

Sexual dimorphism in juvenile House Sparrows.—The adaptive significance of sexual dimorphism in plumage of birds lies in the relationships between reproductive individuals, and reproductive activities ordinarily are undertaken by sexually mature birds. Consequently, sexual dimorphism in juveniles is probably of minimal adaptive value, and may, indeed, have no value at all. However, in some species the juveniles (herein used to connote birds in juvenal plumage) do show such dimorphism in plumage, and one of these is the House Sparrow, *Passer domesticus*.

This sexual dimorphism is not strongly marked, but the differences that exist are on the head and throat, or precisely in the regions where adults are most strongly dimorphic. The juveniles foreshadow the adult condition especially on the throat, which tends to be whitish in juvenile females and dusky in juvenile males. Surprisingly, there has been incomplete agreement on the validity of sexing juvenile House Sparrows by means of the plumage characters (J. D. Summers-Smith, *The House Sparrow*, London, Collins, 1963; see pp. 98–99), in spite of the fact that the differentiating characters have long been known (H. F. Witherby *et al.*, *The handbook of British birds*, vol. 1. London, H. F. & G. Witherby, 1938; see p. 159). No doubt the basis for hesitancy in acceptance of sexing by plumage is that such dimorphism seems “nonadaptive” in juveniles and that none of the characters is an absolute—expressions of all qualities may be found in both sexes. J. M. Harrison (*Bull. Brit. Ornith. Club*, 81: 97, 1961) stated that in his specially collected sample of 70 juvenile sparrows from England 5 per cent of males and 6 per cent of females were equivocal for throat color, the only probability statement to this day on juvenile dimorphism in sparrows.

A recently obtained set of samples including 73 juvenile House Sparrows from mid-continental North America provides an opportunity to assess the validity of certain plumage characters in differentiating juvenile males and females, as well as to compare the data with those of Harrison. Accordingly, this note sets forth information on colors of feathers of the heads and throats of these 73 specimens, and indicates the degree to which such characters alone can discriminate sexes of juvenile birds.

The birds were taken in August, 1966, in three lots, as follows: from the vicinity

TABLE 1
THROAT COLOR IN JUVENILE HOUSE SPARROWS FROM MONTANE AND GREAT PLAINS
NORTH AMERICA

Sample	N	Specimen reference values							Mean score
		1	2	3	4	5	6	7	
Chaffee County, Colorado									
♂ ♂	20	0	0	3	8	4	5	0	4.55
♀ ♀	18	4	14	0	0	0	0	0	1.79
Lake County, Colorado									
♂ ♂	7	0	0	1	1	2	3	0	5.00
♀ ♀	2	0	2	0	0	0	0	0	2.00
Gove County, Kansas									
♂ ♂	13	0	0	2	4	4	2	1	4.83
♀ ♀	13	6	4	3	0	0	0	0	1.85
Totals:									
♂ ♂	40	0	0	6	13	10	10	1	4.67
♀ ♀	33	10	20	3	0	0	0	0	1.78

TABLE 2
POSTOCULAR SPOT IN JUVENILE HOUSE SPARROWS FROM MONTANE AND
GREAT PLAINS NORTH AMERICA

Sample	N	Eyespot	
		Present	Absent
Chaffee County, Colorado			
♂ ♂	20	13	7
♀ ♀	18	3	15
Lake County, Colorado			
♂ ♂	7	5	2
♀ ♀	2	0	2
Gove County, Kansas			
♂ ♂	13	10	3
♀ ♀	13	1	12
Totals:			
♂ ♂	40	28	12
♀ ♀	33	4	29

of Salida, Chaffee County, Colorado, at 7,000 to 7,500 feet elevation (38 skin specimens); from Malta, 9,500 feet, Lake County, Colorado (9 skins); and from the vicinity of Quinter, 2,500 feet, Gove County, Kansas (26 skins). The 40 males and 33 females were distributed in the subsamples as indicated in Tables 1 and 2. The two plumage characters investigated are color of throat and presence or absence of the postocular spot, by my accounting the two most useful of the characters heretofore suggested.

Throat color was considered to be a continuous variable from the extremes of "whitish" to "dusky gray" and was arbitrarily divided into seven categories, from whitish to dusky. A specimen was selected to represent each of the seven stages of expression of throat color and assigned a number (1 to 7). The run of fresh specimens was scored in accord with the best available match. All comparisons were made under artificial daylight having a color temperature of 7,500° K, as provided by a "Superskylight" (Macbeth Corporation; see R. K. Selander, Johnston, and T. H. Hamilton, *Condor*, 66: 491-495, 1964).

The postocular spot, a whitish or buffy patch about 1 mm in diameter immediately above and posterior to the eye, was either present or absent on specimens, and individuals were scored as having or lacking the spot, again in the constant visual conditions of the "Superskylight."

Results of these comparisons are presented in Tables 1 and 2. The data on throat color (Table 1) are especially useful in distinguishing the sexes, all 47 of the birds from Colorado being accurately sexed by this character alone. Three females from Gove County, Kansas, scored "3," a relatively dark value otherwise reached by no females. Such scores are not surprising in view of the known clinal variation of both adult males and females in Colorado and Kansas (R. F. Johnston, *Bull. Kansas Ornith. Soc.*, 17: 21-25, 1966), and in fact Kansas birds of both sexes are perceptibly darker in other regions of plumage.

Comparison of the present sample of 73 birds with Harrison's 70 suggests that the throat is somewhat less clearcut as a dimorphic character in Kansas than it is in England. As Table 1 shows, specimens scoring "3" for throat color may be gonadally either male or female, and 15 per cent of males and 9 per cent of females

TABLE 3
POSTOCULAR SPOT IN SPECIMENS SCORING "3" FOR THROAT COLOR

Sample	N	Eyespot	
		Present	Absent
♂ ♂	6	3	3
♀ ♀	3	0	3

were referred to this score; these values are two to three times those obtained by Harrison.

The postocular spot is altogether less useful as a diagnostic sexual character, but the trend is certainly clear: males tend to have the spot, females tend to lack it. The possibility of combining the two characters, throat color and eyespot, allows nearly complete separation of the sexes in the present sample (Table 3). It is likely, however, that a few individuals in any sample will prove difficult to sex by plumage alone.

Application of these findings by banders or others handling live juvenile House Sparrows could be along the following lines: a bird with a whitish throat is almost certainly a female, and one with a dusky throat is almost certainly a male. A bird with a faintly dusky throat may be of either sex, but it is likely to be a male if it has a conspicuous postocular spot.

It seems most unlikely, also, that juvenile individuals intermediate in the plumage characters here discussed represent "... a degree of intersexuality . . .," as Harrison has put it (*op. cit.*: 97). The probability of finding true postjuvenile intersexes in this species is about $P = 0.001$ (very large sample; Selander, Johnston, and G. Cantu, MS), and nowhere is there an indication that juvenile intersexes can be expected to approach frequencies of 5, 6, 9, or 15 per cent. The specimens that were impossible to sex by plumage characters represent something other than true intersexuality, although the basis for this will be revealed only by further study.—RICHARD F. JOHNSTON, *Museum of Natural History, The University of Kansas, Lawrence, Kansas.*

Sandhill Cranes and other birds from Bering Strait, Alaska.—We spent from 14 May to 4 June 1964 observing and collecting birds at Wales, Alaska, on the westernmost tip of the Seward Peninsula. Local Eskimos stated that this was an unusually late spring. We observed 57 species, collected specimens of 26, and photographed 32. Since early spring weather conditions at Wales vary greatly from year to year and few observers have reported spring arrival dates, it seems appropriate to report what we considered to be the first spring arrival dates for 1964 (asterisks indicate specimens collected): 21 May, Yellow Wagtail (*Motacilla flava*), American Golden Plover (*Pluvialis dominica*), Savannah Sparrow (*Passerculus sandwichensis*); 22 May, Wheatear* (*Oenanthe oenanthe*), Horned Lark (*Eremophila alpestris*); 24 May, Canada Goose (*Branta canadensis*), White-fronted Goose (*Anser albifrons*), Pectoral Sandpiper* (*Erolia melanotos*), Dunlin* (*E. alpina*) (large numbers arrived 26 May), Lapland Longspur* (*Calcarius lapponicus*); 25 May, Ruddy Turnstone* (*Arenaria interpres*), Western Sandpiper* (*Ereunetes mauri*), Northern Shrike (*Lanius excubitor*); 26 May, Rock Sandpiper* (*Erolia ptilocnemis*); 27 May, Baird's Sandpiper* (*E. bairdii*), Red Phalarope* (*Phalaropus fulicarius*) (large numbers arrived 28 May), Northern Phalarope (*Lobipes lobatus*); 28 May, Long-billed