| Accipitridae: | Falcondidae: |
| --- | --- |
| 5. Sternum without internal spine; | 5. Spina sterni interna present. |
| 6. Coracoid with procoracoid perforate; | 6. Procoracoid perforate or not. |
| 7. Tibiotarus with 2 openings under supratendinal bridge; | 7. Supratendinal bridge with 3 openings. |

In all these characters *Gampsonyx* agrees perfectly with the Accipitridae and differs from the Falconidae. Therefore the skeletal system proves that this genus is a member of the Accipitridae, as already suggested on the basis of its external morphology and wing molt.—PIERCE BRODKORB, *Department of Biology, University of Florida, Gainesville, Florida.*

**The Duration of Postnuptial Metabolic Refractoriness in the White-crowned Sparrow.**—It is well known that gonadal activation and simulated premigratory fat deposition can be experimentally induced in many species of migratory passerines by treatment with long daily photoperiods. These responses are followed by a period of insensitivity during which the gonads regress, the fat deposits are depleted, and additional photostimulation will not elicit a second or additional response. This *refractory period* occurs also under natural conditions during the postnuptial phase, lasting for several months (Miller, 1948, J. Exp. Zool., 109: 1; 1954, Condor, 56: 13; Farner and Mewaldt, 1955, Condor, 57: 112; Wolfson, 1958, J. Exp. Zool., 139: 349; Shank, Auk, 1959, 76: 44). The refractory period is accordingly not merely a laboratory artifact, although it can be detected only by experimental means. For the sake of clarity, we will distinguish between *gonadal* refractoriness and *metabolic* refractoriness, the latter designating the insensitivity of the fat-deposition mechanisms to artificial photostimulation.

It has been shown that gonadal refractoriness involves insensitivity of the hypothalamo-hypophyseal system to photostimulation (Miller, 1949, Science, 109: 546; Benoit, Assenmacher, and Walter, 1950, Comptes Rendus Soc. Biol., 144: 573). Because of the physiological similarity and apparent temporal coincidence of the gonadal and metabolic refractory periods, it has been generally assumed that they share a common functional basis. Recently, however, Shank (1959, Auk, 76: 44) has presented data which suggest that metabolic refractoriness in the White-throated Sparrow *(Zonotrichia albicollis)* lasts considerably longer than gonadal refractoriness. It thus appears that there may be quantitative differences between these types of refractoriness which might provide an experimental wedge for exploring the basis of the phenomena. It is our purpose in this note to present data which strongly support the suggestion advanced by Shank.

Figure 1 shows the variation in mean body weight of groups of White-crowned Sparrows *(Zonotrichia leucophrys gambelii)* which were exposed to artificially prolonged daily photoperiods beginning on the dates shown in the figure. These birds were captured near Pullman, Washington, during the autumn migration and were caged out-of-doors, exposed to natural photoperiods, until the beginning of the experimental treatment. On the successive dates indicated, each group was transferred to an indoor isolation room and exposed to a 15-hour daily photoperiod. The group transferred on 3 December was exceptional in that the birds were exposed to 20 hours of light per day. We do not regard this disparity in photoperiod as significant in the interpretation of the results. Unpublished data from our laboratories agree with those of Winn (1950, doctoral dissertation, Northwestern University) that daily photoperiods in excess of about 14 hours are

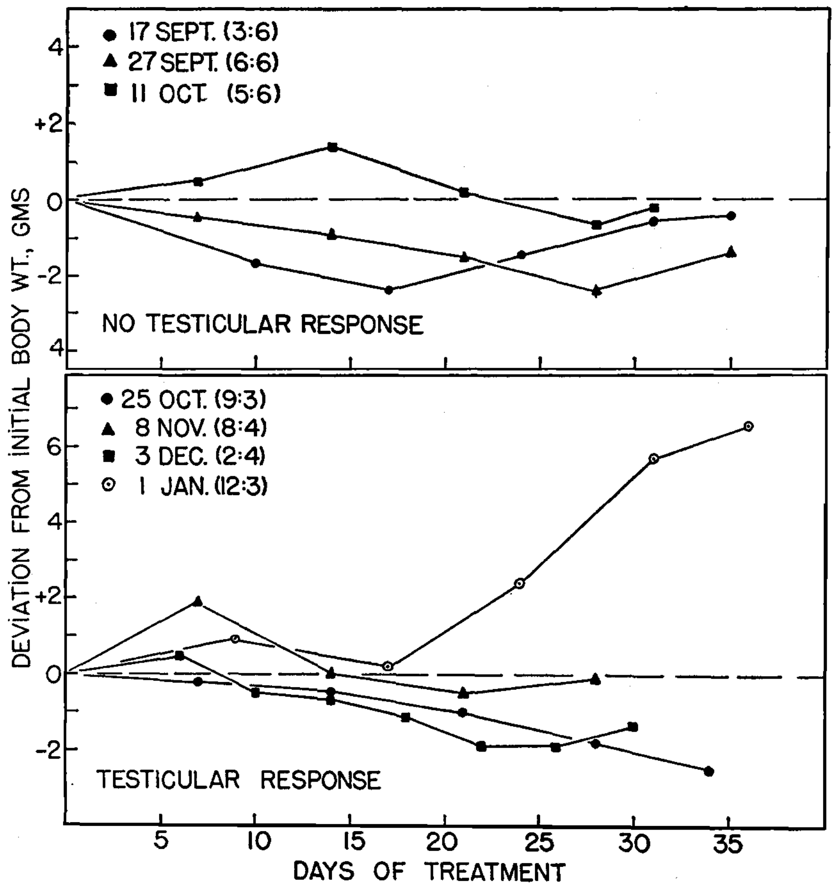


**Figure 1. Variation of body weight in groups of White-crowned Sparrows exposed to artificial photoperiods (see text). *Upper panel:* groups in which no testicular growth was detected. *Lower panel:* groups in which definite testicular growth was detected. In both panels the dates indicate the first day of experimental treatment. The numbers in parentheses indicate the composition of the groups in terms of males:females.**

essentially supramaximal stimuli for the body-weight response. In all other respects the experimental groups were maintained under uniform conditions. Some of the data have been published previously as initial and terminal averages (Farner and Mewaldt, 1955, Condor, 57: 112), but it appears justifiable to analyze these more fully and to augment them in the present connection. The experimental conditions, including the criteria for testicular activation, are described in detail in the earlier publication.

The upper panel in Figure 1 illustrates the variation in body weight in groups of White-crowned Sparrows in which the males showed no testicular growth above the level of controls maintained out-of-doors on natural photoperiods. There was no detectable difference in the body-weight patterns of the sexes, and they have accordingly been averaged together. The body-weight patterns of the experimental groups in which the males did exhibit significant gonadal enlargement are shown in the lower panel of Figure 1. Testicular response was obtained in one-third of the males of the group started on 25 October, and in all of the males of the experimental groups started on or after 8 November, indicating that testicular refractoriness was dissipating during late October and early November. Consistent body-weight response, however, did not occur until January, although one male of the group transferred on 3 December exhibited typical "premigratory" fat deposition. It is therefore clear that the mechanisms engendering fat deposition remain unresponsive to photostimulation until sometime in December, or fully a month longer than the testicular response mechanism. The data of Shank extend to an experimental group of White-throated Sparrows transferred to 20-hour daily photoperiods on 16 December, in which there was a testicular response, but no fat deposition. For the Junco *(Junco hyemalis)*, Shank's data suggest that the termination of testicular and metabolic refractoriness was essentially coincident. There may, therefore, be phyletic differences in the duration of the refractory periods.

Although it would be unwise to extrapolate extensively from these limited data, their major significance lies in the fact that they suggest that the gonadotrophic and metabolic control functions of the avian hypothalamo-hypophyseal system in relation to migration may be basically independent of one another, although they temporally overlap in their effects and may be influenced by the same environmental stimuli. This point of view is supported by the existence of vernal gonadal growth *without* concomitant fattening in nonmigratory passerines (e.g., *Zonotrichia leucophrys nuttalli,* which in part shares winter range with *Z. l. gambelii*). Although evidence is accumulating which advises caution in reasoning from mammalian data to avian function (*e.g.,* Newcomer, 1959, Endocrinology, 65: 133), there appears to be ample reason to suspect, on the basis of mammalian experiments, that the conspicuous lipogenesis and high turnover rate of depot fat which characterizes the migratory period in birds may be regulated to an important extent by the hypophyseal-adrenal axis (see Levin and Farber, 1952, Recent Prog. Hormone Res., 7: 399; Wool and Goldstein, 1953, Amer. J. Physiol., 175: 303; Zarafonetis *et al.,* 1957, Amer. J. Med. Sci., 243: 493; Levy and Ramey, 1959, Endocrinology, 64: 586). The potentially important role of the adrenal cortex in avian migration has received almost no experimental attention, however, and we can only speculate as to the significance of the adrenal steroids.

In conclusion, it appears that the significance of metabolic refractoriness in the annual cycle of wild birds is an open question. It is clear that the postnuptial refractoriness of the photosensitive response mechanism does not inhibit the deposition of migratory fat in the autumn. In captive *Z. l. gambelii,* autumn fattening attains nearly the magnitude of the vernal phase, although the rate of development is usually slower and there is much greater individual variation as to timing and rate. This observation conforms with the hypothesis that the *induction* of autumnal adiposity depends upon a different mechanism than the vernal phase (Schildmacher and Steubing, 1952, Biol. Zentralbl., 71: 272; Rautenberg, 1953, Wiss. Zeits. Univ. Greifswald, Math.-naturwiss. Reihe, 2: 229), but does not necessarily imply that the endocrine and energetic aspects of the fattening are different. On the contrary, unpublished data from our laboratories indicate that autumnal fattening in *Z. l.*

*gambelii* is accompanied by a pronounced hyperphagia (excessive energy intake as a result of appetite stimulation), as has been previously demonstrated during vernal fattening in this species (King and Farner, 1956, Proc. Soc. Exp. Biol. Med., 93: 354). The data of Rautenberg (1957, J. Ornith., 98: 36) and Merkel (1958, Zeits. vergleich. Physiol., 41: 154) also can be interpreted in the same way.—JAMES R. KING, *Department of Experimental Biology, University of Utah;* L. RICHARD MEWALDT, *Department of Biological Sciences, San Jose State College;* and DONALD S. FARNER, *Department of Zoology, Washington State University.*

**Nesting of Louisiana Waterthrush and White-throated Sparrow in Eastern Coastal Massachusetts.**—Although both the Louisiana Waterthrush *(Seiurus motacilla)* and the White-throated Sparrow *(Zonotrichia albicollis)* have long been known to breed in western Massachusetts and have been repeatedly observed in summer in the eastern coastal area, Griscom and Snyder (Birds of Massachusetts, 1955) knew of no breeding record from that area. Breeding of both species was established in 1959 in Milton, Massachusetts, near Boston.

The Louisiana Waterthrush has been observed in late May and June at Milton and Boxford for the past 12 years. On 15 May 1959, the senior author found a nest in a heavily wooded valley in the Blue Hills, Milton, five feet above a shallow pool that connected with a clear, rapid brook 10 feet away. The nest was near the top of the upturned roots of a fallen maple tree, and was partly concealed by clods of earth hanging from the roots. When found the nest contained one egg; when next visited on 20 May, the female was sitting on three eggs. The incubating bird was flushed from three eggs on 22, 25, 28, and 30 May. On 1 June, the nest held one egg and two just-hatched young. On 12 June, the three well-grown young (the white superciliary clearly visible) were still in the nest at 10:00 A.M.; they were gone by 5:00 P.M. The young had thus flown 12 days after two eggs hatched, and 28 days after the first egg was found. The junior author heard the male singing on 3 May, but during the incubation period song was noted only on 18 May.

A White-throated Sparrow (a male in breeding plumage) was noted by the junior author and Miss Dana Mills on 10 June 1957, in a nursery of young pines and spruces near Great Blue Hill, Milton, carrying food, as if to young. White-throated Sparrows were observed at the same locality in the summer of 1958, but no nest was found at that time. On 1 June 1959, the senior author found what was apparently the 1958 nest. On 15 June 1959, in the same locality, the senior author and his wife, after a careful search, discovered under a small pine a nest containing three young. On 20 June, when the nest was next visited, the young had left.—HENRY S. FORBES, *71 Forest St., Milton 86, Massachusetts, and* JANE D. O'REGAN, *23 Crockett Avenue, Dorchester 24, Massachusetts.*

**A Substitute Name for *Crypturellus strigulosus peruvianus*.**—In a recent paper on Peruvian game birds (Fieldiana: Zoology, 1959, 39: 373), I described a new race of tinamou, *Crypturellus strigulosus peruvianus,* from Departamento Madre de Dios. My designation of the trivial name proves to be most unfortunate since preoccupied by *Crypturus tataupa peruviana* Cory, 1915. I therefore propose as a substitute: *Crypturellus strigulosus tambopatae,* nom. nov.—EMMET R. BLAKE, *Chicago Natural History Museum, Chicago, Illinois.*

**Thick-billed Kingbird Nesting in New Mexico.**—Prior to 1958, the Thick-billed Kingbird *(Tyrannus crassirostris pompalis)* was not known to occur in the