey over ground	2 (3%)	2	100%
(3) Pursues wasp through shrubbery	25 (32%)	61	41%
(4) Forages on ground in nesting area	6 (8%)	17[a]	35%
TOTAL	79	138	57%

[a] Number of times sparrows were observed foraging on ground in nesting area.

flight to the next tree. A wasp often lands in shrubbery or a tree near her nest before flying to the burrow she has prepared. Even when the katydid is relatively small, it is easy to recognize the laborious flight of a wasp returning with prey. When the wasp lands at her burrow, she sets the paralyzed katydid down and enters the nest leaving the prey outside and unattended for 10–20 sec before she pulls it into the chamber below (Bohart and Menke, Univ. Calif. Publ. Entomol. 30:91–182, 1963; Brockmann, Ph.D. diss. Univ. Wisconsin, Madison, 1976; Frisch, Am. Midl. Nat. 18:1043–1062, 1937).

For a variety of reasons, these solitary wasps often nest locally in sizeable aggregations (Brockmann, Ecol. Entomol. 3:211–224, 1979; Fernald, Ann. Entomol. Soc. Amer. 38:458–460, 1945). From mid-July to mid-August I observed the behavior of individually marked wasps at 3 different sites as follows: (1) an aggregation of 8–50 wasps nesting in a flower planter on the campus of the University of Michigan-Dearborn from 1972 through 1975; (2) 33 wasps on a lawn in Exeter, New Hampshire in 1975; and (3) 136 wasps on the campus of Carleton College, Northfield, Minnesota in 1976. Each nesting site was a sunny open location with little or no surface vegetation.

Observations.—Before 1976 I observed only isolated cases of birds stealing prey from digger wasps. In New Hampshire a male Scarlet Tanager (*Piranga olivacea*) flew directly at a flying wasp causing her to drop her prey. The tanager landed nearby, but then flew off without picking up the paralyzed katydid. On 3 successive days, I saw a juvenile Brown-headed Cowbird (*Molothrus ater*) walking in the New Hampshire nesting area. The bird flew up (observed 7 times) at incoming wasps causing them to drop their prey, which I once observed the bird to eat. Similarly at the Minnesota site, I once saw a Starling (*Sturnus vulgaris*) flying at a digger wasp causing her to drop her prey. The Starling then landed, picked up the dropped prey and flew off. Although House Sparrows, Starlings, cowbirds and American Robins were common around the Michigan site, kleptoparasitism was never observed. House Sparrows occasionally entered the nesting area, but they never flew at passing wasps nor ate prey found on the ground.

The pattern of kleptoparasitism was very different at the Minnesota site. I arrived in early July after the wasps had been nesting for about 2 weeks (also true of the New Hampshire site, but not true of the Michigan site) and saw House Sparrows repeatedly stealing the katydid prey of the digger wasps. I noted 79 thefts (or 25% of the total prey taken by wasps) between 8 and 27 July. Although I remained at the site until 6 August, the sparrows ceased their activity at the nesting area after 27 July (reason unknown).

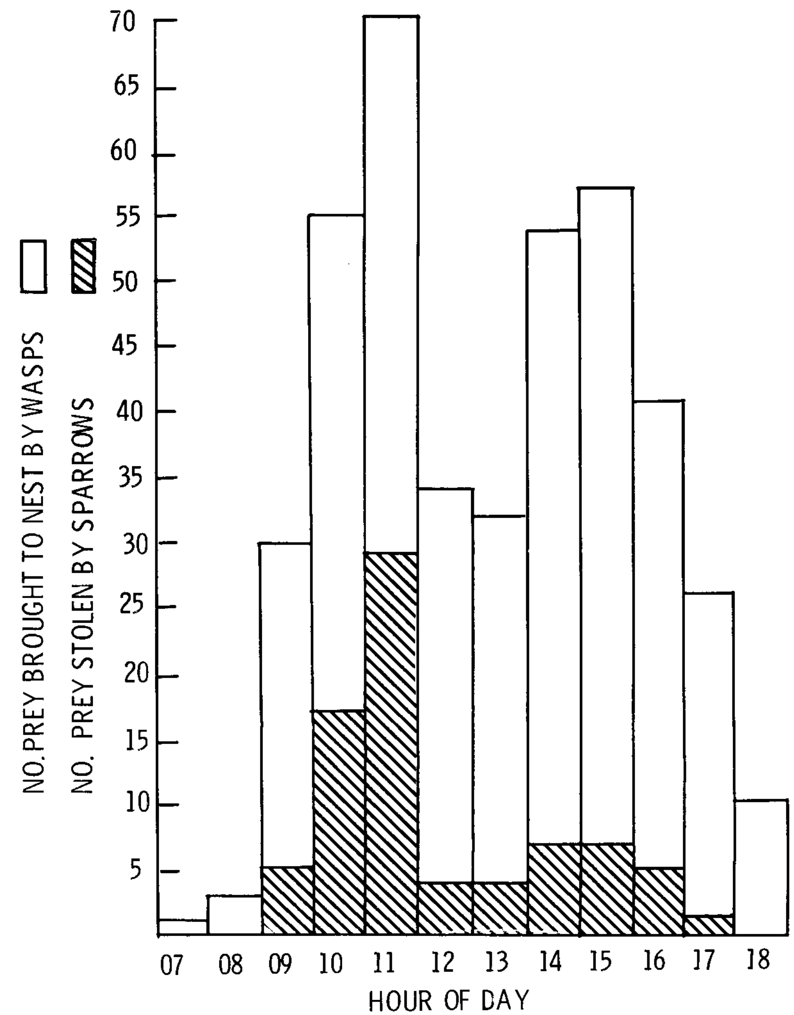

FIG. 1. A comparison between the frequency with which wasps brought prey to the nesting area at different times of the day and the frequency with which sparrows stole these prey (79 thefts).

The sparrows used several different methods to steal prey from the wasps. From 1–5 sparrows sat in a large tree or at the tops of dense shrubbery overlooking the nesting area. When in the tree, the sparrows often pecked at leaves and appeared to be feeding, but when in the shrubs nearer the nesting area, they sat alertly upright. When a wasp returned with prey, the sparrows used 1 of 4 kleptoparasitic methods (Table 1).

(1) The most common method was for the sparrow to fly rapidly and directly at the flying wasp, usually causing the wasp to drop her prey. During some thefts (20% of attempts) the

bird pursued the wasp 50 m or more and once in a while (9% of attempts) a sparrow flew under the wasp forcing her upward until she dropped her prey. Only twice did I see a sparrow chasing a wasp with no prey.

(2) Rarely, a sparrow flew at a wasp that was dragging her prey across the ground toward her nest, causing her to fly up and leave the paralyzed insect for the sparrow.

(3) A sparrow frequently pursued a prey-laden wasp through the dense shrubbery in which she landed until she was frightened off her prey. Often (55% of attempts) the sparrow hovered first before landing on a limb near the wasp. This method is clearly less successful (χ^2 test, $P < 0.001$) than the outright pursuit of method 1.

(4) Occasionally, sparrows foraged on the ground in the nesting area, picking up paralyzed katydids left outside a burrow entrance while the wasp inspected the chamber below. The frequency of attempts varied for the 4 different methods (Table 1), due largely to differences in numbers of opportunities.

Sparrows either acted alone or in groups of 2–5 (generally 2 or 3) adult males and females and occasionally juveniles. Often a katydid was so large that the sparrow had to land on the ground and repeatedly peck at the paralyzed insect, dismembering it before eating. When in a group the sparrows fought over the prey item, pursuing the individual carrying the katydid and when the bird stopped to feed, lunging and grappling (57% of groups engaged in extended chasing or fighting over stolen prey). Occasionally a begging juvenile followed an adult and once I saw an adult female feeding a paralyzed katydid to a juvenile.

The sparrows did not usually begin to sit in the trees and shrubs near the nesting area until 10:00. Most of the kleptoparasitism (61% of attempts) occurred between 10:00 and 12:00, a peak period for wasp hunting (Fig. 1). Although wasps showed a second hunting peak between 14:00 and 16:00, the sparrows rarely appeared in the nesting area at this time and only a small number of thefts occurred.

After being robbed of her prey, a wasp either departed (80% of thefts) or flew tight circular loops around the posterior end of the bird as it flew off or she swooped back and forth around its head if the sparrow was on the ground. The wasps' behavior never deterred the sparrows in any way: a sparrow never moved away from nor altered its path in the face of a wasp buzzing around nearby (these solitary wasps do not use the sting as a defensive weapon but only to paralyze their prey).

Discussion.—The kleptoparasitic behavior of the sparrows was almost certainly learned and may be a traditional pattern similar to that described by Fisher and Hinde (Br. Birds 42:347–357, 1949). Although the sparrows were not individually marked, 1 female that I frequently observed stealing katydids had 2 white tail feathers. Kleptoparasitism was probably confined to a small group of sparrows that worked the densest aggregation of wasps around the Minnesota site. The fact that this behavior was found at only 1 of 3 nesting areas suggests that it is a novel, localized pattern (see also Ristich 1953).

How might a pattern of stealing from wasps begin? Digger wasps in a large concentration bringing in such numbers of large prey make themselves particularly vulnerable to attack and a profitable source of food for birds. No other species of digger wasps are known to be harassed by birds in this way (H. E. Evans, pers. comm.). Predator-prey interactions are a common source of kleptoparasitism among many bird species (Brockmann and Barnard 1979). Stomach analyses of House Sparrows, Starlings and American Robins indicate that they do not normally feed on wasps (Bent, U.S. Natl. Mus. Bull. 196:25–33, 1949; Bent, U.S. Natl. Mus. Bull. 197:195, 1950; Bent, U.S. Natl. Mus. Bull. 211:13–443, 1958; Kalmbach, U.S. Dept. Agric. Tech. Bull. 711:1–66, 1940), although they regularly feed on orthopterans. Cowbirds, on the other hand, are known to prey on Hymenoptera. Occasionally House Sparrows and Starlings have been seen to catch large flying insects (Atkinson, Br. Birds 60:57, 1967; Bent 1958; Summers-Smith, The House Sparrow, Collins, London, England, 1963). Such chases might, from time to time, result in a large paralyzed katydid being dropped by the pursued insect. It seems possible then, that species which hunt large flying insects may occasionally encounter and chase digger wasps, picking up dropped prey; in addition, House Sparrows and other ground-foraging birds such as robins are likely to enter a wasp nesting area where they may find large paralyzed katydids lying on the ground near a burrow entrance. It is not difficult to cause a wasp to abandon her prey. A short lunge or run at a wasp dragging a katydid over the ground might yield a large food item.

There are 2 characteristics of sparrows which no doubt play an important role in the appearance of kleptoparasitic behavior in 2 separate populations of this species. First, the House Sparrow is a particularly opportunistic and adaptable species, easily exploiting new and abundant sources of food (Potter, Condor 33:30, 1931; Richardson, Condor 40:126–127, 1938; Fisher and Hinde 1949; Wilson, Emu 54:69, 1954; Hobbs, Emu 55:202, 1955; Mountfort, Br. Birds 50:311–312, 1957; Purser, Br. Birds 52:199–200, 1959; Summers-Smith, 1963). Kleptoparasitism appears to be a secondary source of easy food on which sparrows specialize at certain times of the day. Secondly, House Sparrows forage in flocks which increases the opportunities for learning the chance discoveries of others. Kleptoparasitic behavior could easily arise by trial and error and observational learning in a species known for its catholic tastes and opportunistic feeding habits (Kalmbach 1940; Kendeigh, Ornithol. Monogr. 14:1–2, 1973; Summers-Smith 1963).

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Ruby-throated Hummingbirds feed at night with the aid of artificial light.—Hummingbirds feed frequently throughout the day, from before dawn to after sunset (Grant and Grant, Hummingbirds and Their Flowers, Columbia Univ. Press, New York, New York, 1968). We have found no reference to nocturnal feeding by hummingbirds, other than in aviaries (Scheithauer, Hummingbirds, T. Y. Crowell Co., New York, New York, 1966). Typically, at night, hummingbirds may become torpid, and by lowering metabolic rate conserve energy at a time when they are unable to feed (Grant and Grant 1968). Recent results indicate that torpor is used only in "energy emergency" situations at a minimum "threshold" of energy reserves and not to reduce noctural energy expenditures when net gains during the day were sufficient for overnight expenditures (Hainsworth, Collins and Wolf, Physiol. Zool. 50:215–222, 1977).

A Ruston, Louisiana homeowner, Mrs. Agnes Lewis, had observed noctural feeding by Ruby-throated Hummingbirds (*Archilochus colubris*) during September 1977. The birds, never observed during the day, were observed at night when the flower beds were illuminated. Noctural activity occurred from dusk to sometime just before 24:00 CDST in the presence of a single, nearby (within 7 m) carport light and distant streetlights. Sunset occurs from about 19:45–19:59 CDST during September in northern Louisiana.

The yard contained a lawn, trees, hedges and flowers, including marigolds (*Tagetes* spp.), red cannas (*Canna* sp.) and white four-o-clocks (*Mirabilis* sp.). No artificial hummingbird feeders were present in the neighborhood.

We made observations to verify the noctural feeding activity of Ruby-throated Humming-