the bird we now know as Sprague's Pipit, though if we are to give credence to Audubon's journal, written at the time of its discovery, he was not the original discoverer.

Fortunately there are two other authorities which corroborate Audubon's journal record. One is Isaac Sprague's own diary for 1843, the manuscript of which has been presented to the Boston Athenaeum by his grandson Isaac Sprague, of Wellesley, Massachusetts, who, as well as the Athenaeum, has given me permission to quote from it. This diary says under date of June 19, 1843, "Messrs. Harris and Bell went out shooting and brought in . . . a small species of titlark which is probably new." And again, under date of June 23: "While out I watched one of the new titlarks for nearly an hour—as it sailed over my head high in the air—singing its simple notes at intervals of about 10 seconds, the song itself occupying about 5 seconds. While singing they remain nearly still moving their wings in a rapid manner like a little hawk, and in the intervals between they sweep around in an undulating manner closing the wings to the body like the goldfinch. 3 of these titlarks killed today." Sprague's last mention of his "titlark" is under date of June 24 and records the finding of the nest as follows: "Found the nest of the titlark and shot the female as she rose from it. It was built on the ground, in a small cavity so that the top of the nest was even with the surface and slightly shaded by a small tuft of grass. The eggs five in number are pale brown thickly spotted with darker."

Besides corroborating the account in Audubon's journal of the discovery of Sprague's Pipit, Sprague's own account, here, I believe, for the first time published, is interesting in itself, as I think the reader will agree.

The third piece of corroborative evidence is brought to my attention by the editor of 'The Auk.' It is in Phillips B. Street's paper 'The Edward Harris Collection of Birds' (Wilson Bull., 60: 167–84, 1948), which I had read at the time of its publication but had forgotten. There Harris's own diary is quoted as follows, under date of June 19, 1843: "As we returned home Bell and I fired together and shot a small bird which proves to be an entirely new Anthus or Titlark," and under date of June 24, "In the afternoon Bell and Mr. Audubon rode down to the Fort again and on their way killed more of the new Larks. Sprague was out and killed another, and what is of more consequence discovered its nest with 5 eggs," etc.

It is interesting to note that while Audubon spoke of the new bird as a Lark, both Sprague and Harris gave it the proper designation of Titlark, except that Harris, perhaps following Audubon, calls it a Lark in the second entry quoted.

Now the question arises whether science owes it to Audubon to follow his own statement in a book formally published by him, and keep on saying that Sprague's Pipit was named for its discoverer, or whether we should stick to what appears to be the cold fact as testified to by Audubon himself in his journal, by one of the actual discoverers, and by the man for whom the bird was named. Perhaps it is an ethical question more than a scientific one since there is no question of nomenclature or type locality involved. After all, a decision either way would not rock the foundations of either science or morals. Perhaps the problem has been faced before.—FRANCIS H. ALLEN, *9 Francis Ave, Cambridge, Massachusetts.*

Further Evidence on the Refractory Period in the Reproductive Cycle of the Golden-crowned Sparrow, *Zonotrichia coronata*.—In 1948 the results of three years of experimentation with light stimulation of Golden-crowned Sparrows were reported (Miller, Journ. Exper. Zool., 109: 1–11) which showed that a refractory period exists in this species during which artificial illumination is not able to induce recrudescence of the testes. This period occurs in the autumn from the time of

arrival on the wintering grounds in late September until about November 5. Gradual increases in length of the light-day, roughly approximating spring conditions, begun before November failed to initiate recrudescence, and a high light dosage of 15.5 hours a day attained by that time and maintained constantly throughout the winter and spring also failed to stimulate gonadal growth, at least up to April 1. These findings indicated that rhythmic glandular activity is present as an inherent attribute, but that it is an imperfect timing device determining alternate refractory and potentially active periods within the limits of which photostimulation must fix the annual breeding period with greater precision. A later experiment (Miller, Science, 109: 546, 1949) conducted during the refractory period showed that refractoriness probably is a property of the pituitary gland rather than the testes since gonadotropic hormone administered then did result in enlargement of the testes.

These findings are not completely in accord with those of other workers conducting related experiments and observations on different species of birds. Burger (Journ. Exper. Zool., 105: 259–267, 1947) found in Starlings that when a certain light dosage threshold (12.5 hours) is exceeded, recrudescence will take place, although self-induction will not occur below this threshold. Bartholomew's work (Bull. Mus. Comp. Zool., 101: 433–476, 1949) on the English Sparrow shows that males will come into breeding condition in the post-refractory period in winter on days as short as 10 hours and with relatively low light intensity. Burger (Wilson Bull., 61: 211–230, 1949) subsequently reported that refractoriness in Starlings can be prolonged if continuous high-level lighting is given before, during, and after the breeding condition. He suggests (p. 223) that such induced prolongation is the explanation for the Golden-crowned Sparrow's failure to respond to sustained light dosage from November to April. There may be something similar about these prolonged failures to respond in the two species, yet there is also a possibly important difference. The Starlings were treated continually until the testes increased and then involuted, which situation presumably forced an especially extended rest and refractoriness of the pituitary-gonad mechanism, whereas in the Golden-crowned Sparrow the light treatment was started during a normally attained refractory period and resulted in a preservation or maintenance of this preexisting condition.

Blanchard and Erickson (Univ. Calif. Publ. Zool., 47: 255–318, 1949) working with the White-crowned Sparrow, *Zonotrichia leucophrys*, without experimentation, have shown that Leydig cells, which probably are involved in the production of gonadal hormones, appear in the testis in winter when the day length is close to normal minimum. They contend that the appearance of even a few of these cells marks the initiation of recrudescence and that this takes place without benefit of increased light stimulation. It occurs to mind that the appearance of a few Leydig cells may indeed be the first histologic sign of the passing of refractoriness—perhaps the result of a slight production of gonadotropins by the pituitary and an indication of potentiality for proceeding to higher production. Whether or not the recrudescence in the White-crown would proceed to the later, more grossly manifest, stages without light stimulation can, of course, not be determined without experimentation, some of which is now in progress. Marshall's (Nature, 166: 1034–1035, 1950) recent description of the disappearance of Leydig cells and their subsequent regeneration following the autumnal inactive period may likewise be regarded as a possible sign of the condition of the pituitary; these cells are not necessarily themselves the seat of refractoriness.

These several questions and the partly conflicting results obtained from different passerine species has made it desirable to repeat and extend the testing of refractori-

ness in Golden-crowned Sparrows. It should be realized that the discrepancies in results may derive from species differences. In the fall of 1949 a group of experimental birds was started which included 10 male Golden-crowns. Rather than begin light treatment gradually as before, a sudden change to a constant 15.5-hour day from a normal of about 11.5 hours was made on October 24. This was done in order to determine whether refractoriness would show up in the face of this sudden dosage that is greater than any probable threshold level. The light was held at 15.5 hours until May 24 when the last birds were autopsied. This date was two to four weeks after normal spring migratory departure and after controls had reached stages 4 and 5 of testis recrudescence (see Blanchard and Erickson, *op. cit.*). Gonads of nine birds were saved in Bouin's fluid and were sectioned to ascertain histologic detail and particularly the presence and number of Leydig cells.

The results (table 1) with respect to size of the testes are indicated by volumes of the left testis taken at dates from December 17, 1949, to May 24, 1950; these should be compared with the data in the table on page six of the earlier report (Miller, 1948, *op. cit.*). One control additional to those previously reported (1948) had a

TABLE 1

Age	*Date autopsied*	*Duration of treatment*	*Volume of left testis in mm.*^{3}
?	Dec. 14	51	1.06
ad.	Dec. 14	51	.76
ad.	Jan. 29	97	1.28
im.	Feb. 2	101	.40
ad.	Feb. 2	101	1.27
ad.	Mar. 26	153	1.28
	(gonad not sectioned)		
ad.	Apr. 22	180	.63
?	Apr. 22	180	.70
im.	May 24	212	.68
?	May 24	212	.34

testis of 5.34 mm.^{3} on April 23, 1950. The figures for size if plotted as before (see fig. 1, Miller, 1948) all lie along the line for the birds of Experiment 1, which group originally demonstrated the state of refractoriness. The line is essentially a straight one from December until late May.

The following conclusions may be drawn from the results: (1) the existence of the refractory period of the Golden-crowned Sparrow in the fall is confirmed by the experiment of 1949–50; (2) the refractoriness is not overcome by an immediate sudden shift from normal autumnal day length to 15.5 hours of light; (3) the failure to respond subsequently to sustained high-level light dosage that has been initiated in the normal refractory period is confirmed and the persistence of the failure extends at least to May 24; and (4) although eventually the pituitary-gonad mechanism might come into activity under this light regime, such an event would not permit a normal successful breeding season to be carried out in late May and June.

Sections of the testes of nine experimental birds showed an essentially uniform histologic condition which agrees in all particulars with stage 2 of Blanchard and Erickson (*op. cit.*: 266). There is no significant tubular enlargement, no thinning of the sheath of the testis, no increase in spermatogonia, and no sign of development of primary spermatocytes. The critical feature of this stage according to them is the

appearance of Leydig cells in small numbers in the intertubular spaces; these cells are absent in stage 1. Leydig cells are difficult to find in stage 2 but usually one to six per section can be located in my material. Whether or not these cells are completely absent or at least unrecognizable at any time in the Golden-crowned Sparrow I can not at present determine. The control bird whose testes were sectioned showed that on April 23 there were abundant Leydig cells, enlarged tubules, and many primary spermatocytes in synapsis. If we assume by analogy with the closely related White-crown that the appearance of a few Leydig cells is a first sign of recrudescence before any tubular growth or progress in meiosis, the significant fact derived from the experiment is that under the light regime used the testis remains in stage 2 without other histologic progress from December to May. Further development is not inherent or automatic in this period without appropriate light conditions.—ALDEN H. MILLER, *Museum of Vertebrate Zoology, Berkeley, California.*

NOTES AND NEWS

IT IS with pleasure that we announce the formation of the A. O. U. Illustrations Committee, composed of David E. Davis, Cleveland P. Grant, Robert A. McCabe, Roger Tory Peterson, Charles W. Schwartz, and Milton B. Trautman, Chairman. The Committee has been functioning for some time, and the selection of the painting for the present frontispiece was one of its first jobs.

One of the wishes of the Committee is to prepare and to publish in 'The Auk' several series of life history photographs, with descriptive legends. Providing photographs and funds are available, each series might consist of two to four, or even more, plates. Another aspect of the Committee's rôle is selection of colored plates. It has processed the one mentioned above and is working on several others. However, as regards both the black and white pictures and the paintings or color-slides to be used, it takes time for all matters to be satisfactorily settled and proofs checked by everyone concerned. The Committee is, therefore, desirous of learning of any such illustrative material that is available for use in 'The Auk'; in this way the pictures will be on hand and in shape to use as funds and space permit.

President Van Tyne has appointed the following Committee on the Nomination of Associates: Leonard Wing, *Chairman.* Aaron Moore Bagg, *Vice-Chairman.* Gordon Alexander, Clark S. Beardslee, Betty Carnes, C. Russell Mason, Robert T. Orr, William F. Rapp, Jr., Chandler S. Robbins, Ernest S. Booth, and William J. Beecher.

Mr. T. M. Shortt is to be congratulated on his excellent painting of juvenile pipits, and we want especially to thank him for permitting its use in 'The Auk.' It is just this sort of illustrative material we desire—the kind that points up little-known aspects of bird structure, behavior, ecology, etc., or that pictures birds not widely known or illustrated.

Dr. T. S. Palmer notes that three ornithological centennials occur in 1951—January 27, the death of J. J. Audubon; July 5, the birth of William Brewster; and August 20, the birth of Ruthven Deane.

Marcel Henri Felix de Contreras, Corresponding Fellow, died in Ixelles, Belgium, on December 28, 1949.

The Membership List of the American Ornithologists' Union appears in this issue. Despite the attention to details, there may be errors or omissions. Please call them to our attention.