writer attempted to establish the ranges of the various forms. In studying skins of these races it became apparent that *T. p. dissaëptus* Bangs could be divided into two readily recognizable groups. The western birds have lighter-colored upper parts and much brighter cinnamon-buff to cinnamon flanks and sides than the eastern birds. In winter plumage the 'foxy' brown is a very good distinguishing mark as it is strikingly different from the russet or wood brown of the eastern group. The western birds were described by Ridgway as *T. p. iliacus* and this form unquestionably should be recognized as distinct from *T. p. dissaëptus*.

Summer specimens of *T. p. iliacus* were examined from: English Lake, Indiana; Lake Koshkonog, Wisconsin; Staples, Verndale, St. Cloud, and Minneapolis, Minnesota; Rock Lake, North Dakota; Omaha, Lincoln, and Jamaica, Nebraska; Charleston, Missouri; Shoal Lake, Manitoba. Summer specimens of *T. p. dissaëptus* were examined from: Wayland, Massachusetts; Ithaca, North Spencer, Fairview, and Montezuma, New York; Erie, Pennsylvania; Perry and Fairfield Counties, Ohio. The average measurements of twenty-nine adult males of *T. p. dissaëptus* were: wing, 52.01 mm.; tail, 41.88; exposed culmen, 14.50; tarsus, 19.79. The average measurements of fourteen adult males of *T. p. iliacus* were: wing, 51.14 mm.; tail, 42.15; exposed culmen, 14.43; tarsus, 19.82. *Iliacus* is a slightly smaller bird as is also indicated by body weight. Thirteen specimens of *dissaëptus* averaged 12.98 grams while eight specimens of *iliacus* averaged 12.52 grams.—WILFRED A. WELTER, *State Teachers College, Morehead, Kentucky.*

Notes on Starling spread and migration.—Much has been written on the Starling (*Sturnus vulgaris*) in America. One of the most interesting problems it presents is the development of definite migratory movements correlated with its spread and increase in numbers. We have here set before us a large-scale experiment bearing on the origin of bird migration such as is not likely to be repeated for many years. The more attention the problem receives at this time, the more fully shall we have availed ourselves of this opportunity. Not only should more data be gathered but the facts already assembled should be fully discussed, so that none that is pertinent will be overlooked.

A most significant contribution to the understanding of Starling migration is to be found in a map of recoveries of Starlings banded at a concentration point in Ohio (Thomas, Bird Banding, vol. 5, p. 121, 1934) from which we see that there is a considerable inland movement in a northeast-southwest direction. It is at once apparent first, that this migration does not follow any probable line of invasion by the bird in its spread from New York City; second, that it does follow the common direction of European migration.

To understand Starling spread and movements, relative numbers at all points in the bird's range are important. We fortunately have some such winter data for the past in 'Bird-Lore' census reports, and these have been compiled for me in tabular form by Hope R. Bennett, and are now being studied. Furthermore, the Starling is so conspicuous and easily identifiable, that the estimated numbers per mile noticed over any considerable distance (say 100 miles) travelled by rail or road at various seasons should give a fairly reliable index of comparative abundance in different sections. The winter concentration as shown in 'Bird-Lore' Christmas Census reports in the early stage of the bird's spread is of much interest. Its numbers expanded in a northeast-southwest direction. It invaded Connecticut, Long Island and New Jersey almost simultaneously and was delayed in its advance up the Hudson Valley. It appeared in Connecticut and New Jersey in the 1904 Census and had reached Pennsylvania in that of 1908.

Computation of census figures shows a noticeably more advanced phase in the Starling's spread and increase in 1913–16, over that in 1905–11. It has now touched Vermont and is in Massachusetts and Rhode Island; it reaches north to Poughkeepsie in the Hudson Valley in 1915, north to Albany and southwest to the District of Columbia in 1916. In 1913–16, in Connecticut, the numbers vary by years from 73.1 to 170 (average 121), per report where it is present, and it is present in from 83 to 92 per cent (average 89) of the reports. In New Jersey the numbers vary from 64.6 to 130 (average 95), and it is present in from 73 to 100 (average 88) per cent of the reports.

In these two States from 1917 to 1936, the Starling was present in some 94 per cent of the reports; and averaging the five-year periods, 1917–21, 1922–26, 1927–31, 1932–36, one may compute figures of 166.3, 169.8, 298.2, 159.5, respectively, per report for Connecticut, and 87.3, 285.0, 384.4, 728.3 for New Jersey. The winter concentration in Connecticut seems to have approached a norm twenty years ago whereas that in New Jersey has steadily risen to the present time.

The writer's present hypothesis is that there was through the early years a more or less seasonal, irregular, pendulum movement of Starlings back and forth along the northeast-southwest Connecticut-New Jersey axis which finally extended the winter range of the bird as shown in the 1916 Census from eastern Massachusetts to the District of Columbia. This presumably differed from established migration, especially in that individuals were stopping to breed or to winter at points along the line. One may assume that at the same time, a more local expansion into breeding and contraction into wintering areas occurred, and these two seem to be the factors on which its true migration is building. There is little question that a sharp increase of Starlings in their main central axis shown for 1913–16, is correlated with northeastward extension for the same period, and this was presumably due in part at least to southwestward migration from newly occupied territory in that direction. As to the final attainment of the Mohawk Valley at Albany in the 1916 Census, which might be looked upon as an important step in the Starling's campaign of occupation, three hypotheses present themselves: gradual cumulative spread northward from the center of distribution; northward flow when the population in the lower Hudson Valley rose to a certain concentration; or, what seems quite likely, deflection of some of an increasing number of birds moving along the main northeast-southwest axis.

Those cognizant of what has been written of the Starling's spread will realize that this is merely evidence from one set of data. But to carry it a little further, the Starling is at Albany in the 1916 Census, at Rochester and Buffalo in that of 1922, evidently having extended there through the Mohawk Valley. In the censuses of the following two years it has been reported in Quebec, is establishing itself as a winter bird in Ontario, and is increasing in Ohio. It looks very much as though the hitherto small numbers in the Great Lakes basin had already at this time evolved a wide swing along a northeast-southwest axis paralleling that extending from eastern Massachusetts to Virginia.—J. T. Nichols, *New York, N. Y.*

Sycamore Warbler in Massachusetts.—On April 22, 1936, the senior author accompanied by Mrs. Tousey found a 'Yellow-throated' Warbler in Mt. Auburn, Cambridge, Mass., which was shown to other observers. It was an adult male in full song. Griscom, advised by 'phone, went over in the afternoon, and felt positive that the bird was a Sycamore Warbler (*Dendroica dominica albilora*), as there was no yellow between the bill and the eye. The next morning the Harvard Ornithological Club located the bird and showed it to numerous other observers, who arrived later.