

Decomposition is most troublesome when one is attempting to diagnose a bacterial infection. The colon organism which invades the tissues from the intestine is such a prolific grower that it tends to obscure the growth of the real causative organism. Likewise, decomposition destroys blood cells so that a microscopic examination of a blood smear is not satisfactory.

The most common error made in shipping a specimen is to wrap it in oiled paper or place it in some air-tight container. Under these conditions anaerobic conditions are created so that the putrefactive bacteria bring about marked changes in a short time.—F. R. BEAUDETTE, New Jersey State Agricultural Experiment Station, New Brunswick, N. J.

RECENT LITERATURE

Reviews by Margaret M. Nice

BANDING

1. Report of the Bird-Ringing Committee. Progress for 1941. A. L. Thomson. 1942. *British Birds*, 35 : 267-271. "The war has caused a heavy reduction in the number of birds ringed", and "the total of 7,099 is the smallest for any year since 1920." A 14 year old Lapwing is reported. Species banded in largest numbers since 1909 are respectively: Starling (*Sturnus vulgaris*), Song Thrush (*Turdus ericetorum*), Blackbird (*Turdus merula*), Swallow (*Hirundo rustica*), Lapwing (*Vanellus vanellus*), Chaffinch (*Fringilla coelebs*), Greenfinch (*Chloris chloris*), British Robin (*Erithacus rubecula*), Manx Shearwater (*Puffinus p. puffinus*).

2. Bird-Banding of the Natural History Museum of Göteborg in 1940. (Göteborgs Naturhistoriska Museums Ringmärkning av Flyttfåglar under 1940.) L. A. Jägerskiöld. 1941. *Göteborgs Musei Arstryck* 1941 : 65-80. In 1940 5,203 individuals of 114 species were ringed by the Göteborg Museum, making a total since 1911 of 114,044; recoveries and returns amount to 3,862, or 3.4 per cent. The species banded in largest numbers are respectively: Black-headed and Common Gulls (*Larus ridibundus*, *L. canus*), Starling, Common, Arctic and Sandwich Terns (*Sterna hirundo*, *S. paradisaea*, and *S. sandvicensis*), Lapwing, Great Tit (*Parus major*), House Martin (*Delichon urbica*) and Swallow.

3. Banding Records of California Brown Pelicans. Richard M. Bond. 1942. *Condor*, 44 : 116-121. Of 555 young *Pelecanus occidentalis californicus* banded in West Anacape Island in 1939 and 1940, 63 recoveries (12 percent) have been reported from as far distant as 550 miles south and 1400 miles north; an epidemic of parathyroid in southern California probably accounts for about one-third of the records.

4. La Migracion de Aves en el Hemisfero Occidental. (Bird Migration in the Western Hemisphere.) F. C. Lincoln. 1942. International Committee for Bird Preservation, 1006 Fifth Ave., N. Y. C. 12 pp. A good popular account in Spanish and English of migration in North and South America, with some account of banding, and mention of species marked in North America and taken in Central and South America. Maps of the migration of the Golden Plover and Bobolink are included.

See also Nos. 16, 33 and 36.

LONGEVITY

5. Longevity and Other Data on a Captive English Sparrow. Dayton

Stoner. 1942. *Auk*, 59 : 440-442. A male *Passer domesticus*, adopted as a small nestling, lived for twelve years. He was afraid of red in his food, the cover of his cage, and in the apparel of persons. He imitated excellently the songs of two canaries kept in the same room.

See also No. 1.

LIFE HISTORY

6. The Nest Life of the Turkey Vulture. T. H. Work and A. J. Wool. 1942. *Condor*, 44 : 149-159. An account of thirteen visits to a nest of *Cathartes aura* in California with excellent pictures of the young from hatching to fledging. The adult flushed from the eggs, but remained with the young till they were two weeks old, even when handled by the observers. The maximum increase in weight of the young came between the fifteenth and twentieth weeks. The two young were antagonistic to each other during their second month. They left at 62 to 65 days of age.

7. Life History of the Mexican Trogon. A. F. Skutch. 1942. *Auk*, 59 : 341-363. A fascinating account of the Aurora (*Trogon mexicanus*) in Guatemala. Nesting cavities are excavated in decayed stumps. Both parents incubate the two eggs, the female at night and for longer periods in the daytime than the male. The young stay in the nest 15 and 16 days. One male brought food to his two and three-day nestlings, but held it in his bill as he brooded instead of delivering it; during the morning each parent brought food five times; the female fed the young each time, but the male did so only once! Two days later, however, he delivered all the insects he brought (p. 352). Trogons are quiet and dignified; they never fight each other nor molest other birds. They snatch insects and berries in flight (p. 358). The incubation period for three species was 19 days. In one nest of the Quetzal (*Pharomachrus mocinno costaricensis*) fledging took 23 days, in another that was very high, one month.

8. Notes on Hummingbirds at Chiriqui, Panama. C. Brooke Worth. 1942. *Auk*, 59 : 364-368. Several species utter songs from perches much as do passerines. The hum of most of the Hummingbirds was "about three octaves below middle C, which suggests sixty-four vibrations per second" (p. 365). By means of his faculty of "absolute pitch," the author judged that the number of wing-beats per second ranged from 60 to 72, the highest figure occurring when feeding. A Bangs' Hermit (*Phaethornis guy coruscus*), probing banana blossoms, was kept away from an area by a large insect, perhaps "one of the carnivorous nocturnal crickets."

9. The Birds of a Bull's Horn Acacia. O. S. Pettingill, Jr. 1942. *Wilson Bulletin*, 54 : 89-96. Biting and stinging ants (*Pseudomyrma*) inhabit the hollow thorns of the bull's horn acacia in Mexico; they attack persons touching the shrub, but not the Derby and Social Flycatchers (*Pitangus sulphuratus texanus*, *Myiozetes similis texensis*) that nested in it. Both sexes of both species of flycatchers build the nest, in contrast to Tyrannidae in temperate North America, where, so far as known, only the females build. The Derby Flycatchers took 24 days in which to build their nest; Tyrannidae in temperate North America are reported as taking from 3 to 13 days. Social Flycatchers always seem to build near some other species, apparently "because of the latter's ability to drive off larger enemies" (p. 95). A delightful paper.

10. Nesting Habits of the Eastern Phoebe. Wendell P. Smith. 1942. *Auk*, 59 : 410-417. Observations on *Sayornis phoebe* in Wells River, Vt., from 1935 to 1937. Incubation lasted 14 to 17 days, fledging 15 to 17, while parental care extended two to three weeks longer. Correlation is shown between average weekly temperatures and the arrival of the species, the taking up of territory,

starting nest building and beginning egg laying. Some renewal of courtship was seen after the broods left the nest, but no second broods were attempted during these three years, although two broods had been raised in 1932, after the first brood had left June 16, while in 1935-37 the young left July 2, June 24 and June 29 respectively. In Pelham, Mass., some 140 miles south of Wells River, I found that two broods are regularly raised. In 1925 one pair's young left June 12 and July 16; the other pair's young left June 13 and July 25; in 1940 the first brood left June 15, the second July 31. Fledging periods lasted 15, 16, 17, 18 and 19 days. Six first broods fledged 18 young, an average of 3; three second broods fledged five young, an average of 1.7. The average of the nine broods was 2.6. If the averages for the first and second broods are added, they come to much the same as the average of the three single broods in Vermont—4.3.

11. International Swallows. Minna A. Common. 1942. *Auk*, 59 : 437. Colonies of Tree Swallows (*Iridoprocne bicolor*) nest on ferryboats that ply between Ogdensburg, N. Y. and Prescott, Ontario, where the St. Lawrence is a mile wide. "No bird ever seems at a loss as to the whereabouts of its homesite." Nesting materials and food are gathered from either shore.

12. Long Incubation by a Carolina Chickadee. E. P. Odum. 1942. *Auk*, 59 : 430-431. A female *Penthestes carolinensis* incubated infertile eggs for 24 days.

13. Breeding Behavior of Bell's Vireo in Illinois. F. A. Pitelka and E. J. Koestner. 1942. *Wilson Bulletin*, 54 : 97-106. One pair of *Vireo b. belli* built four nests in which five Cowbird (*Molothrus ater*) eggs were laid; the first three nests were deserted; in the last, two Vireos were raised. The incubation period was 14 days, fledging 11 days. The female built, both birds incubated and fed the young. Intervals between the destruction of a nest and the first egg of the next were 5, 6 and 5 days respectively. Between May 26 and June 20 the female laid twelve eggs. Once she sang as she approached the nest from which her incubating mate had just left.

14. The Cardinal: the Bird Itself. Bayard H. Christy. 1942. *Cardinal*, 5(8) : 173-186. An historical account of *Richmondia cardinalis*, with reproductions of the two earliest pictures of the species, one by Aldrovandus in 1599, the other by D'Hondecoeter in the 17th century. The northward spread of the Cardinal concomitant "with the northward shift of isotherms consequent upon the deforesting of our continent" is mentioned. This bird "is seldom seen at the bird bath"; in my experience female Cardinals bathed fairly often, but I never saw a male do so and have heard of only one such instance. A section on "Habits" is given by Maurice Brooks who notes the wildness of those individuals occasionally found in deep woods; Mr. H. R. Ivor mentions the same trait in these birds near Toronto, Ontario, where they are near the border of their range.

See also no. 36.

BIRD BEHAVIOR

15. Display and Sexual Behavior of the Brandt Cormorant. Laidlaw Williams. 1942. *Condor*, 44 : 85-104. A very interesting article with photographs and excellent line drawings of the birds' postures. Nesting colonies of *Phalacrocorax pencillatus* on offshore islands off southern California were watched through a telescope, so that the birds were entirely undisturbed. Sexes were distinguished by the larger bill size of the males, while certain birds were identified by peculiarities of plumage. Nuptial plumes appear in December and last through July; at the same time the gular pouch becomes a brilliant cerulean blue. In large colonies downy young may be seen from May through July. There are three phases in the reproductive behavior: I, Advertising Display by the males and

Visiting by the females; II, Pairing up, temporary or permanent, Mutual Displays; III, Incubation and Rearing of young.

In Phase I the male takes a station and carries nesting material to it. His advertising display consists of the *flutter* and *stroke*. When the females move about with thin, upstretched necks, peering at one advertiser, then at another, there is a sudden increase in display activity. In Phase II, as soon as a female reaches a male, mutual displays start; the male does not advertise when a female is with him.

The male goes into the lower pre-coital position and the female may mount. If the female stays, the male mounts, they copulate and he leaves for nesting material. The birds intimidate with the *threat gesture* and *peck threat*. Occasionally a male uses the peck threat against a female with which he had been doing mutual displays, whereupon she precipitously leaves. A threatened male replies in kind and the two may grip bills. Threat displays are also used against Western Gulls (*Larus californicus*) and Murres (*Uria aalge*); Cormorants on nests threaten Sea Lions, that stop, at least temporarily, in their advance. "A murre passing through a group of cormorants is pecked and threat-gestured from all sides" (p. 93).

In Phase III nest relief is the only new ceremony. The female protects her nesting material by threat-display. The birds get dry stuff, sometimes by stealing, get land plants, and dive for marine plants; they may stay under water for 23.4 seconds. The male gathers most of the material.

"This colonial bird has an individual territory, although the area defended is only a few square feet around the nest. The males advertise at this place and keep other males away; the females come there for copulation and the nest is built there" (p. 103).

Comparisons are made with the display behavior of three other species. The author queries, "Might it not be possible that in *penicillatus* voice has not been particularly evolved, display effects being achieved by striking posture and the brilliance of the pouch alone, whereas *carbo* has developed a striking pattern of plumage and posture, but particularly voice, and *auritus* perhaps has some degree of all three qualities, pattern, posture, and voice?" (p. 101). A valuable study

16. Pairing Responses of Free-Living Valley Quail to Sex-Hormone Pellet Implants. J. T. Emlen, Jr. and F. W. Lorenz. 1942. *Auk*, 59 : 369-378. A valuable experiment on wild birds. During December and January, pellets of crystalline sex-hormones (testosterone and stilbestrol) were implanted subcutaneously in free *Lophortyx californica vallicola*, that were color-banded and provided with markers in the tail. "The three males treated with testosterone became pugnacious toward other males, but this had no effect on their position in the peck order of the covey." These birds and two females similarly treated "pursued and then paired with a bird of the opposite sex." "The male and the four females treated with stilbestrol showed no behavioral response." Interestingly enough, "Untreated (control) males showed contagious behavior in eight out of ten cases by pairing off in the manner of treated males."

17. Coöperative Feeding of White Pelicans. C. Cottam, C. S. Williams, and C. A. Sooter. 1942. *Auk*, 59 : 444-445. At the Malheur Wildlife Refuge, Oregon, twelve *Pelicanus erythrorhynchos* "assumed a circular position, surrounding the school" of fish; they moved in unison and captured large numbers of their prey. As many as 13,000 Avocets (*Recurvirostra americana*) have been seen in "compact spearhead and wedge formations" sweeping the bottom muck.

18. Genetic Interaction in a Hybrid Pheasant. J. S. Huxley. 1941. *Proc. Zool. Soc., Ser. A*, 111 : 41-43. In the "offspring of one of the most distant crosses recorded in birds," a male hybrid between a female Lady Amherst Pheasant (*Chrysolophus amherstiae*) and male Himalayan Impeyan Pheasant (*Lophophorus impeyanus*), the Impeyan habit of digging with the beak is dominant over the

Amherst habit of scratching with the feet. In plumage characters, the "chief point of interest is the almost complete disappearance of the striking colours and patterns of the two parents, the hybrid being almost entirely black with no or very limited iridescence." The bird has shown no trace of sexual behavior.

19. Development of Young Goshawks. Richard M. Bond. 1942. *Wilson Bulletin*, 54 : 81-88. Excellent account of the behavior of a female *Accipiter atricapillus* taken from a nest in Nevada when four weeks old. Young Accipiters may go through bathing movements "on a bare floor at the mere sight of a sister sloshing about in a bathing pan."

20. Hunting Strategy of Pigeon Hawks. Karl W. Kenyon. 1942. *Auk*, 59 : 443-444. Six *Falco columbarius bendirei* were seen during a train trip from Nogales to Guaymas; these birds had learned to take advantage of the trains' scaring up small birds; "they hung back several cars from the front of the train" and were able to pounce upon their unsuspecting prey.

21. The Brown Jay's Furcular Pouch. G. M. Sutton and P. W. Gilbert 1942. *Condor*, 44 : 160-165. *Psilorhinus morio* in Mexico makes a call sounding like a hiccup; this seems to come from the "inflation (or perhaps deflation) of a curious little pouch on the jay's chest." This hiccup "was a signal for quiet, stealthy approach, for close attention to some not quite solved problem." A crowd of Jays customarily follows the bird student with strident cries; they will hiccup as they examine a motionless hunter, but burst into screams at the slightest motion.

22. Flight and Running Speeds of Birds. C. Cottam, C. S. Williams, and C. A. Sooter. 1942. *Wilson Bulletin*, 54 : 121-131. Flight speeds were tested by automobile of some 80 individuals, varying from 10 miles per hour with Terns (*Sterna*) and Black Skimmers (*Rhyncops nigra*) to 55 with the Redhead (*Nyroca americana*); also walking speeds of 17 individuals, ranging from 2 miles per hour with the Sage Hen (*Centrocercus urophasianus*), to 5 with the Killdeer (*Oxyechus vociferus*) and 21 with the Ring-necked Pheasant (*Phasianus colchicus torquatus*).

23. Nest Sanitation and an Alleged Releaser. A. L. Rand. 1942. *Auk*, 59 : 404-409. Criticism of Lorenz' and Tinbergen's view "that the circlet of light-colored feathers about the anus of nestling passerines" serves as a "releaser stimulating the adult to remove the feces of the young"; the author stresses the point that the young are hatched without feathers. When criticism on Lorenz' theories are to be made, the 1935 paper on the "Kumpan" should be consulted, not the very short version in the *Auk* that appeared two years later. Lorenz did not say "passerine"; he said Titmice in 1935 (p. 297), and Blue Tit in 1937 (p. 245.) In the crowded conditions of later nest life with ten to a dozen Titmouse nestlings in one small cavity, it is reasonable to believe that such a circlet would be of assistance in nest sanitation, by calling parental attention to the forthcoming sac.

Although Dr. Rand concluded from some experiments with Song Sparrows that "the presence of the young is necessary for nest-sanitation to be carried out", this is not necessarily true with other birds. I have seen a Black-throated Green Warbler remove excreta from an empty nest, and Blair and Tucker (*British Birds*, 1941) report that with the Pied Flycatcher and Wryneck "on the day after the nestlings flew the parent birds returned and cleaned up every particle of excrement, leaving the nest-box clean" (p. 214).

See also Nos. 6-14 and 29, 30, 33, 35 and 36.

EXPERIMENTS WITH LIGHT

24. Effect of Light on the Moults and Sequences of Plumage in the Willow Ptarmigan. Per Höst. 1942. *Auk*, 59 : 388-403. Salomonsen (1939, see *Bird-Banding*, 10 : 166) concluded from a study of skins of the Rock Ptarmigan

(*Lagopus mutus*) "that temperature is the external factor controlling the rhythm of plumage changes." With captive *Lagopus lagopus* in Norway, Høst noted "a marked synchronization of the plumage cycle with the different phases of reproduction." By means of artificial lighting from November to February he brought birds into the spring molt and even into laying despite low temperatures, while curtailed light brought on winter plumage even when temperature was high. (Nothing is said as to the relative warmth of the different plumages; one would expect a Ptarmigan in spring plumage in mid winter to suffer from the cold.)

25. Some Effects of Flashing Light on Testicular Activation in the Male Starling (*Sturnus vulgaris*). J. W. Burger, T. H. Bissonnette, and H. D. Doolittle. 1942. *Journ. Exp. Zool.*, 90:73-82. "To a basic day of uninterrupted lighting, too short to be activating sexually to male starlings, periods of flashing light were added. . . . The combined daily treatment was . . . 14 hours. Controls . . . received 14 hours of uninterrupted illumination. . . . In all cases, the birds remained awake throughout the daily periods of light-experiments." Control Starlings formed sperm; those treated with flashing light did so when the interval of darkness between successive flashes was less than 15 seconds and the flashes were at least 0.9 second in length. "It was found that wakefulness, as such, did not result in testicular activation. It is concluded on the basis of the above and other work, that light, as light, is the primary stimulus for testicular activation in the male starling. It has been found that within limits, the light stimulus is quantitatively related to the rate and degree of testicular response."

ECOLOGY

26. Population study on a Region in the Lower Limmat Valley. (Besiedlungstudie über ein Gebiet im unteren Limmattal.) W. Epprecht. 1942. *Ornithologische Beobachter*, 39:53-66. An annotated list of 45 species nesting in a region of four square kilometers west of Wettingen, Switzerland. A map shows the major ecological niches and the occurrence of pairs of 25 species. Notes are given on territorial relations, song and nesting sites. The Chaffinch (*Fringilla coelebs*) was the most abundant of the song birds.

27. Report on the Redshank Inquiry 1939-40. J. F. Thomas. 1942. *British Birds*, 36:5-14; 22-34. A coöperative study of the British Trust for Ornithology on the spread and habits of *Tringa totanus britannica*. One hundred years ago it bred only on the eastern side of Great Britain on the seashore, tidal rivers and neighboring coastal districts; now it has spread over almost all of Great Britain.

28. Is It Wise Policy to Introduce Exotic Game Birds? Ralph T. King. 1942. *Audubon Magazine* (formerly *Bird Lore*), 44:136-145. Excellent presentation of the subject, pointing out the dangers of such introductions and emphasizing the far better alternative of improving conditions for our native species. The author shows that introduced game birds are expensive, and that they increase the hunting pressure on our native game; he discusses their general undesirability from the standpoint of spreading disease, weakening stock by crossing and competition. He quotes Grinnell that "when a species native to a large area is successfully introduced into a new small area the related species which is native in this area and with which the former comes into competition is soon supplanted," due to the superior toughness and aggressiveness of the foreigners (from Eurasia in contrast with North America). "One of the strangest things in connection with this matter of introductions is the blind faith exhibited by those who believe that they can keep exhausted coverts inhabited and productive by 'pouring' into them more birds to suffer the same fate suffered by those previously occupying the coverts. There seems to be no appreciation of the

relationship between range and populations.”

See also Nos. 31 and 34.

BOOKS

29. Cuckoo Problems. E. C. Stuart Baker. 1942. Witherby. London 207 pp. 25 shillings. Based on investigations conducted “for nearly seventy years”, during which a collection was made of some 6,000 Cuckoo eggs, half of them from Asia, this book deals primarily “with the evolution of the Cuckoo’s egg.” Much attention is given to the “Need for Adaptation of Cuckoo’s eggs to Those of Fosterers.” The incidence of desertion of nests parasitized by the Khasia Hills Cuckoo (*Cuculus canorus bakeri*) was 8 percent in 1642 cases with normal fosterers and 24 percent in 298 cases with abnormal fosterers. Experiments showing that less adapted eggs are more often rejected were made by Swynnerton and Ali. In Great Britain the eggs of *Cuculus c. canorus* are generalized to match the most common fosterers—Reed-Warbler, Meadow Pipit and Pied Wagtail; in Hungary the Great Reed Warbler is the most common host and the Cuckoo eggs are very similar. In Finland and Lapland a type has been evolved to match Brambling and Chaffinch eggs, and a bright blue egg for the Redstart and Wheat-ear. The Khasia Hills Cuckoo has six main types of eggs ranging from reddish brown speckles to a clear blue. Many instances of extraordinary adaptation to the hosts’ eggs are mentioned, particularly with Asiatic Cuckoos; size as well as color is involved and the explanation would appear to be rejection by the hosts of eggs dissimilar to their own.

As to time of laying, with Cuckoos in India it may be early in the morning or in the afternoon (p. 169). Most Cuckoos lay at 48 hours interval, although some small species may lay every day; Mr. Baker believes that laying is continuous and that when the nests in one area are exhausted, the bird goes to another, returning later to the first place (p. 143). He does not mention Chance’s findings in regard to the Cuckoo’s watching the building of her victims some five days before laying her egg. The longest life for an individual Cuckoo was one in the Khasia Hills whose eggs were found between 1925 and 1936 (p. 9), or 1925 and 1935 (p. 169). Evidence is cited to show that female Cuckoos are often promiscuous; the author does not believe that the male has any influence on the eggs of his daughters. Female Cuckoos generally defend a territory from other Cuckoos parasitic on the same species, but tolerate females parasitic on other species; some species of Cuckoos do not hold territory. *Cuculus*, *Penthoceryx*, *Cacomantis* and *Chalcites* all evict other nestlings and eggs and all have as nestlings a “special conformation of the back which enables, or assists, them in carrying out the ejection” (p. 155). But *Clamator* and *Eudynamis* lack this cavity in the back and never evict their nest mates.

Curiously enough, the author suggests that since reptiles seldom build nests, “Evolution in nidification *must* have been acquired in the first place and parasitism seems to have been acquired not by birds which were originally nest-builders, but by those who had never acquired the art of nest-building” (p. 98). Yet he states, “Our most primitive Cuckoos (*Phoenicophaeinae*) are not parasitic, they make their own nests, hatch their eggs and rear their young” (p. 99). It is impossible for the reviewer to see how a bird with altricial young could always have been parasitic.

The Cowbird is dismissed with the statement that information on it is well summarized by Makatsch (1937); whereas almost nothing is given there. It would have been of great interest to contrast this successful parasite where no specialization has taken place in egg or young with Cuckoos that are so highly specialized. The book is illustrated with eight beautiful plates in color of eggs of different Cuckoos and their fosterers. There is no index and few references are complete. A valuable treatise on the evolution of Cuckoo eggs, but rather disappointing on many other intriguing problems of parasitism.

30. Watching Birds. James Fisher. 1940. Pelican Books. London. 6d. 192 pp. An excellent little book on field study of birds, concluding with practical suggestions on "What You Can Do." In the chapter on "The Number of Birds" the increase and spread of several species in the British Isles are noted—Fulmar, Greater Spotted Woodpecker, Tufted Duck, Grey Wagtail, Redshank, Curlew, Black-headed Gull and Oystercatcher. The May breeding population of the 57 million acres of Great Britain is estimated at 60 million pairs (p. 167). The author states that territories of "typical" territory birds range between one-half and four and a half acres. "The general advantage lies in the fact that territory ensures an *even distribution* of birds over an area, thus not stretching unduly the limits of food supply in any one place while neglecting the sources of food in another" (p. 172). The task of the protectionist is three-fold: "insure the continuance of certain areas in their present natural state so as to preserve a sample of bird life affected by man as little as possible"; "preserve different species of birds because of their population, interest, and biological importance as much as because of their rarity"; and "keep the collectors away."

31. Nesting Birds and the Vegetation Substrate. William J. Beecher. 1942. Chicago Ornithological Society. Field Museum. 69 pp. \$1.00. An exhaustive study of upland-marsh ecology. In 1937 over 1,200 nests were located in accurately measured plant communities in a 482 acre tract near Fox Lake, Ill.; these are analyzed according to seasonal and vertical distribution, as well as distribution as related to floristic complexity and to plant communities. A helpful glossary of ecological terms is given in the introduction, and methods used in mapping areas and locating nests are described. The geological history of the area is discussed, followed by a detailed description of "present plant communities, particularly as their physical characteristics determine their substrate value to nesting birds. The breeding birds are then listed in systematic order with quantitative data covering the densities of each in all the plant communities in which they nested."

"A correction of the densities obtained in terms of the so-called 'edge effect' is next undertaken. It is demonstrated that population density increases directly with increase in number of feet of edge per unit area of the plant society or with the increasing floristic complexity of the environment in terms of communities per unit area."

"Quantitative data covering the breeding period of each species discloses that those species nesting earliest in spring are birds whose nests show them to be independent of vegetation of the year—the further conclusion being drawn that the simultaneous nesting of marsh birds is conditioned by the development of the vegetation. Thus, laying may be retarded by external conditions in spite of physiological maturity of the gonads" (pp. 65–66).

This little book is attractively bound and printed; it is a valuable contribution to our knowledge of succession in birds, of factors in nesting distribution and especially of the subject of "edge." It is a work of outstanding value, based on a tremendous amount of field work, well-planned and faithfully executed.

32. Forward the Nation. Donald Culross Peattie. 1942. Putnam's. N. Y. 281 pp. \$2.50. Another of Mr. Peattie's inimitable re-creations of great personalities and great adventures in our pioneer days, this time the Lewis and Clark Expedition which claimed for us the Pacific Northwest. The heroes of the book are Thomas Jefferson, Meriwether Lewis and William Clark and their men, and its heroine is Sakajawea, the Indian woman who guided them. In contrast to the high daring, vision and devotion of these, we are shown glimpses of the selfishness and vain-gloriousness and final downfall of Napoleon Bonaparte and Josephine, for it was Napoleon who sold us Louisiana Territory. The characters and the country are vividly portrayed in unforgettable fashion. The only disappointment is that so little is told us of the new birds discovered! An absorbing and

true story of indomitable courage, a delight to read, and an inspiration to remember.

33. Needle to the North. The Story of an Expedition to Ungava and the Belcher Islands. Arthur C. Twomey. 1942. Houghton. Boston. 360 pp. \$3.50. A tale of adventure, hardships and achievement against difficulties and dangers in the Far North. A midwinter trip was made by the help of Indians into the interior of Ungava to secure specimens of the unknown fresh-water seal; later the ice was crossed to the Belcher Islands in Hudson Bay and spring and summer spent there in collecting zoological specimens. Birds are frequently mentioned, but Indians and especially Eskimos play a larger role in the book. The Indians have fallen upon evil days since the passing of the caribou, but the Eskimos by hard work and high skills successfully cope with the hazards of their lives. The amazing abundance of life on the Belchers in the short summer is emphasized. Several items as to decoying are of interest. The Eskimo children decoy geese by honking (p. 210). When in a boat and ducks were seen, the children waved "their arms vigorously up and down with a flying motion", whistling "qui-hew"; they "would soon have the whole flock circling the canoe and almost alighting with us out of curiosity and excitement" (p. 236).

The coming of the first Canada geese was an occasion for great excitement. "The Eskimo grew fancy with long necklaces of the bird-bands that they strung together and wore. Most of the bands were printed Bible verses", having been applied at Jack Miner's refuge (p. 217). After the cobblestones around the harbor were white-washed in August, "snow geese and blue geese, flying overhead in formation, would almost immediately swing around in line and come sailing straight down, decoyed by the bright white circle of goose-like stones" (p. 291).

Some of the photographs are a great interest, but many give only general views, whereas one would prefer more close-ups of Indians and Eskimos. The book makes exciting reading, but would have benefited from judicious cutting.

34. Birds Around New York City. When and Where to Find Them. Allan D. Cruikshank. 1942. American Museum Natural History Handbook Series No. 13. 489 pp. \$1.84. An excellent guide to southern New York State, northern New Jersey and all of Long Island, this book offers much of ecological and phenological value to bird students everywhere. Of most significance are the 22 pages devoted to "Our Major Ecological Blocks", where summer, spring and fall transient, and winter birds are listed under "Dominants" and "Sub-dominants." These blocks are: open ocean (two to ten miles out); ocean (from shore to two miles out); ocean beaches and sand dunes; coastal bayberry, high-tide bush and poison ivy thickets; salt or brackish marshes; coastal mud flats; sheltered salt water; fresh water; fresh-water marsh; disturbance communities; plains and dry fields; fields with bushes and scattered trees; second growth deciduous trees; mixed deciduous growth; great pine and oak barrens. The "Ornithological Year" is also of general importance; the contrast between early migrants, so dependent on the weather, and the later more regular migrants is pointed out. The February migrants "are not by any means as definite in their movements as those in May. Weather at this time is too powerful a factor and there may be almost a month's variation in their arrival according to season" (p. 36). As to May, "The movements during this month are much more precise than at any other time, some species arriving with almost the precision of clockwork. Naturally weather and temperature cause some, and occasionally considerable, variations. A wave is generally due to unfavorable weather damming up the birds moving northward for several days" (p. 39.)

The annotated list gives some account of the past and present status of each species in different localities in the region, of migration dates and behavior, and of nesting sites and dates. The criterion of abundance is "the highest count I have ever made in a day of vigorous birding (at least nine hours of active obser-

vation), . . . or the number one may expect to see during a day at a given season" (p. x). Maps of the region are given on the end papers and 35 splendid photographs of birds included. This is a notable coöperative effort, a monument to the activity and zeal of the field ornithologists of the New York City region.

35. Life Histories of North American Flycatchers, Larks, Swallows, and Their Allies. Arthur C. Bent. 1942. U. S. National Museum Bulletin, no. 179, pp. i-xi+555, 70 pl. A fascinating volume, full of interest and illustrated with remarkable photographs. Skutch's accounts of the Becard and Sulphur-bellied Flycatcher are notable. Most of the book is taken up with the Tyrannidae, and many interesting items are given. Many of them are belligerent not only to members of their own species but to others, especially to predatory birds. Tanagers, vireos and warblers nest near the nest of Coues' Flycatcher presumably for protection from hawks, jays and squirrels (p. 264).

Instances of more than two adults feeding young at one nest are given for Tree and Violet Green Swallows (pp. 378, 387). Bank Swallows on migration have been seen going into nesting holes of their kind to spend the night (p. 421). Cliff Swallows increased in the East as barns were built, then decreased because of competition from the English Sparrows. Now with fewer of these intruders in the East, they are again increasing, but in the West, English Sparrows are becoming more and more of a menace to the Swallows.

All bird students owe a debt of gratitude to Mr. Bent for his untiring efforts in compiling these Life Histories.

36. Shearwaters. R. M. Lockley. 1942. Dent. London. 238 pp. (Wm. Salloch, 344 E. 17th St., N. Y. C. \$4.00). A fascinating book telling of the home life of the Manx Shearwater (*Puffinus puffinus puffinus*) at Skokholm—marked individuals which nested for many years, even up to 10 and 11, in succession. Some 10,000 of these birds nest on the island, but most of the information was obtained from an isolated group of a dozen burrows next Mr. Lockley's house. A piece of turf was cut from above the end of each burrow and removed and replaced at pleasure. Daily and nightly observations revealed an amazingly long incubation period of 51 to 54 days and an even longer fledging period of 72 to 74 days, incubation shifts of 3 to 5 days, occasionally twice as long during the time of full moon, feeding of the chick by regurgitation once each night by both parents except during moonlight, when it had to fast, and desertion of the chick by its parents some 12 days before it made its way by night to sea. Young birds picked up on this journey and released into the sea the following morning at once swam, drank, bathed and dove. Extensive ringing showed that fidelity to mates was the rule; the author suggests that voice serves as the means of personal recognition. It also showed that nesting birds range as far as the Bay of Biscay, 600 miles to the south. The extraordinary homing experiments where birds returned from many directions, even from points inland, and from Switzerland and Venice are described in detail. In an interesting discussion on age problems the minimum average life of a Manx Shearwater is calculated at six years. It is also estimated that 60% of the eggs laid produce independent young. The last chapters tell of explorations to Portugal and to islands of the coast of West Africa in search of different species of Shearwaters and Petrels.

A notable example of the fundamental value of banding in life history studies: for following the daily life of individuals during the nesting season, for studying migration and for experimenting on homing ability. The book is written with sincerity and charm; the chapter on "Adam and Ada" is a gem. There is a list of scientific names and an index, several maps and many excellent photographs.