

screamed overhead and suddenly there was no Grouse at all, but only a spot in the road that was nothing but a pile of leaves and dust. When the Hawk had sailed over the pile of leaves took wings and flew into the woods.

I had heard for years a clear, far-reaching cry and wondered over it, before I made the discovery that it was the clan-cry of the Quail. At sunset from some fence corner a clear single-syllabled whistle goes forth, and is answered from far and near by the separated Bob-whites. If there has been no unusual scattering in the covey that day there is no curfew. It is to be heard every evening during the rabbit hunting season and I have wondered if the covey dispersed voluntarily for safety or whether it was frightened apart. The latter is the more probable conclusion.

The casual visitor to Oakside Farm I have not mentioned. Those observers who can go far afield can furnish larger and more interesting lists. My object was merely to tell of the birds to be seen from a farmhouse porch. It is a curious fact that my friend in the village sometimes feeds as many as five male Cardinals at once, while I never have more than one. This seems to me to indicate that we farmer folk who have excellent advantages for bird study, neglect them, and carelessly leave both the study and feeding of birds to the villagers. How shall we best serve our small friends?

Columbiana, Ohio.

COMPARATIVE PERIODS OF DEPOSITION AND INCUBATION OF SOME NORTH AMERICAN BIRDS.

BY FRANK L. BURNS

Very little seems to be known regarding the exact periods of incubation of our birds. Captain Bendire's observations appear the most extensive until recently when some attention has been given the subject by various observers, mostly incidental to the intensive study of a single nest or perhaps a colony of one species or another.

My conclusions are based upon the statements of authors, the manuscript notes of Messrs. T. A. Elliot, Jr., North East Harbor, Me.; John F. Ferry, Chicago, Ill.; Henry Link, Waterloo, Ind.; Angus McKennon, DeFuniak Springs, Fla.; Leonard S. Pierson, Wayne, Pa.; Alfred C. Redfield, Cambridge, Mass.; A. C. Read, Isle of Pines, Cuba; Charles H. Rogers, Princeton, N. J.; Ernest W. Vickers, Ellsworth, Ohio; Miss Farida Wiley, Sidney, Ohio, and my own observations.

The duties of incubation are usually performed by the female, often with the assistance of the male, or the male may not participate in the actual brooding process but may carry food to the female and later assist in caring for the young.

Exact knowledge of the amount of assistance given the female by her mate during the incubating season does not appear to be of much importance in consideration of the comparative periods. When one sex forages and incubates unaided, however, the period is usually prolonged beyond that of the normal of the species accustomed to the advantage of an assisting mate; or possibly in rare instances like that of the *Trochilidae*, Hummingbirds, of species of an entirely different group of similar size. Clark (*Cf. Auk*, xx, 162) gives an instance of a male Bob-white incubating a late clutch of eggs for 28 days before hatching, apparently several days over the regular period; while the female was leading her first brood about the vicinity.

Apparently most colonial species are doubly monogamous; birds breeding in colonies can seldom conceal their eggs from enemies, therefore have the greatest need of constant protection by either sex.

Most hole-nesting species are doubly monogamous, though there are some notable exceptions; one would naturally seek the reason for this in the greater need of animal heat in lieu of the direct rays of the sun to further the rate of incubation; rather than that of protection from enemies, of which there is less need than in the instance of the colonial birds.

In many species and groups where one sex is much more

conspicuously or highly-colored than the other, the more plainly-garbed sex frequently assumes all the duties of incubation and not infrequently, of the young, also.

Double monogamy occurs in many instances in every group producing præcocial young, but it is probably more common in the Altrices; double monogamy, however, as generally defined, is not characteristic of the highest type, since of the *Turdidæ* and *Corvidæ* (except the subfamily *Corvinæ*) the two Passerine families most in dispute for first rank; the male does not appear to render any assistance in incubation.

According to present information, both sexes take regular turns at incubating in at least some species of the *Podicipidæ*, *Gaviidæ*, *Alcidæ*, *Laridæ* (not including *Anous stolidus*, Noddy), *Diomedeidæ*, *Procellariidæ*, *Phæthontidæ*, *Pelecanidæ*, *Anserinæ*, *Cygninæ*, *Phænicopteridæ*, *Ibididæ*, *Ardeidæ*, some of the *Scalopacidæ*, (*Philohela minor* Woodcock, *Gallinago delicata* Wilson's Snipe, *Pelidna alpina sakhalina*, Red-backed Sandpiper), *Charadriidæ* (*Oxyechus vociferous* Killdeer), the genus *Colinus* only of the Gallinaceous birds, *Columbidæ*, *Buteonidæ*, (except *Aquila chrysaetos* Golden Eagle), *Stringes* (except the genus *Otus*), the genus *Coccyzus*, *Alcedinidæ*, *Picidæ*, *Caprimulgidæ*, and of the *Passerines*; *Corvinæ*, *Zanthocephalus zanthocephalus* Yellow-headed Blackbird, *Sturnella magna* Meadowlark, the genus *Quiscalus*, most of the *Fringillidæ* (the most notable exceptions being of genera, including nearly all of the most brilliant and conspicuously plumaged males, not including *Zamelodia ludoviciana* Rose-breasted Grosbeak), *Hirundinidæ* (not including *Progne subis* Purple Martin), *Bombycilla cedrorum* Cedar Waxwing, *Protonotaria citrea* Prothonotary Warbler, *Dendroica aestiva aestiva* Yellow Warbler, *D. pensylvania* Chestnut-sided Warbler, *Setopaga ruticilla* Redstart, *Vireonidæ* (not including *V. philadelphia* and *L. solitarius solitarius*), *Anthus pratensis* Meadow Pipit, the genera *Toxostoma*, *Troglodytes*, and *Sitta canadensis* Red-breasted Nuthatch.

Incubation is performed solely by the female in *Anous stolidus* Noddy, the *Anatidæ* (except *Anserinæ* and *Cygninæ*)

some of the *Rallidæ*, *Scolapacidæ* (*Bartramia longicauda* Upland Plover, *Actitis macularia* Spotted Sandpiper), *Charadriidæ*, *Gallinæ* (genera *Bonasa*, *Centrocercus* and *Meleagris*), the genus *Otus*, *Trochilidæ* (at least *A. colubris* and *S. rufus*), *Tyrannidæ* (perhaps not including *E. wrighti* and *P. rubinus mexicanus*), *Corvidæ* (except *Corvinæ*), *Dolichonyx oryzivorus* Bobolink, *Agelaius phœniceus* Red-winged Blackbird, subgenus *Icterus*, *Hesperiphona vespertina vespertina* Evening Grosbeak, *Carpodacus purpureus purpureus* Purple Finch, *Astragalinus tristis tristis* Goldfinch, *A. t. salicamans* Willow Goldfinch, *Plectrophenax nivalis nivalis* Snow Bunting, *Passerina cyanea* Indigo Bunting, *P. ciris* Painted Bunting, *Piranga erythromelas* Scarlet Tanager, genus *Lanius*, *Mniotiltidæ* (with some exceptions), *Mimus polyglottos* Mockingbird, *Dumetalea carolinensis* Catbird, *Thryothorus ludovicianus miamensis* Florida Wren, *Certhia familiaris americana* Brown Creeper, *Penthestes atricapillus atricapillus* Chickadee, and the *Turdinæ*.

Incubation receives the attention of the male only, in the *Phalaropodidæ*, and some of the *Scolopacidæ* (*Eurynorhynchus pygmeus* Spoon-billed Sandpiper).

The Passerine genera *Molothrus* and *Tangavius* are parasitic and of course do not incubate at all.

The period of deposition of a species seems to depend mostly upon the general productiveness of the group to which it is most nearly related; and to a lesser extent, upon the relative size of the species and its egg to that of the group, the maximum sometimes requires a longer period to recuperate.

A species belonging to a group capable of and most commonly producing the maximum number of eggs in a set or in a season, ordinarily deposit an egg daily. This includes the *Colymbi*, *Anatidæ*, *Rallidæ*, *Scolapacidæ*, *Pici*, *Cucullidæ* and *Passeres* (there are instances of the deposition of two eggs in one day by the prolific *Colaptes auratus luteus* Northern Flicker, *Sayornis phœbe* Phoebe, *Passer domesticus* European House Sparrow, and *Spizella passerina passerina* Chipping Sparrow.)

Our largest Passerine, *Corvus corax principalis* Northern Raven, may occasionally deposit its eggs at intervals of every other day.

Coccyzus americanus Yellow-billed Cuckoo, and *C. erythrophthalmus* Black-billed Cuckoo, are subject to variation according to locality; individuals inhabiting the Atlantic slope occasionally seem to require an interval of from two to eight days, but as both species have been known to drop their eggs in other birds' nests and the average number in a set falls away below that of the same species in the West, probably the most satisfactory explanation of the apparent departure from the normal daily deposition, may be found in the parasitic tendencies of the eastern individual. Not impertinent to the subject, it may be stated that the parasitic nature of the European Cuckoo has been erroneously attributed to its irregular deposition and consequent inability to assemble a clutch of eggs; however this may be, our parasitic Cowbird has been known to drop four or five eggs in as many days, though like the Bobolink, it may now and then depart from the normal.

Members of a group normally or commonly producing two eggs, deposit at less frequent periods, the *Columbidae*, *Caprimulgidae* and *Trochilidae* lay on alternate days. The larger *Gaviidae* two or three days apart, and a week or ten days may elapse before the *Cathartidae* deposit the second egg. The *Raptores* require from one to three or four days interval generally, depending upon size, the genera *Aquila*, *Haliaeetus* and *Bubo*, which include some of the largest species and frequently deposit two eggs only, the interval is the maximum.

Birds laying daily, ordinarily but not invariably, begin incubation after the set is completed. The occasional irregularities in incubation are often traceable to exceptional conditions; cold or stormy weather at the time of deposition may induce the parent to cover the nest for a time sufficient to affect the first laid eggs.

Birds ordinarily exhibiting irregular deposition usually begin incubation with the first (sometimes the second or third)

egg laid: this naturally results in irregularities in hatching and maturing of nestlings; far more frequent in the Altrices for the obvious reason that belated embryos of *Præcocials* usually perish in the shell after the parents desert the nest with the first hatched young.

The period of incubation seems to depend almost altogether upon mere size or bulk; conditions being equal, the larger the egg generally the longer the period of incubation. This rule would seem to be good, with some exceptions; but more truly applicable to the various members of the several groups, in some instances possibly not higher than families.

The assertion that the length of incubation depends upon the state of perfection in which the young issues from the shell, i.e. chicks able to leave the nest almost immediately after hatching (præcocial) require a much longer time than those hatched in a helpless state (altricial), appears unreliable when applied generally, even though the former averages larger eggs. The absence of data on comparative sizes, weights or other means of equalization render it somewhat difficult to prove, but for some of the many probable exceptions compare in size and period of incubation the Petrels with the smaller Terns, the Tropic Birds with the Gulls, the larger *Raptores* with the *Anatidæ*, the Woodpecker with the Coot, the smaller *Raptores* with the smaller *Gallinæ*, the Kingfisher with the Bob-white, or even the Chat with the Spotted Sandpiper. The Noddy, departing from the typical *Sterninæ* in its habit of nesting in bushes and there rearing its young for upwards of two months (therefore not typical præcocial) is said to incubate for 35-36 days, which seems a much longer period than that of any other of its præcocial family.

Birds nesting in snug rock crevices, tree cavities, or in covered nests of any descriptions capable of keeping out the weather and conserving the heat from the birds' body, doubtless are at no great disadvantage over the loss of the direct rays of the sun; but species nesting deep in earthy burrows (Puffins, Petrels and Kingfishers) or in draughty flues

(Chimney Swifts) with little or no protective lining, appear at every disadvantage in hastening the development of the embryo; and the comparatively longer periods of incubation would seem to foster this hypothesis.

There are little data available leading to the effects of climate and season on the period of incubation of individuals of the same species. It is quite probable that the most variable periods occur in cool rather than warm climates, and more especially in a season of violent changes. Knight (Cf. Birds of Maine) in considering the period of incubation of some of the *Fringillidæ* (*Lanius ludivicianus migrans* and *Geothlypis trichas trichas*) recognized a variation of from two to four days, due to weather conditions, closeness with which the bird brooded and other correlating circumstances. It is well known that up to a certain stage of development of the embryo, the eggs may be subjected to a cooling process by exposure to the weather for some time without endangering the embryo beyond retarding the growth temporarily and lengthening the period somewhat beyond the normal time; and also, that the sun may relieve the parent bird of part of her task unless the temperature is driven too high and the germ destroyed.

The number of days of incubation of the species in the list appended has been compiled from various sources, and in many instances from single records, some of which may be inaccurate and are questioned; others may be subject to revision; but none are included without good authority.

- Podilymbus podiceps*. Pied-billed Grebe.—21 (?) days.
Gavia immer. Loon.—29 days.
Cephus grylle. Black Guillemot.—21 days.
Larus argentatus. Herring Gull.—26 or 27 days.
Larus franklini. Franklin's Gull.—18 or 20 days.
Sterna hirunda. Common Tern.—21 days.
Sterna dougalli. Roseate Tern.—21 days.
Sterna fuscata. Sooty Tern.—26-29 days.
Hydrochelidon niger surinamensis. Black Tern.—17 days.
Anous stolidus. Noddy.—35-36 days.
Oceanodroma leucorhoa. Leach's Petrel.—30 (?) days.

- Phaethon americanus*. Yellow-billed Tropic Bird.—28 days.
Sula bassana. Gannet.—39 days.
Phalacrocorax urile. Red-faced Cormorant.—21 days.
Pelecanus erythrorhynchos. White Pelican.—29-30 days.
Pelecanus occidentalis. Brown Pelican.—28 days.
Mergus americanus. Merganser.—28 days.
Mergus serrator. Red-breasted Merganser.—26-29 days.
Anas platyrhynchos. Mallard.—26-28 days.
Anas rubripes. Black Duck.—26-28 days.
Somateria mollissima borealis. Northern Eider.—36 (?) days.
Branta canadensis canadensis. Canada Goose.—28-30 days.
Olor cygnus. Whooping Swan.—35-40 days.
Phœnicopterus ruber. Flamingo.—28 days.
Guara alba. White Ibis.—21 days.
Plegadis autumnalis. Glossy Ibis.—21 days.
Botaurus lentiginosus. Bittern.—28 days.
Ardea herodias herodias. Great Blue Heron.—28 days.
Butorides virescens virescens. Green Heron.—17 days.
Nycticorax nycticorax naevius. Black-crowned Night Heron.—24 (?) days.
Prozana carolina. Sora Rail.—14 (?) days.
Fulica americana. Coot.—14 days.
Philohela minor. Woodcock.—20-21 days.
Bartramia longicauda. Bartram's Sandpiper.—17 (?) days.
Actitis macularia. Spotted Sandpiper.—15-16 days.
Hematopus palliatus. Oyster-catcher.—14 (?) days.
Colinus virginianus. Bob-white.—24 days.
Lophortyx californica californica. California Quail.—24 (?) days.
Lophortyx californica vallicola. Valley Quail.—24 (?) days.
Lophortyx californica gambeli. Gambel's Quail.—24 days.
Dendragapus obscurus obscurus. Dusky Grouse.—24 days.
Dendragapus obscurus fuliginosus. Sooty Grouse.—24 days.
Bonasa umbellus umbellus. Ruffed Grouse.—21 days.
Bonasa umbellus togata. Canada Ruffed Grouse.—21 days.
Lagopus lagopus lagopus. Willow Ptarmigan.—18 (?) days.
Tympanuchus americanus americanus. Prairie Chicken.—21 days.
Pediaccetes phasianellus columbianus. Columbian Sharp-tailed Grouse.—21 days.
Pediaccetes phasianellus campestris. Prairie Sharp-tailed Grouse.—21 days.
Centrocercus urophasianus. Sage Grouse.—22 days.
Meleagris gallopavo silvestris. Wild Turkey.—28 days.
Phasianus colchicus. English Pheasant.—23-24 days.
Columba fasciata fasciata. Band-tailed Pigeon.—18-20 days.

- Columba livia*. Domestic Dove.—14 days.
Ectopistes migratorius. Passenger Pigeon.—14 days.
Zenaidura macroura carolinensis. Mourning Dove.—12-14 days.
Melopelia asiatica. White-winged Dove.—18 days.
Chamepelia passerina terrestris. Ground Dove.—12 days.
Cathartes aura septentrionalis. Turkey Vulture.—30 days.
Cathartes uruba. Black Vulture.—30 days.
Circus hudsonius. Marsh Hawk.—26-28 days.
Accipiter velox. Sharp-shinned Hawk.—21 days.
Accipiter cooperi. Cooper's Hawk.—24 days.
Buteo borealis borealis. Red-tailed Hawk.—28 days.
Buteo borealis calurus. Western Red-tail.—28 days.
Buteo lineatus lineatus. Red-shouldered Hawk.—27-28 days.
Buteo swainsoni. Swainson's Hawk.—25-28 days.
Buteo platypterus. Broad-winged Hawk.—23-25 days.
Urubitinga anthracina. Mexican Goshawk.—24-28 days.
Archibuteo lagopus sancti-johannis. Rough-legged Hawk.—28 days.
Archibuteo ferrugineus. Ferruginous Rough-leg.—28 days.
Aquila chrysaetos. Golden Eagle.—25 days.
Haliaeetus albicilla. Gray Sea Eagle.—30 days.
Haliaeetus leucocephalus. Bald Eagle.—30 days.
Falco peregrinus anatum. Duck Hawk.—28 days.
Falco columbarius columbarius. Pigeon Hawk.—21 (?) days.
Falco sparverius sparverius. Sparrow Hawk.—29-30 (?) days.
Pandion haliaëtus carolinensis. Osprey.—27-28 days.
Aluco pratincola. Barn Owl.—21-24 days.
Asio wilsonianus. Long-eared Owl.—21 days.
Asio flammeus. Short-eared Owl.—21 days.
Cryptoglaux acadica acadica.—Saw-whet Owl.—21 (?) days.
Otus asio asio. Screech Owl.—21-26 days.
Bubo virginianus virginianus. Great Horned Owl.—28-30 days.
Bubo virginianus pallescens. Western Horned Owl.—28 days.
Bubo virginianus pacificus. Pacific Horned Owl.—28 days.
Speotyto cunicularia hypogæa. Burrowing Owl.—21-28 days.
Micropallas whitneyi. Elf Owl.—14 days.
Geococcyx californicus. Road-runner.—18 days.
Coccyzus americanus americanus. Yellow-billed Cuckoo.—14 days.
Coccyzus erythrophthalmus. Black-billed Cuckoo.—14 days.
Ceryle alcyon. Belted Kingfisher.—23-24 days.
Dryobates villosus villosus. Hairy Woodpecker.—14 days.
Dryobates villosus hyloscopus.—Cabanis's Woodpecker.—15 days.
Dryobates pubescens medianus. Downy Woodpecker.—12 days.
Dryobates scalaris bairdi. Texas Woodpecker.—13 days.
Xenopicus albolarvatus. White-headed Woodpecker.—14 days.

- Picoides americanus americanus*. Three-toed Woodpecker.—14 days.
Sphyrapicus varius nuchalis. Red-naped Sapsucker.—14 days.
Sphyrapicus ruber ruber.—Red-breasted Sapsucker.—12-14 days.
Phlœotomus pileatus pileatus. Pileated Woodpecker.—18 days.
Melanerpes erythrocephalus. Red-headed Woodpecker.—14 days.
Asyndesmus lewisi. Lewis's Woodpecker.—14 days.
Centurus carolinus. Red-bellied Woodpecker.—14 days.
Centurus aurifrons. Golden-fronted Woodpecker.—14 days.
Centurus uropygialis. Gila Woodpecker.—14 days.
Colaptes auratus luteus. Flicker.—11-14 days.
Antrostomus vociferus. Whip-poor-will.—17 days.
Chordeiles virginianus. Nighthawk.—16-18 days.
Chætura pelagica. Chimney Swift.—18 days.
Archilochus colubris. Ruby-throated Hummingbird.—14 days.
Archilochus alexandri. Black-chinned Hummingbird.—13 days.
Calypte costæ. Costa's Hummingbird.—14 days.
Calypte anna. Anna's Hummingbird.—14 days.
Selasphorus rufus. Rufus Hummingbird.—12 days.
Muscivora forficata. Scissor-tailed Flycatcher.—12-13 days.
Tyrannus tyrannus. Kingbird.—12-13 days.
Tyrannus verticalis. Arkansas Kingbird.—12-13 days.
Tyrannus rociferus. Cassin's Kingbird.—12-14 days.
Myiarchus crinitus. Crested Flycatcher.—13-15 days.
Myiarchus cinerascens cinerascens. Ash-throated Flycatcher.—
 15 days.
Sayornis phæbe. Phœbe.—12-14 days.
Sayornis sayus. Say's Phœbe.—12 days.
Nuttallornis borealis. Olive-sided Flycatcher.—14 days.
Myiochanes virens. Wood Pewee.—12-13 days.
Empidonax difficilis difficilis. Western Flycatcher.—12 days.
Empidonax trailli trailli. Trail's Flycatcher.—12 days.
Empidonax trailli alnorum. Alder Flycatcher.—12 days.
Empidonax minimus. Least Flycatcher.—12 days.
Empidonax wrighti. Wright's Flycatcher.—12 days.
Pyrocephalus rubinus mexicanus. Vermillion Flycatcher.—12 days.
Pica pica hudsonia. Magpie.—16-18 days.
Cyanocitta cristata cristata. Blue Jay.—15-17 days.
Cyanocitta stelleri stelleri. Steller's Jay.—16 days.
Cyanocitta stelleri frontalis. Blue-fronted Jay.—16 days.
Aphelocoma woodhousei. Woodhouse's Jay.—16 days.
Aphelocoma californica californica. California Jay.—16 days.
Aphelocoma sieberi arizona. Arizona Jay.—16 days.
Perisoreus canadensis canadensis. Canada Jay.—16-18 days.
Corvus corax principalis. Northern Raven.—20-21 days.

- Corvus cryptoleucus*. White-necked Raven.—21 days.
Corvus brachyrhynchos. Crow.—18 days.
Corvus ossifragus. Fish Crow.—16-18 days.
Nucifraga columbiana. Clark's Nutcracker.—16-17 days.
Cyanocephalus cyanocephalus. Pinon Jay.—16 days.
Sturnus vulgaris. Starling.—11-14 days.
Dolichonyx oryzivorus. Bobolink.—10 days.
Molothrus ater ater. Cowbird.—10 days.
Xanthocephalus xanthocephalus. Yellow-headed Blackbird.—10 days.
Agelaius phoeniceus phoeniceus. Red-winged Blackbird.—10-14 days.
Sturnella magna magna. Meadowlark.—15-17 days.
Sturnella neglecta. Western Meadowlark.—15 days.
Icterus cucullatus nelsoni. Arizona Hooded Oriole.—12-14 days.
Icterus spurius. Orchard Oriole.—12 days.
Icterus galbula. Baltimore Oriole.—14 days.
Icterus bullocki. Bullock's Oriole.—14 days.
Euphagus carolinus. Rusty Blackbird.—14 days.
Euphagus cyanocephalus. Brewer's Blackbird.—14 days.
Quiscalus quiscula quiscula. Purple Grackle.—14 days.
Quiscalus quiscula arvens. Bronzed Grackle.—13-16 days.
Megaquiscalus major major. Boat-tailed Grackle.—15 days.
Megaquiscalus major macrourus. Great-tailed Grackle.—15 days.
Hesperiphona vespertina vespertina. Evening Grosbeak. 13-14 days.
Carpodacus purpureus. Purple Finch.—13 days.
Carpodacus mexicanus frontalis. House Finch.—13 days.
Astragalinus tristis tristis. Goldfinch.—12-14 days.
Plectrophenax nivalis nivalis. Snow Bunting.—21 (?) days.
Passer domesticus. European House Sparrow.—12-14 days.
Pooecetes gramineus gramineus. Vesper Sparrow.—11-13 days.
Passerculus sandwichensis savanna. Savannah Sparrow.—12 days.
Chondestes grammacus strigatus. Western Lark Sparrow.—12 days.
Zonotrichia albicollis. White-throated Sparrow. 12-14 days.
Spizella passerina passerina. Chipping Sparrow.—10-12 days.
Spizella pusilla pusilla. Field Sparrow.—13 days.
Junco hyemalis. Slate-colored Junco.—11-12 days.
Melospiza melodia melodia. Song Sparrow.—10-14 days.
Melospiza georgiana. Swamp Sparrow.—13 days.
Passerella iliaca schistacea. Slate-colored Sparrow.—12-14 days.
Pipilo erythrophthalmus erythrophthalmus. Towhee.—12-13 days.
Cardinalis cardinalis cardinalis. Cardinal.—12 days.
Zamelodia ludoviciana. Rose-breasted Grosbeak.—14 days.
Passerina cyanea. Indigo Bunting.—12 days.
Passerina amara. Lazuli Bunting.—12 days.
Progne subis subis. Purple Martin.—12-15 days.

- Petrochelidon lunifrons lunifrons*. Cliff Swallow.—12-14 days.
Hirundo erythrogaster. Barn Swallow.—11 days.
Iridoprocne bicolor. Tree Swallow.—14 days.
Bombycilla cedrorum. Cedar Waxwing.—10-12 days.
Phainopepla nitens. Phainopepla.—16 days.
Lanius ludovicianus ludovicianus. Loggerhead Shrike.—12-13 days.
Lanius ludovicianus migrans. Migrant Shrike.—13-16 days.
Vireosylva olivacea. Red-eyed Vireo.—12-14 days.
Lanivirco solitarius solitarius. Blue-headed Vireo.—10-11 days.
Protonotaria citrea. Prothonotary Warbler.—14 days.
Helminthos vermivorus. Worm-eating Warbler.—13 days.
Vermivora pinus. Blue-winged Warbler.—10 days.
Vermivora chrysoptera. Golden-winged Warbler.—10 days.
Vermivora rubricapillus rubricapillus. Nashville Warbler.—11-12 days.
Dendroica aestiva aestiva. Yellow Warbler.—10-11 days.
Dendroica coronata. Myrtle Warbler.—12-13 days.
Dendroica magnolia. Magnolia Warbler.—12 days.
Dendroica pensylvanica. Chestnut-sided Warbler.—10-11 days.
Dendroica virens. Black-throated Green Warbler.—12 days.
Dendroica palmarum hyprochrysea. Yellow-Palm Warbler.—12 days.
Dendroica discolor. Prairie Warbler.—14 (?) days.
Seiurus aurocapillus. Ovenbird.—12 days.
Geothlypis trichas trichas. Maryland Yellowthroat.—12 days.
Icteria virens virens. Yellow-breasted Chat.—15 days.
Setophaga ruticilla. Redstart.—12 days.
Mimus polyglottos polyglottos. Mockingbird.—10 days.
Dumetella carolinensis. Catbird.—12-14 days.
Toxostoma rufum. Brown Thrasher.—11-14 days.
Toxostoma curvirostre curvirostre. Curve-billed Thrasher.—13 days.
Thryothorus ludovicianus ludovicianus. Carolina Wren.—12 days.
Thryothorus ludovicianus mimensis. Florida Wren.—14 days.
Thryomanes bewicki. Bewick's Wren.—10-15 days.
Troglodytes aëdon aëdon. House Wren.—11-13 days.
Telmatodytes palustris palustris. Long-billed Marsh Wren. 10-13 days.
Sitta canadensis. Red-breasted Nuthatch.—12 days.
Pantheres atricapillus atricapillus. Chickadee.—11-14 days.
Hytocichla mustelina. Wood Thrush.—14 days.
Hytocichla ustulata ustulata. Russet-backed Thrush.—14 days.
Hytocichla ustulata swainsoni. Olive-backed Thrush.—10-13 days.
Hytocichla guttata pallasi. Hermit Thrush.—12 days.
Planesticus migratorius migratorius. Robin.—11-14 days.
Sialia sialis sialis. Bluebird.—12 days.