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*Department of Zoology and Entomology**University of Hawaii**Honolulu, T. H.*THE SEASONS OF BIRD SONG
THE BEGINNING OF SONG IN SPRING

BY ARETAS A. SAUNDERS

BIRD song is a distinctly seasonal phenomenon. The extent to which birds sing varies considerably from year to year. At the height of the breeding season, when practically every singing species is in full song, little can be learned concerning seasonal variation. But at the beginning and end of the season, and in off seasons, such as fall, the variation is readily noted. It is evidently caused, either directly or indirectly, by weather conditions, and is thus probably cyclical.

For more than thirty years I have kept records of the singing of birds, chiefly in southwestern Connecticut. Such data are necessarily limited by the ability and opportunities of the observer. When one can be in the field daily his observations on the first or last singing of common species are likely to be quite accurate. But if observations are limited to week ends, they cannot be so exact. My spring observations, after April 1, are practically daily, as I made it a habit to be out each morning early before working hours began.

The completeness of data concerning any one species is also lim-

ited by its abundance or rarity in the locality. With species common about my home, observations could be made even when there was no opportunity for a field trip. Locally distributed species can only be heard when there is opportunity to visit the places where they occur. Rare species are heard so infrequently that the data obtained from them have little value.

Data on the seasons of song are mainly of three sorts: the beginning of song in spring; the cessation of song at the end of the breeding season; and the revival of song after the postnuptial molt. Variations in the abundance of song in the height of the breeding season are mainly due to the condition of the nesting cycle and the particular habit of each species in that regard, and are not seasonal. This paper is limited to the beginning of spring singing, and I plan to follow it with papers on cessation and revival.

With the majority of summer-resident and transient species of southern Connecticut, the actual beginning of song must be determined at some locality farther south, for most of the birds arrive from the south in full song, and the date on which the first song is heard corresponds with the date of spring arrival. But this is not the case with residents, winter visitors, and a few transients and summer residents, so it is only with these species that my data on the beginning of song in spring are of value. Very early in the year the weather conditions are extremely variable. Some species, such as the Song Sparrow and the Meadowlark, sing more or less at any time through the winter and it is difficult to determine the difference between a winter song and the first spring song. A few warm, sunny days in February, or sometimes even January, will start birds singing, but if this is followed by a period of cold or snow, song ceases, to be resumed again after a week or two. Daily records show not only when the song begins, but when it becomes regular. This latter date is more important and less variable than the date of the first song.

The species on which I have data on the beginning of spring song follow.

The Bob-white (*Colinus virginianus*) is at present an exceedingly rare bird in Connecticut. It has always been variable in its numbers from year to year, and I have consequently omitted data in years when it was too scarce to hear it regularly. My data are based on observations in twenty seasons. One peculiarity is that in some years the first song is to be heard in mid-April, after which there is a period of silence until some time in May, when regular singing begins. My earliest date is April 10, 1921, but after that one observa-

tion no other singing was heard that year until May 14. In a number of years the song is not heard at all until May. The average date for the first song of the year is May 5, but the average for the beginning of regular singing is May 8. The latest date for the first song is May 24, 1936, but the bird was scarce that year. It is noticeable that in every year when the first date is later than May 20, that year is one in which the species was scarce.

The Mourning Dove (*Zenaidura macroura*) was quite rare in this locality previous to 1921, so that my data in earlier years are not significant. But about 1921 it increased considerably, and it has been common since then. The bird winters in considerable numbers, so that it is difficult to say just when migrating birds arrive. The date of first singing is exceedingly variable. It is my experience that non-passerine singers are likely to be much more variable in their singing seasons than passerine ones. In the past twenty-six years, when this species has been common, the average date of the first song is March 27. The earliest date is February 19, 1943, and the latest, April 17, 1923. This wide variation of nearly two months is not due to difference in the abundance of the species. The date when regular singing begins is also exceedingly variable. The average date is April 9. The earliest is March 25, 1945, and the latest, May 11, 1924.

The *phoebe* whistle of the Black-capped Chickadee (*Parus atricapillus*) is generally considered to be a song. There are a number of things about it, however, in which it differs from the songs of most birds, and one of these things is its irregularity as to season. I have heard it every month of the year except January. The earliest date on which it was heard averages, in thirty-two years of observation, March 13. The earliest date is February 5, 1938, and the latest, April 19, 1935. I have found it impossible to determine definite dates when regular singing begins, because the singing always seems to be irregular. For example, there is usually considerable singing in the month of April, but in 1920, 1928, and 1936, I heard no song at all from this species in April, though in all these years it was heard in March, and was common in May, except in 1928. When I first noted this, it looked like an eight-year cycle, but when 1944 came around I heard the song on two different dates in April of that year. Perhaps this irregularity is due, to some extent, to variations in the abundance of the birds, for there are years when they are comparatively scarce. But in some of the years when I recorded very little song, I nevertheless recorded the presence of Chickadees as frequently as usual and in normal numbers.

The song of the White-breasted Nuthatch (*Sitta carolinensis*) is not well known, probably because it is rather infrequent, not loud, and easily confused with the distant call of a Flicker. Like the Chickadee, this bird's singing habits are irregular, and there is some difficulty making sure just when the sound produced is a song. It is easy to distinguish between the well-known nasal call-note, and the series of soft whistles that constitute the song, but occasionally, at almost any season, the bird will utter a series of nasal call-notes, differing from the true song only in the quality of the sound produced. The question, then, is whether to call such a performance a song. If I do that, however, there will be practically nothing about it that is seasonal, whereas the more typical song is fairly definitely confined to late winter and spring. Yet there is more or less gradation between the extremely nasal performance and the more typical song, and the latter, though described as a whistle, always has a slight nasal character.

This more typical song generally begins in February or March, but occasionally is first heard in January. The average date is February 23, and the earliest, January 18, 1935. In 1929, when this species was comparatively scarce, I did not hear the song until May 10. But, except for that year, the latest date of the first song is April 5, 1924. I have been unable, from my data, to determine an average date when the song becomes regular, for it rarely is such. In some years the song may be heard almost daily through April and May, whereas in others, though the bird seems as common as ever, the song is heard only occasionally, and at most irregular intervals.

The Brown Creeper (*Certhia familiaris*), though present regularly in winter and in the spring migration, is heard singing in this region only rarely. I have heard it in only six years, and in most cases on only one date of the year. The records are too few to make averages of much value, but few enough to record them all. I have heard the song on the following spring dates: April 15 and 21, 1915; March 24 and 25, and April 22, 1917; April 5, 1922; April 15, 1927; April 21, 1935; and April 11, 1937.

The Winter Wren (*Troglodytes troglodytes*) sings rather sparingly during the spring migration. In some years I do not hear the song at all, though the birds are present. Occasionally a few birds remain all winter, and when that is the case the first song heard is likely to be earlier than when the birds occur only in migration. In only five years have I obtained a record of the first song after the birds have wintered. These years are 1917, 1929, 1938, 1942, and

1946. Under such circumstances the average date for the first song is March 31; the earliest, March 17, 1946, and the latest, April 10, 1938. Whenever I have heard the song in March it has been after a winter in which this species was present. In years when the bird is not found in winter the average date of the first song heard is April 20, the earliest is April 8, 1944, and the latest April 30, 1931. There are only eight such years, and in all the others the bird was either not found or was not heard in song. In late years this species sometimes occurs for a few days after May 1, but I have never heard the song in May.

The Brown Thrasher (*Toxostoma rufum*) normally is in full song when it first arrives in migration. There have been two years, however, when a bird spent the winter here and I was able to hear what was probably the first song of the year. In 1931, a wintering bird first sang on March 29. Summer-resident birds were not found that year until April 11. In 1944, a bird first sang on March 26. Summer residents were not noted that year until April 23.

The Robin (*Turdus migratorius*) is one of the few species that arrive in migration before they begin to sing. Because a few birds remain through the winter nearly every year, it is a little difficult to obtain the date of spring arrival with complete accuracy. But, using the dates that, in my judgment, were the first ones of spring arrival, the average first date, through a period of thirty-two years, is March 9. The average date of the first song heard is March 17. The earliest date of the first song is March 7, 1931, and the latest, March 30, 1916 and 1940. The length of time between the dates of first arrival and of the first song varies from two to thirty-one days. In 1920, the first birds arrived on March 23 and the first song was on March 25, but in 1922, the first migrants arrived February 22, but the first song was not heard until March 25.

One cannot predict from the first date of arrival, just when the first song will be heard. For example, the first arrival of migrants was March 6 in 1918, 1921, and 1926, but the first song in these years was March 19, March 11, and March 22, respectively. In 1931, 1936, and 1938, the first arrival was on March 7, and the first songs were on March 7, March 15, and March 13. For a time I believed that the first song coincided with the time that migrating flocks broke up and the birds scattered to their breeding grounds and selected territories, but later I noted a number of cases where the first songs came from birds that were still in flocks.

The Olive-backed Thrush (*Hylocichla ustulata*) is a regular transi-

ent in Connecticut in May. Though there seems to be a general idea that this species, like other transient thrushes, does not sing while in migration, it is my experience that it does. It does not sing commonly on the date of its first arrival, however, but some days later. In eight of the thirty-two years that I have recorded observations, I did not hear the song. These years are 1915, 1917, 1919, 1920, 1922, 1931, 1932, and 1940, most of them being years in which this species was rather scarce.

The average date of arrival of this species is May 12, and the average date of the first song, May 16. The earliest date of arrival is May 7, 1933 and 1944, and the latest, May 23, 1924. The earliest song heard was on May 7, 1944, and the latest on May 29, 1919.

The Veery (*Hylocichla fuscescens*), like the Robin, is a species that arrives in migration several days before it sings. The weather in May is much more settled than in March so that the period between first arrival and the first song is shorter than in the case of the Robin. The average date of arrival is May 6, but the average date of the first song is May 10. In six years, 1929, 1930, 1935, 1936, 1942, and 1943, the date of arrival and the first song coincided. The longest interval between arrival and the first song is nine days in 1931, when the first bird was noted May 6, but no song heard until May 15. The average length of time between arrival and the first song is three days. The earliest date for the first song is May 1, 1942, and the latest, May 18, 1919.

The Bluebird (*Sialia sialis*), like most other thrushes, usually arrives before singing, but there are exceptions. In seven years, 1914, 1921, 1923, 1924, 1926, 1934, and 1938, the first singing was heard on the day of arrival. In three years I heard singing in February from birds that, I had reason to believe, spent the winter. These dates are February 25, 1922; February 22, 1934; and February 13, 1937.

The average date of arrival of the Bluebird is March 10; the earliest, February 22, 1939; and the latest, March 25, 1916. The average date of the first song, leaving out the songs of wintering birds that I have mentioned, is March 18. The earliest is March 3, 1923, and the latest, April 2, 1940.

The Golden-crowned Kinglet (*Regulus satrapa*) is a winter bird whose song is very rarely heard during the spring months that it is with us. I have heard it just six times in the past thirty-two years. The dates are April 24, 1914; March 29, 1915; March 30, 1921; April 7 and 15, 1923; and April 24, 1926.

The Myrtle Warbler (*Dendroica coronata*) is the only warbler

that spends the winter in Connecticut, and therefore the only one for which I have data on the beginning of song; all the others are in song when they arrive in migration. The amount of song varies greatly in different years, sometimes beginning early, but in other cases the birds are in migration a week or more before singing begins. The earliest date of singing I have was, I believe, from a wintering bird, before migration began. This was March 23, 1941, but no further singing was heard that year until April 15. The average date of the first song is April 13, and the latest, May 2, 1920.

The Eastern Meadowlark (*Sturnella magna*) is a regular winter bird in the salt marshes along the Connecticut coast. Singing begins some time before summer-resident birds arrive or the wintering birds begin to move inland. In fact, the Meadowlark is one of our most persistent singers, and its song may be heard in every month of the year. So it is not a matter of when the very first song is heard, but one of just when regular spring singing begins. Each year there are practically always a few scattering dates of song in January or early February, and then a time when one hears the song almost every day, and from several birds rather than a single one. The date when this occurs varies greatly from year to year. The average date is March 9; the earliest, February 23, 1930; and the latest, April 1, 1916.

The Purple Finch (*Carpodacus purpureus*) occurs at all seasons in southern Connecticut, but is exceedingly erratic in its abundance and never common as a breeder. Its greatest abundance is in late winter or early spring, but in some years it is scarce even then. The amount of singing also varies greatly. In some years these birds sing a great deal, whole flocks singing together in choruses, while at other times, even though abundant, they sing little. In the big invasion of this species in 1939, for example (Weaver, 1940), the birds sang comparatively little.

The dates of first singing are variable, but they usually begin a period of song, so I have simply averaged them. The dates vary from January 30, 1926, to April 26, 1934, and the average is March 15. In 1933, I considered April 10 the earliest date, for it was that for the common type of song. But on April 1 of that year I found a bird singing the "vireo song" (Saunders, 1935, p. 246), a performance very different from the regular singing of this species.

The Pine Siskin (*Spinus pinus*) is an erratic winter visitor of this region, singing rather rarely when it lingers in the spring months. I have but a few dates, as follows: April 8 and 9, 1928; April 6 and 25, 1934; March 14, 21, 22 and 28, 1936; May 2, 1937; and May 10, 1944.

The Goldfinch (*Spinus tristis*) is present here throughout the year, though individuals are probably migratory. They sing abundantly long before the nesting season begins. The average date for the beginning of singing is April 3; the earliest, March 12, 1921; and the latest, April 24, 1934. In ten of the thirty-one years of observation, the first singing was in March, which must have been before the prenuptial molt which takes place in April and early May (Dwight, 1900, p. 179). Song is irregular in April. Probably they do not sing in the height of the molt, but observation of male plumages in April flocks indicates that all individuals do not molt at the same time. In two years, 1920 and 1936, when the song of this species was first heard in March, there was no more singing until after the first of May.

The Slate-colored Junco (*Junco hyemalis*) begins singing in March, or sometimes February, and continues until the end of its stay in late April or early May. The average date of the first song is March 12; the earliest, February 9, 1935; and the latest, April 7, 1932. In four out of thirty-two years I have heard the song in February. These early songs, however, are isolated, and mainly from single birds. Regular singing by the species, as a whole, begins later. The average date for this is March 27; the earliest, March 15, 1942; and the latest, April 16, 1939.

Before the beginning of regular singing, in February or March, one may sometimes hear primitive song from this species (Saunders, 1929, p. 48). Bicknell (1885, p. 146) describes this song of the Junco, and speaks of the bird as having two distinct songs. I have not used the dates of these songs in compiling averages, as they are not the regular song. Dates I have heard this song are February 28, 1930; March 12, 1932; March 1, 1933; March 6, 1937; and February 14, 15, and March 1, 1942. On several occasions I noted that the bird singing this song was a fully adult male, without a trace of brown in the plumage and with a dark, nearly black head. I mention this to show that this type of song is not always a juvenile song.

The Tree Sparrow (*Spizella arborea*) is a common winter bird that usually sings a little just before it leaves us for the summer. Sometimes the song is to be heard in February and even January. In other years it is not heard until the early days of April. In the past spring, 1946, I did not hear it at all. The average date of the first song, in thirty-one years in which I noted it, is March 2. The earliest is January 21, 1933, and the latest, April 5, 1914. The song becomes more frequent in late March and April, but the data are too fragmentary to determine an average date when regular singing begins.

The White-throated Sparrow (*Zonotrichia albicollis*), while most abundant in migrations, generally spends the winter in this region, though somewhat locally distributed at that time. These wintering birds begin to sing before the migration starts, commonly in March, often in February and occasionally in January. Usually these winter dates of singing are isolated; that is, separated from any regular period of singing by several weeks. In 1939, however, singing began on February 18 and was regular thereafter.

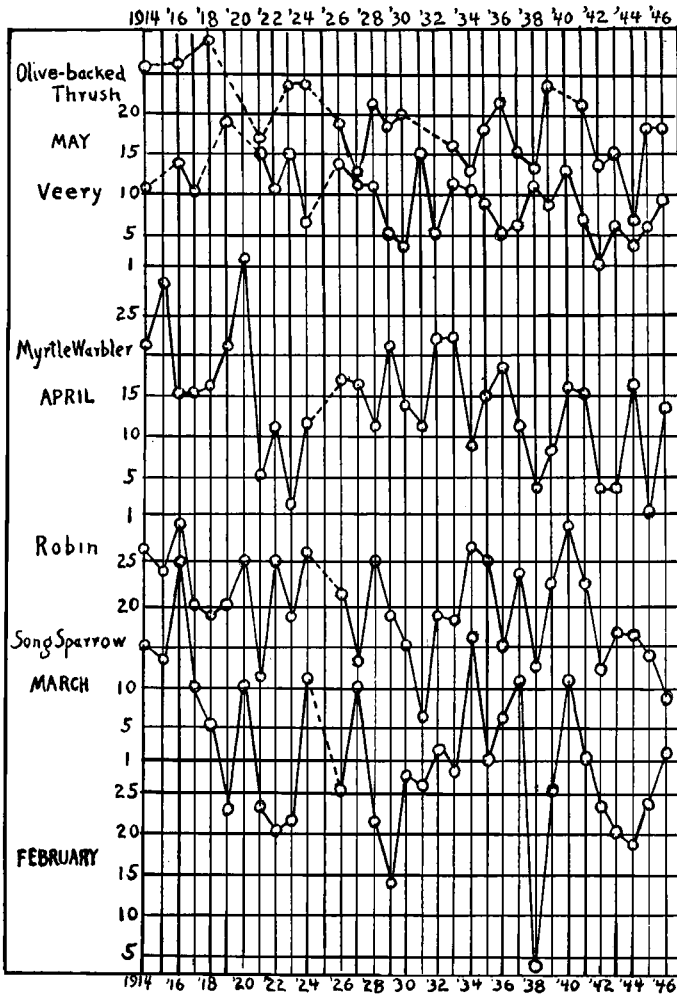
The average date when regular singing begins is March 26, with the earliest date February 18, 1939, and the latest, April 23, 1922 and 1928. If I average the actual earliest dates, including the isolated dates of winter singing, the result is March 11. Dates of winter singing are January 13, 1924; January 19, 1929; February 1, 1936; February 16, 1937; February 5, 1938; January 10, 1940, and February 15, 1942.

The Song Sparrow (*Melospiza melodia*) is common in this region throughout the year, though less so in winter than at other seasons. This bird probably sings more than any other bird we have. I have heard its song in every month of the year. The first songs of the year usually come in January or February. Regular singing begins in late February or in March. The isolated winter songs are usually heard on clear, sunny, and comparatively warm days. My earliest date of the year, January 2, 1926, was a case when the bird sang with the temperature, on my thermometer, -2° F. On another occasion, during the total solar eclipse of January 24, 1925, a Song Sparrow sang in the waning light when the thermometer registered 0° F.

In thirty-two years of records, the earliest dates of singing average February 7; the earliest, January 2, 1926; and the latest, March 3, 1936. The average date when regular singing begins is February 28; the earliest, February 4, 1938; and the latest, March 25, 1916.

In addition to the study of the seasonal singing of each species, there is an additional interest in the comparison of different species from year to year. For illustration of this I have selected five common species whose songs begin at different times in the spring months. The diagram (Text-figure 1) illustrates this.

In this diagram I have used the beginning of regular singing for the Song Sparrow, but the first song heard for the other species. An exception to this is the single example of March singing of a Myrtle Warbler in 1941, mentioned above. It was an isolated song, and to have used it in the diagram would have confused the record with that of the Robin. In cases where I have no record of singing in



TEXT-FIGURE 1. Chart showing dates of first singing of five species from 1914 to 1946

certain years I have used a broken line to connect the records. This is true of all species in 1925 due to the unfortunate loss of a field note-book.

Different years differ not only in earliness and lateness but also in earliness at the beginning of the season, and lateness at the end, or vice versa. One may note in the diagram a certain amount of correlation between the species in the tendency of lines connecting dates to become parallel. But this is not uniformly the case. For

example, the Robin and the Song Sparrow parallel each other pretty well from 1936 to 1942, but in 1922 they are far apart and in 1926 close together. A certain amount of the irregularity may be due to faulty observation. One cannot always be in the field at just the right time and place to hear the first singing of a particular species. One may conclude, however, that weather conditions from year to year determine the variations in the times that birds begin to sing, and that, in general, the effect is the same on different species that begin their singing at about the same time.

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GEORGE WILLET (1879-1945)

BY HARRY HARRIS

Plate 5

ON the point of achieving the most distinguished honor within the power of organized American ornithology to bestow, George Willett, First Vice-President of the Union, Editor of the 'Ten-year Index to The Auk,' and Fellow since 1939, was taken by death on August 2, 1945, in his sixty-seventh year.

To those who knew intimately this wise and genial character it seemed inevitable that his superior, though utterly unconscious, talent for leadership combined with a sure instinct for avoiding wrong judgments should have marked him for advancement in his chosen science. His genius for friendship, his warm human sympathies free from all prejudice, his searching and judicious appraisements of men and motives, and his constant and unequivocal sincerity were among the personal qualities that led his colleagues in the Cooper Ornithological Club to view him in the light of a paternal and al-