FROM FIELD AND STUDY

Salivary Glands in the Black Swift.—In 1956 Lack (Auk, 73, 1956: 2) stated that all swifts use saliva in their nest building and that "all, so far as known, have enlarged salivary glands in both sexes in the breeding season." These general statements were questioned, however, by Johnston (Condor, 60, 1958:79) especially with regard to the Black Swift (*Cypseloides niger*). This species has been reported by Bent (U. S. Nat. Mus. Bull. 176, 1940:256–260) and Legg (Condor, 58, 1956: 183) to nest in situations where saliva would be unnecessary for construction of the nest; in fact, both men stated that saliva was not used in the nest. These reports do not preclude the possibility that Black Swifts do have salivary glands but just do not use them in nest building as do some other swifts.

An opportunity to resolve these apparently conflicting statements presented itself when I came into possession of two specimens of Black Swifts preserved in alcohol. The adult birds, a male and female, were taken at random from a flock at Vancouver, British Columbia, on June 13, 1960, by Dr. Miklos D. F. Udvardy. At this time the birds should have been nesting; the male had testes 9 mm. in length and the female had follicles 1.5 mm. in diameter. Gross examination of the floor of each bird's mouth did not reveal the presence of salivary glands which are so conspicuous in *Chaetura* and *Collocalia* (Johnston, Condor, 60, 1958:80; Marshall and Folley, Proc. Zool. Soc. Lond., 126, 1956:385), so histological sections of the floor of the mouth were prepared. After staining with hemotoxylin and eosin, these sections showed a few small lobes of the sublingual salivary glands, but each of these lobes was only 400 μ or less in diameter whereas those of the Chimney Swift (*Chaetura pelagica*) were shown by me earlier to be as much as 1000 μ.

From these data it is evident that the Black Swift does have sublingual salivary glands but that these glands are smaller than those found in some other swifts. These observations support the contention by Bent and Legg that saliva is not used in nest construction of this species.—David W. Johnston, *Department of Biology, Wake Forest College, Winston-Salem, North Carolina, January 5, 1961.*

Second Specimen of the Dovekie from Alaska.—An unsexed specimen of an adult Dovekie (*Plautus alle*) was received in 1948 from the late Roger Menadelook who collected it on Little Diomede Island, Alaska, July 8, 1948. It is now no. 9089 in my collection. Mr. Menadelook writes (*in litt.*) that this type of auklet "is very rare on this island, the occurrence being in my estimation about one in 50,000 of other auklets. The Eskimo name is Koogigahkrook. Weight 8 oz., wing spread 18 in., beak to tail tip 9½ in. Its wing beat is steady and unwavering like that of murres and its flight steady. The ones rarely seen here are all of the same color . . . but there is no knowledge of any laying eggs."

Gabrielson and Lincoln (The Birds of Alaska, 1959:483) report that "the only definite Alaskan record of this eastern Arctic species is a bird . . . [taken] . . . offshore at Point Barrow on July 13, 1935. This specimen, a high plumaged, unsexed adult, was sent to the Chicago Academy of Science where it is now No. 7864. . . . " The bird in my collection is the second known specimen from Alaska. —Wilson C. Hanna, *Colton, California, January 11, 1961.*

Growth Rate of the Lens of the Eye of House Sparrows.—The dry weight of the lens of the eye has successfully been used by Lord in aging cottontail rabbits, *Sylvilagus floridanus*, and gray foxes, *Urocyon cineroargenteus* (Jour. Wildlife Manag. 23, 1959:358–360; Jour. Mammal., in press). By weighing lenses of caged rabbits ranging in age from one day to 30 months, he found that the lens continues to grow in weight throughout adult life. Overlap in lens weights between one-year-old and two-year-old rabbits was slight. Because of this success with the lens technique in aging mammals, it appeared desirable to determine the growth rate for the lens of a bird in order to find out whether or not the same technique might also be useful in aging birds.

The more important characters that have been used to age birds are the degree of ossification of the skull in song birds, the presence or absence of the bursa of Fabricius, and the plumage in species with age-specific plumage characters (see for example, Miller, Bird-Banding, 17, 1946:33–35; Gower, Trans. Fourth N. Amer. Wildlife Conf., 1939:426–430; Selander and Giller, Condor, 62, 1960:202–214). These methods generally are limited to distinguishing first-year birds from older

birds. In only a few species of birds can second-year, third-year, and fourth-year individuals be distinguished from each other. For example, these age groups can be told apart in California Gulls (*Larus californicus*) by the plumage and by the color of legs, bill, eyelids, and gape (Johnston, Condor, 58, 1956:113–162, 206–221). The number of atretic and post-ovulatory follicles and the length of claws have been used as characters of relative age in Fulmars, *Fulmarus glacialis* (Wynne-Edwards, Proc. Zool. Soc. London, 109, 1939:127–132). However, no comparable structures are known for determining the age in years of most birds once the adult plumage has been attained.

House Sparrows (*Passer domesticus*) were collected by shooting, trapping, and raiding night roosts from February to October, 1960. Birds were taken in southeastern Michigan in the Ann Arbor area, in northern Michigan in Cheboygan County, and in California in Alameda County. There is no significant difference in wing length, bill length, bill depth, or tarsal length between House Sparrows from the eastern and western United States (Lack, Condor, 42, 1940:239–241; Phillips, Auk, 32,

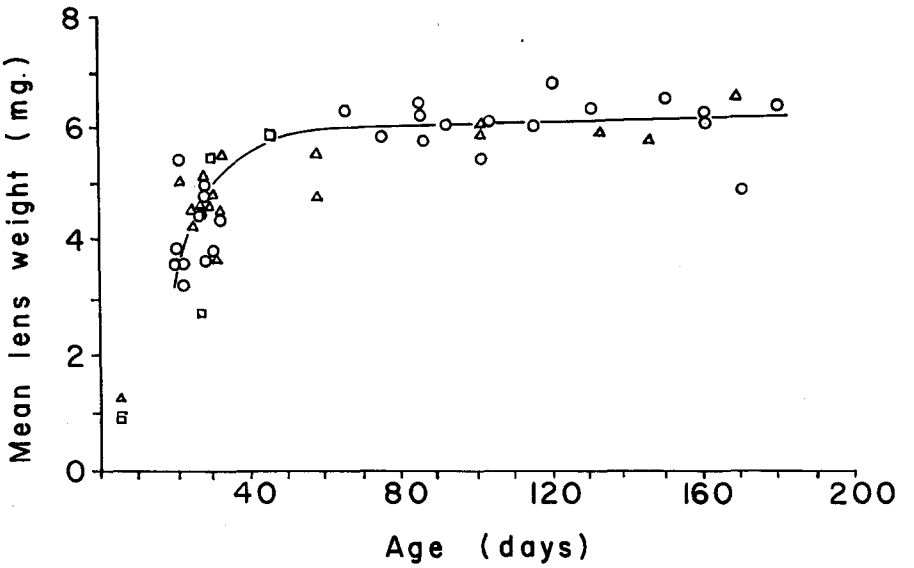

Fig. 1. Growth of eye lens (dry weight) in House Sparrows (*Passer domesticus*). Triangles represent males, circles represent females, and squares represent birds whose gonads were not seen.

1915:51–59). Likewise, no difference in lens growth rate was evident in this study between birds from Michigan and those from California. As eastern and western House Sparrows are so similar, the results of lens growth of birds from both states are presented together.

Nestlings were aged to the nearest day by comparison with Weaver's (Wilson Bull., 54, 1942:183–191) descriptions of nestling House Sparrows. Birds with incompletely ossified skulls were aged by comparing their ossification patterns to the series of ossification patterns of House Sparrows of known age up to 185 days drawn by Nero (Wilson Bull., 63, 1951:84–88). Because of the degree of individual variation in rate of skull ossification, ages of birds in the present work are accurate probably to within three days for birds younger than 35 days and to within 10 days for older birds. Sparrows with fully ossified skulls were grouped as adults. Eyes were preserved for at least a week in 10 per cent formalin. The hardened lenses were then cut loose from the eyes, cleaned by rinsing in water, and dried at about 60°C. in a drying oven for 24 hours or more before being weighed. No further decrease in weight occurred when lenses were dried for longer periods. Each lens was weighed on one of two chainomatic analytical balances or on a more convenient Roller-Smith precision balance.

The growth rate of the eye lens of House Sparrows during the first six months after hatching is shown in figure 1. Each point plotted on the graph represents the mean dry weight of the left

and right lenses of a single bird, except that 11 of these 51 points represent a single lens weight, as the contralateral lenses of these 11 were lost before they could be weighed. Lens weight increased noticeably in sparrows between the ages of six days (the youngest bird in the sample) and two months. Any increase that may have occurred in average lens weight after two months was insignificant compared with the difference between individuals. The average dry weight of the lens of 45 fully ossified, adult House Sparrows in milligrams was 6.170 $\pm$ 1.484, 95 per cent confidence limits. No difference in dry lens weight was apparent between males and females. When the data were tested by the t-test, the probability was greater than 0.50 that the mean lens weight of sparrows between two and six months of age was not significantly different from the mean lens weights of adults. These results show that lens weight is useless in aging House Sparrows older than two months.

The accuracy of the measurements as well as the reliability of the lens technique may be expressed by comparing weights of both lenses from the same bird. In 74 of the total of 96 birds, both the left and right lenses were weighed. One would expect the lenses from any one bird to have the same weight, but the left and right lenses differed in weight an average of 4.11 per cent of the mean dry weight of adult lenses, expressed in milligrams as 0.253 $\pm$ 0.059, 95 per cent confidence limits.

The lens technique appears to be of little use also in aging other species of birds. Dr. R. D. Lord (*in litt.*) found individual variation in lens weights to be so great that the lens technique was of no use in aging Ring-necked Pheasants (*Phasianus colchicus*). Howard Campbell (*in litt.*) found that Scaled Quail (*Callipepla squamata*) could not be separated by the lens technique in the fall into birds of the year and full adults. Miss Lois I. Bear (*in litt.*) also found overlap and little further increase in lens weight in Redwinged Blackbirds (*Agelaius phoeniceus*) by the time the birds had attained the age of the postjuvenal molt.

Although the eye lenses of cottontail rabbits continue to add significant lens material for nearly three years, the eye lenses of House Sparrows reach adult size when the birds are two months old. This difference in growth rate may be related to differences in the life histories of mammals and birds. Sparrows are fledged at an earlier age than that when rabbits leave the burrow, and they consequently have to possess well-developed sense organs to find food and avoid predators at an earlier age. In addition, birds in general are more dependent on a visual sense, whereas small mammals depend more on other sensory modes, such as smell and touch. The more rapid growth of the avian lens may be thought of as reflecting natural selection for early development of the eye as the sensory receptor for the primary sensory mode.

I would like to thank A. E. Aronoff, L. Case, H. Cogswell, F. B. Gill, J. P. Rood, M. Marsh, C. G. Thompson, and L. L. Wolf for helping me collect House Sparrows. For the use of equipment I am indebted to the University of Michigan Museum of Zoology, the University of Michigan Biological Station, and the Museum of Vertebrate Zoology. I am grateful to Dr. A. H. Miller, Dr. R. W. Storer, and Dr. H. B. Tordoff for their suggestions in the course of this work.—ROBERT B. PAYNE, *Museum of Vertebrate Zoology, Berkeley, California, January 26, 1960.*

Malaspina's Early California Ornithological Report.—Attention recently has been focused on the scientific investigation conducted at Monterey, California, in September, 1791, by Captain Alejandro Malaspina. The history of this investigation has been most interestingly and factually reported in a book by Donald C. Cutter, entitled "Malaspina in California," published by John Howell-Books, San Francisco, California, 1960.

Ornithologists will be especially interested in the section on Cardero's Birds of California. The only colored plates in the book are four paintings of birds done by the expedition's artist Jose Cardero. The author writes "Of the art emanating from California it is possible to identify definitely or provisionally some twelve items produced by ex-boatswain Jose Cardero." The four birds illustrated in color are the Redwinged Blackbird (*Agelaius phoeniceus*), the Red-shafted Flicker (*Colaptes cafer*), the California Thrasher (*Toxostoma redivivum*) and the California Quail. (*Lophortyx californicus*). This is the second known drawing of the state bird. The California Quail was first done in black and white by a member of the La Perouse group in September 1786. The third representation of the California Quail was done by a member of the Bodega Expedition of the Limits, about a year after Cardero's illustration.

This note is published to draw attention to an additional item in the bibliography of early California ornithology.—C. V. DUFF, *Los Angeles, California, February 4, 1961.*