

ADDITIONAL NOTES ON THE BIRDS OF A BERKELEY HILLSIDE

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In an article published twenty-eight years ago (Condor, 17, 1915:78-85), I presented an account of the "Birds of a Berkeley Hillside." At that time I had been watching these birds three years. Now I have watched them for thirty years, and there are more unsolved problems than there were in 1915. Difficulties of identification absorbed most of my energy then, and I felt hopeful that with time and experience they would become less discouraging. But given the time and experience, so many other questions have come up that I feel more at sea than ever. And I am not so confident that I will find the answers to these questions.

The area, as described in the previous paper, includes the north-facing slope at the mouth of Strawberry Canyon, Alameda County, California, plus the adjoining west-facing slope outside the canyon. The part inside the canyon is still much as it was in 1915 except that all the trees are larger and cast more shade than formerly. A few houses have been built, but the university property is still "unimproved" within the area in question. Just beyond our chosen boundaries the Memorial Stadium has been built, Strawberry Creek run through a conduit, and the University Utility Shops erected on the fill above. Farther up the canyon the poultry farm has been established so that the dawn song is dominated by the crowing of hundreds of roosters. On the upper slopes opposite the poultry farm, areas that were covered formerly with brush or with ferns and grass have been planted to madrones, redwoods, deodars, eucalyptus, and pines, which means that meadowlarks, goldfinches, lazuli buntings and crowned sparrows have given way to siskins, purple finches, and juncos.

Introduced pests that are affecting the native birds are Argentine ants, eastern fox squirrels, and opossums, not to mention the tremendous increase in cats and dogs.

The west-facing hill has been used for residences, but there are still empty grassy slopes and a few old orchard trees planted by the original "homesteader" of this whole area, who is responsible also for scattered Monterey pines which penetrate into the mouth of the canyon at the level of Mosswood Road. Meadowlarks have disappeared from this western area, too, and since the Stadium was built and the opposite side of the canyon blasted down to the rocky substrata, their song is no longer heard even from that direction. In the early 1900's there were three miles of meadowlarks between Berkeley and Oakland!

In comparing the list of birds recorded up to 1915 with the list up to 1943, there are ten species that were sporadic or have decreased or disappeared, six of them especially from the west slope and four from inside the canyon. But there have been forty additional species seen: four on the western slope and thirty-six inside the canyon. Naturally there has been more continuous observation from our own house inside the canyon than anywhere else, which would partly account for the majority in favor of the canyon.

A few paragraphs will cover the species which have not been seen since 1915 or have suffered from the changes that have taken place. These are, outside the canyon: Say Phoebe, Cliff Swallow, English Sparrow (a good riddance!), Western Meadowlark, Rufous-crowned Sparrow and Harris Sparrow.

The Say Phoebe (*Sayornis saya*) has been seen only once since 1915, on September 22, 1925. It was catching insects and giving its "phoebe" call just above the Stadium.

Cliff Swallows (*Petrochelidon albifrons*) disappeared from the hill in 1915. For a year or two they nested on the dairy, but when that building was painted and prepared

to house a "model herd," they disappeared as breeding birds until they were finally allowed to nest on the Life Sciences Building, championed by Joseph Grinnell (see Condor, 39, 1937:206-210).

It was the practice even before the Berkeley fire to burn the grass on many of the slopes on the west side of the hill before the fourth of July. This date seemed to coincide with the date when young English Sparrows (*Passer domesticus*) were eager for roasted grain, for they came in by the hundreds to feed. At that time automobiles were a novelty and horses and chickens were not unknown within the city limits. Fortunately English Sparrows are far below their peak now and are practically unknown in the hill area in question, even when the grass has been burned.

Rufous-crowned Sparrows (*Aimophila ruficeps*) were abundant in the canyon (Hamilton Gulch) south of Strawberry Canyon, but a few pairs spilled over into our area. However, in the summer of 1921, Hamilton Gulch suffered a bad fire and after that this species became very rare. The observation of single birds there in the last few years raises hopes that they may finally become re-established.

The Harris Sparrow (*Zonotrichia querula*) was a vagrant of one winter only (1912-13).

The White-crowned Sparrows (*Zonotrichia leucophrys*) were listed in the 1915 report as "Intermediates" (*gambelii*) and Nuttalls (*nuttallii*). At that time an amateur could only (or did) class all the migrating winter flocks that did not sing like Nuttalls as Intermediates but got into trouble when these same birds showed yellow bills. As I practically never heard a Nuttall song on the hill, I was in trouble most of the time until, through banding, the migrant *pugetensis* was discovered. True Nuttalls nest in the Botanical Gardens at the head of Strawberry Canyon, but I have never found a pair within our area.

In the wooded area inside the canyon, fewer changes have occurred. Of the four species to be considered, two naturally belong on the east side of the Berkeley Hills in Contra Costa County. These two are the California Woodpecker (*Balanosphyra formicivora*) and the Nuttall Woodpecker (*Dryobates nuttallii*). Only two records for the California Woodpecker have been added since 1915, one in March in 1916 and the other on September 19, 1920, when five were together on the west side of the hill. [One individual was present north of the Stadium throughout the spring of 1941.—Ed.] A Nuttall Woodpecker remained in our oaks from June 24 to September 26, 1934.

The Rusty Song Sparrow (*Melospiza melodia morphna*), a winter visitant, patronized our lunch counter for five successive winters, 1915-1919.

California Quail (*Lophortyx californica*) were always abundant on our hill slope, but they did not take possession of our feeding table until 1923. Later there was a chain of feeding places: one on Canyon Road below us, then ours, then one at the end of Mosswood Road where an aviary provided sweepings of seeds. The quail trailed from one to the next and they waxed fat and multiplied—so much so that in 1934 I changed my method of feeding for the purpose of discouraging them. In 1938 the aviary was discontinued. At about the same time the introduced opossum began to take its toll (I suspect) of quail eggs, and possibly of young also. I noticed first in 1940 that I saw no broods of young quail. In 1941, on September 22, a group of eight contained four young about one-third grown. The late date suggests the pair had had difficulties earlier. Since then I have seen none. The flock of adults dropped from 23 (1934) to 12, then to 9. In 1942 this last remnant disappeared, and for months I neither saw nor heard a quail near Mosswood Road. On the south side of the hill a small flock wintered near Panoramic Way; another, north or west of the Stadium. When these flocks broke up in late April, a pair settled for nesting near upper Mosswood Road.

Two of the birds on the 1915 list have become more abundant. The Steller Jay (*Cyanocitta stelleri*) was first detected in the East Bay region in Woolsey Canyon in 1910. In 1915 they were established in Strawberry Canyon. They discovered our bird pool in November, 1917, and the feeding table in September, 1919. For many years they were centered in upper Strawberry Canyon, but they are now common in our oaks.

Until 1916 Robins (*Turdus migratorius*) were winter visitants only, but nests were found in Golden Gate Park in that year and in 1917 one was found on the east side of the bay. Now it is a very common summer resident augmented in winter by great flocks that come down from the mountains.

The forty additions to the 1915 list consist of species which I overlooked plus vagrants seen occasionally as the years passed.

Ardea herodias. Great Blue Heron. On August 20, 1920, I noticed a flock of Bush-tits giving their alarm notes and stopped to see what was disturbing them. A Great Blue Heron was flying over with slow heavy flapping of the wings.

Nycticorax nycticorax. Black-crowned Night Heron. On April 10, 1932, raucous notes attracted my attention in the evening to a Black-crowned Night Heron perched on one of the electric poles on Mosswood Road.

Branta canadensis. Canada Goose. Twice flocks of Canada Geese have flown over: on October 20, 1921, and on December 4, 1934.

Accipiter velox. Sharp-shinned Hawk. No doubt these hawks were here before 1915, for they are common winter visitants and sometimes breed in Strawberry Canyon. I did not learn their call note until March 22, 1934, when it was repeated on successive days until March 27. I have no winter records of any calling, but when they have stayed to breed I have heard the calls of the young birds when they first left the nest. I have June and July records for 1931 and 1935, and on August 21, 1942, I found a young bird perched in the conifers up the hill from the house; two adults were circling near it.

These hawks are bold hunters and are not easily turned away from a victim. In 1921 on Thanksgiving Day, November 24, a Sharp-shinned Hawk attacked a California Thrasher (*Toxostoma redivivum*) that was on the feeding table.

The aim of a Sharp-shin is proverbially sure. But twice I have known of its missing, once when one struck a wall as it stooped and the second time when in 1927 one struck the dining room window as it attempted to take a quail from the feeding table. This hawk fell, stunned, to the porch floor and caught its head under the railing. A marauding cat made for it, but I got there first and saved a specimen for the museum.

One more anecdote concerning the Sharp-shinned Hawk illustrates the boldness of hummingbirds. On July 17, 1935, one of these hawks dropped to perch on the tip of a small redwood tree on the west slope of the hill. Two Anna Hummingbirds (*Calypte anna*) first darted at it, then towered steeply and dropped like bullets. Just in time the hawk flew and started to alight on a cypress two hundred feet away. But the hummers were still in close pursuit so the hawk picked up speed and flew off up the canyon.

Accipiter cooperii. Cooper Hawk. I saw what I thought was definitely this species several times during the twenties. My best opportunities came in 1938. On May 4 I heard a note that was new to me and found it came from a hawk perched in a large oak tree just west of the house. Another hawk was flying above the trees calling, *kek-kek-kek-kek*, and after a few minutes the perching hawk flew away together with it. The next day the same note was heard at 6 a.m. in the distance. On September 16 the same note was heard and two Cooper Hawks were seen. On October 6 one flew past a north window, rose above the trees and began to circle. It took about five to seven minutes to rise 1200-1500 feet (estimated from the 300-foot Campanile) and then it sailed directly south. On November 23, 1939, I heard its call again near my window and heard the noise of its wings as it flew. I suspect it flew from the roof. In 1940 one was located by its note on March 2, and in 1941 on April 17.

Circus hudsonius. Marsh Hawk. Several times I have seen Marsh Hawks over the hills in winter, but I have only one record for this area. On September 23, 1919, one was rising in spirals over the west side of our hill.

Phasianus colchicus. Ring-necked Pheasant. In 1937 a pheasant was in the garden together with another "introduction" which bodes no good—the eastern fox squirrel.

Fulica americana. American Coot. Soon after the north Berkeley fire, on October 10, 1923, the California Jays near the house were much excited. I supposed they were mobbing an owl, but in a few minutes I learned that there was a strange bird on the porch. It was a lame coot.

Oxyechus vociferus. Killdeer. These birds are common on the grassy fields on the lower university campus in winter, but a steep hillside does not attract them. I have, however, heard them flying over, always during fall or winter. It is possible that they feed on the Stadium lawn, although one of my dates precedes the building of the Stadium.

Columba fasciata. Band-tailed Pigeon. On February 27, 1921, thirteen Band-tailed Pigeons were seen flying over the west slope of the hill. Two spent several days in our oaks, January 11 to 17, 1935; two were seen on February 5, 1936, and in March, 1937.

Zenaidura macroura. Mourning Dove. These doves nest in the Botanical Gardens at the head of the canyon and occasionally fly over. On March 16, 1942, I found one perched on the electric wire on Panoramic Way (an early date).

Phalaenoptilus nuttallii. Poor-will. I have two September records, one in 1934, when, on September 24, I counted 143 repetitions of the call with no decrease in tempo, then more slowly up to 155. In 1939 one called repeatedly on September 4.

Selasphorus rufus. Rufous Hummingbird. Dates for the migration range from March 4 to May 16.

Megaceryle alcyon. Belted Kingfisher. Almost every fall I hear kingfishers near the swimming pool in Strawberry Canyon. Usually a single bird flies over but on one occasion two passed our house. The entries range from July 17 to November 24: one only in July, six in August, five in September, three in October, and one in November. I have one record in spring: May 10, 1926.

Dryobates villosus. Hairy Woodpecker. I have only three records for this limited area, one on July 12 and 16, 1935, and one on September 17, 1942. A pair stayed for the breeding season of 1943.

Dryobates pubescens. Downy Woodpecker. This species was not included in the 1915 report but it is not uncommon. Several times I have found one in spring digging a hole in a dead oak branch, but the job was never finished. Five records fall in March and April, three in June and July, nine in August and September and one in January.

Myiarchus cinerascens. Ash-throated Flycatcher. I saw my first Ash-throated Flycatcher in Hamilton Gulch on August 5, 1918, and supposed that any future records for this bird in our area would be of post-breeding wanderers. But that did not prove to be the case. One was seen in the oaks east of the house on April 8, 1928. In both 1933 and 1936 there was one with flocks of warblers and other birds that were feeding on the oak worms during rain storms. On May 1, a flycatcher took the worms by picking them off as it flew by a branch. On June 10, 1933, the call of an Ash-throat was heard repeatedly in the direction of the swimming pool and on June 13, 1935, one called and gave its double note while perched just outside the kitchen window.

Myiochanes richardsonii. Western Wood Pewee. Before moving to our house in Strawberry Canyon, I became very familiar with the Western Wood Pewee both in Berkeley and in the mountains. I expected it to be a common summer bird in the canyon. But I did not find any in our area before 1915. In May, 1915, I found only one pair between our house and the swimming pool. Many years I have recorded none at all during the summer. On June 8, 1942, one was seen on upper Mosswood Road.

Hirundo erythrogaster. Barn Swallow. On August 24, 1921, a lone Barn Swallow crossed the mouth of the canyon just above the pine trees, flying from north to south.

Sitta carolinensis. White-breasted Nuthatch. In the summer of 1931 there was an extensive fire on Mt. Diablo in Contra Costa County, and thereafter these nuthatches became abundant in Berkeley. From August 4, 1931, to January 27, 1932, several made themselves at home at my table.

Nannus hiemalis. Winter Wren. The dates for the Winter Wren range from September 5 to April 7. Of fifty entries the largest number is in October (15), with November a close second (12). I have none for February, six in March and two in the first week of April. On November 30, 1919, one sang its full-voiced song below the house. Another sang daily from March 11 to 28, 1943.

Sialia mexicana. Western Bluebird. Most of the entries for bluebirds are between August 16 and February 12 and refer to birds flying high over Strawberry Canyon. I believe they have nested in the Botanical Gardens at the head of the canyon, but I have never found them in the area covered, during the summer season. On April 19, 1924, I could hear their calls in the direction of the University Dairy.

Myadestes townsendi. Townsend Solitaire. Occasional winter visitant in the East Bay region. It seems to find a site where berries are abundant and remains as long as the food holds out. For two winters it was found just below the area covered, to the south of the Stadium, and it was there that I heard its whisper song on March 9 and 10, 1921. It was not until 1942 that I found one on our hill, first in Hamilton Gulch on March 9. I found out later that it had spent the winter higher up on the west slope (Arden Road). On March 16 it was catching insects in the grass and on March 26 had worked its way to the mouth of Strawberry Canyon. It spent nearly a month there and before migrating visited a plum tree at the entrance to our garden.

Bombycilla cedrorum. Cedar Waxwing. Not common in the area. Occasionally in the fall I have seen them in some deciduous trees or a cypress across Mosswood Road and in the spring they take the last berries from a hedge at the mouth of the canyon. But on April 25, 1933, a flock of about fifty came into the oaks and fed on the oak worms.

Vireo solitarius. Solitary Vireo. This vireo occasionally is found nesting in protected canyons in the East Bay region. On June 9, 1942, I found a young bird not long out of the nest on upper Strawberry Creek. It was being fed by an adult. In addition to these occasional breeding records, the unmistakable song of this species is not infrequently heard in the woods near our house, particularly in April. They seem to be "on their way." I have five entries from May 3 to May 29. Three fall dates range from August 9 to October 24. On August 9, 1929, one came into the oaks near the northwest porch under which a pair of Western Flycatchers were feeding young still in the nest. The flycatcher tried to drive the vireo away, but it kept coming back, finally coming within five feet of where I stood on the porch.

Vermivora celata sordida. Dusky Orange-crowned Warbler. I have detected only one of these birds in our area. It was bathing in the pool on December 7, 1920, and because of the date may be assumed to be of this race.

Dendroica aestiva. Yellow Warbler. After all the breeding Yellow Warblers have left Berkeley about the middle of August, mixed flocks of migrating birds often stop at my pool for water. These consist of vireos and warblers of different kinds and Yellow Warblers are often among them, particularly immature individuals. The dates fall between September 11 and September 29. In the spring, migrants are seen particularly from April 15 to May 20, being especially abundant in years when there are late rains. The Yellow Warbler has been seen in these flocks.

Dendroica occidentalis. Hermit Warbler. This bird was added to the list for the region in the same way—as members of migrating flocks—and the dates of entries are: in spring, May 10 and 11, 1915, April 29, 1928, May 7, 1933, and April 24 and 26, 1935; in fall, September 22, 1918, and October 18 and 30, 1921.

Icteria virens. Chat. Dates for the Chat are May 12, 1915, and May 11, 1917. Both times individuals were heard in full song.

Icterus bullockii. Bullock Oriole. Not as common in Berkeley as it is on the east side of the hills, but it does occasionally nest here. On our hillside it is a bird of passage in spring. Of the ten entries in my diaries, six are in April, all but one in the last week; two are in May. One on July 13, 1935, may have been breeding in the neighborhood.

Euphagus cyanocephalus. Brewer Blackbird. These blackbirds seem not to be hill dwellers. They appear in my diaries in August, September, and October, when I heard them calling at dawn as they flew from their roost in the Monterey pines on the campus across to the plowed fields in Contra Costa County where they fed during the day.

Piranga ludoviciana. Western Tanager. Seen every spring and fall as they pass through the region. Of the seventy-five entries, 18 are in August and 30 in September; 5 in April and 19 in May. In June there is but one—on June 21, 1938; on July 14, 1939, one was heard in a pine tree above Mosswood Road.

Carpodacus cassinii. Cassin Purple Finch. On December 21, 1916, I was attracted by a chorus of alarm notes which sounded as if dozens of Brown Towhees were calling. I found twelve Cassin Purple Finches in the deciduous trees near the edge of our lot, among them four males with the red feathers lifted into a crest. They remained some ten minutes. I could not detect the cause of alarm. When they quieted down, they began to eat the buds on the oak trees and uttered softer notes similar to those of the Purple Finch (*Carpodacus purpureus*). They left as a flock.

Spinus tristis. American Goldfinch. These goldfinches are less common than the Green-backed Goldfinches in Berkeley, but they have their favored habitats in the hills or canyons. I often find them flying over near the mouth of Strawberry Canyon; there are two records of their making use of the bird pool, both of them in November.

Loxia curvirostra. Red Crossbill. Detected first on January 15, 1920, when a small flock was feeding in an almond tree in the old orchard. Both males and females were present and they were noisily prying open the shells of the almonds and eating the nuts. They remained in the general region almost a month. On February 23, 1923, a flock of 8 to 10 flew over, calling *kimp, kimp, kimp*. On March 2, 1939, a flock of 25 alighted in the big pines at the mouth of the canyon.

Junco oreganus pinosus. Point Pinos Oregon Junco. It has been interesting to follow the spread of this junco in Berkeley. Before 1914 I had worked out the earliest dates of arrival for the Oregon Junco as October 17 and the latest date of departure as April 10. Between 1914 and the date of the finding of the first nest, I had several records of single birds found singing later than April 10: one near Founder's Rock on April 28, 1914; one above the Greek Theater on April 24, and four together there on June 20, 1915; also one on the Chemistry Building on July 2, 1915. On May 15, 1917, on

the grounds of the Claremont Country Club, I found the first nest reported in the San Francisco Bay region. By 1918 the local Berkeley birds had spread from their center on the campus to our hillside. This junco is now one of the common breeding birds of the area.

Spizella passerina. Chipping Sparrow. Often found in the breeding season in the Botanical Gardens and elsewhere in the canyon, but I seldom find it in our area. In 1938 and again in 1939 the song was heard repeatedly in April and May below our house near Canyon Road.

Passerella iliaca iliaca. Eastern Fox Sparrow. I have three records for my garden: November 8, 1926, February 14, 1936, and February 6, 1940. The third bird was seen pulling a long angle worm into its beak a little at a time without breaking it up.

Zonotrichia albicollis. White-throated Sparrow. In the fall of 1915 a White-throated Sparrow came to my feeding table. Again in 1922 one appeared and I succeeded in banding it on March 22. In 1923 it returned, and before it left I was able to read the band and found that a wanderer from the usual migration route had returned to the same table two years in succession. The species has been recorded much more frequently since 1923 along the western coast.

Comments on many of the birds in the list of 1915 are just as pertinent in 1943. The Black Phoebe still "makes itself heard constantly from the direction of the swimming pool." "For three winters" (seventeen now) "I have found the Western Gnatcatcher" and I may add that dates range from August 22 to May 10. The Tolmie Warbler still breeds "just beyond the end of Mosswood Road." But Thrashers no longer "come regularly to the feeding ground," and Brown Towhees are now missing at meal time (too much shade?).

Much more information has been collected concerning the nesting of certain species. Screech Owls (*Otus asio*) left the rotten oak stub below the house in 1937 and took possession of a flicker box under the overhang of the roof on the south side of the house. In 1939 their occupancy of this box continued from February 6 to June 25 and they raised four young. On June 25 one of the young birds left the box before noon and made itself comfortable in a wicker chair on the front porch; a little later in the day another perched on the rung of the chair and still later two others huddled in a dark corner. At dusk all four were together in the corner but after dark they took to the trees. In 1941 the young flew on July 2 and in 1942 on July 3.

The favorite nesting site of the Western Flycatcher (*Empidonax difficilis*) for many years was under the northwest porch, but when the porch was rebuilt the new set-up did not meet their requirements. In June of 1941 a pair began six nests on a beam in the newly built garage, finally settled down to one of them, and raised a family. The birds arrive sometime between March 12 and April 15. Nests are usually finished by the middle of May and the young fly soon after the middle of June. Within a week or ten days the young are independent and a second nesting is begun.

In 1929 the young of the first brood flew on July 2 and on July 4 I saw them making short flights and catching their own insects. Already the adults were showing a renewed interest in the nest. By July 16 the female was sitting again, and on August 15 the second brood was out of the nest. On August 19 the young birds came into the spray of my hose, and then they were seen no more. In all the years I have only three records for Western Flycatchers during the last half of August; but single birds (from farther north?) have appeared between September 12 and October 2.

Two nesting boxes built for small birds have been used by the Titmouse, Bewick Wren, and House Wren. The Bewick Wren (*Thryomanes bewickii*) has its center of abundance on the north-facing slope of the canyon and appropriates many of the natural cavities in the oaks. Pairs made use of the lower box in 1916 and 1930; of the upper box in 1918 and 1932 and of the flicker box in 1919 and 1936. These were all successful nestings and the young left the nests between May 10 and June 26. In 1919 the flicker box, which before that date had been in the east gable and was used as a daytime roost by a Screech Owl, was taken down and was standing on a brick pier at

the entrance to the front porch waiting for a convenient time to put it up on the south side of the house, farther from the feeding table. The Bewick Wrens took possession on April 11. I moved the box to another pier five feet away and they brought off their brood on May 30. In 1936 the box was under the edge of the roof, and they again made use of it. Even after the Screech Owls took over the box, several times I saw both Bewick and House wrens carry sticks into the box; but after a night of Screech Owl activity they went elsewhere.

House Wrens (*Troglodytes aëdon*) used the upper box in seven different seasons from 1921 to 1939. Dates when the young left the nests fall between June 6 and July 7. In 1930 the lower box was occupied by a pair of Bewick Wrens on March 21. On April 17 a male House Wren was enticing a female to the upper box but the female Bewick Wren interfered. The male House Wren sang all the time in the greatest excitement, now uttering purring notes to encourage the female House Wren, now snapping his bill as he drove off the female Bewick Wren.

In 1939 there were two pairs of House Wrens, one in the upper box and one in the lower box, both on the east side of the house. The two males vied in song, each singing near his own box. But on May 20 both males were singing in the trees west of the house and chasing each other. The one at the upper box returned to his own quarters, leaving the other in possession of the western woods. On June 7 one of the fledglings was found dead under the upper box, and on June 8 two more had been killed. A cat or a jay would have eaten the prey. The finger of suspicion points to the dominant wren of the lower box but there is no direct evidence.

The lower box was used by Plain Titmice (*Baeolophus inornatus*) eleven seasons and the upper box once. Twice the five eggs failed to hatch. In 1923 and 1926 the nests contained seven eggs. On May 2, 1924, for photographic purposes I took the fledglings into the front porch, which was screened with mosquito netting. They could cling to the vertical shingles and climb up the netting but had difficulty holding on to a twig.

In 1926 a pair that nested in the upper box had a brood of seven and established a record for earliest dates: building, February 25; flight of young, April 24. On March 14 of that year a Plain Titmouse and a Song Sparrow were both perched on a branch of spiraea, facing each other and two feet apart. The sparrow was tense and motionless; the titmouse held the body tense but was going through a rhythmical motion of the head and neck as far as possible from side to side. This continued for several minutes. Then the sparrow relaxed but the titmouse kept on with the pendulum for six or eight more strokes.

In 1927 a pair began building in the lower box on April 7. By May 18 they were scolding the jays and feeding young that were calling loudly. When the young flew on May 23 the last bird out was attacked by a jay when the parents were a short distance from the box, herding those that had just flown. The last youngster flew across to the porch railing near my post of observation. A California Jay came around the corner of the house, spied the fledgling and flew at it. The little bird darted through a gap in the top of the oak tree with the jay in close pursuit. I clapped my hands. an adult titmouse flew at the jay and the youngster escaped. The family stayed in the vicinity for two weeks.

In 1928 a male began singing near the box on January 10. On March 9 I took a picture of the pair on the feeding table. The next day the male gave his call 108 times in five minutes at dawn. On March 27 there were two eggs in the box. On April 3 I tapped on the box before lifting the lid; like a bunch of loose feathers the sitting bird suddenly exploded and hissed but did not leave the nest. The young flew on May 8.

For many years thrashers were among the birds most frequently seen. Out of two

hundred separate entries on the species, the largest number is for September (40). All the dates for molting are in August, and in September they are labelled "very sleek," or "in fine feather." And it is in September that I have recorded imitations of other birds most frequently. Sometimes the imitations have been quite puzzling and would seem to indicate some movement of thrashers in the fall. For example, in 1917, on September 21, the notes of a Chat were woven into the song. From September 24 to 28, 1917, the *kuck-kuck* of the robin was heard, and that was the first year the robin's nest was found in the East Bay region. In 1920 on September 5 one incorporated the triplet of the Ruby-crowned Kinglet; this is hard to explain unless the phrase was carried over from the previous spring. Imitations of the Olive-sided Flycatcher were recorded twice in August, twice in September and once on April 1. The quality of the tone was exact but it had less carrying power and was repeated several times in the middle of the usual thrasher song: *Tow-whee-o, whip-it now, pee-hew, pee-hew, pee-hew, dorothy*, etc.

Foods taken by the thrasher were berries, apple, oatmeal, chick-feed, and bread. One meal recorded "at one sitting" consisted of nine beakfuls of oatmeal and thirteen toyon berries. In 1924 a pair adopted canary seed as a food. When the sparrows take seeds there are no pecking sounds. When quail take them there is a very rapid light pecking. When a thrasher takes a seed his beak comes down hard and he takes time to swallow before he gives another sharp peck.

Until recently thrashers were constant singers near our house on warm days in winter especially after January 1. But with disappearance of a favorite perch higher up the hill and the increase of houses on top of the hill, their winter quarters seem to have been more definitely limited to Hamilton Gulch and the brushy areas higher up on the ridge. After April 1, however, they are again within hearing, possibly raising a second brood on the north-facing slope when the sun is higher in the sky.

In addition to these more spectacular birds, the elusive warblers have claimed much attention. The leaves on the live oaks are so dense after the middle of March that the search for warblers is no child's play. It was not until I began to live on a level with the tops of the oaks that I discovered that there is a migration of these birds along this coast at the same time that they are passing through the east and middle west on their way to Canada. The warblers that breed in the area are the Lutescent, Tolmie and Pileolated with occasional Yellow Warblers within hearing. All of these are established, and some already have young out of the nest before this migration of northern birds takes place.

In 1915 the month of May was unusually rainy. On May 10 I recorded both Townsend and Hermit warblers feeding on oak worms; on May 11, Yellow, Townsend, Hermit and Pileolated; on May 12, Townsend and a Chat. As all were in full song, it was a red-letter period for a bird watcher. On May 10, 1934, a group of adult Pileolated Warblers came to the pool.

In the fall warbler days occur the last week of September as a rule. In 1918 there was an electric storm on September 21, and the next day there were Lutescent, Townsend, Hermit and Pileolated warblers in our oaks. In 1928 Black-throated Gray Warblers were seen on September 12 and in 1934 on September 7 and 24; in 1936, September 8 to 14, and they were still here on October 12.

One of the problems for a householder who has built in the midst of live oaks is what to do about the oak worms that devour the young leaves each spring. Great numbers of birds are attracted by the abundant food supply during the spring migrations and if they stay long enough they do reduce the worms to such proportions that the nesting pairs can later prevent the defoliation of the trees. On June 6, 1928, I estimated

the number of nesting birds feeding in the oaks near our house all day and every day as follows:

Titmouse	2 adults and 1 brood	7
Bush-tit	6 adults and 3 broods	24
House Wren.....	2 adults and 1 brood	8
Lutescent Warbler.....	6 adults and 3 broods	18
Towhees, Song Sparrows, etc.....		24
		—
Total		81

No spray was needed.

But there have been years when the trees have been defoliated three times between May and November. Each time the trees produced new leaves. The danger to the trees lies, I believe, in the chance of a heavy frost when new tender leaves have come out in November. Another angle of the problem concerns the parasites which attack the worms but on that I am not competent to express an opinion.

The practical plan adopted after years of experience has been to postpone spraying until we are sure that the birds have not been able to handle the situation. As soon as the worms begin to feed, their droppings cover the brick pavement and from day to day these may increase. If they continue to increase beyond the middle of May, when the migration even of Alaska birds is past, it is questionable whether the birds breeding in the area will be a sufficient check to prevent a second generation of worms from developing.

In 1928 I saw for the first time a flight of termites. On November 4, the first clear day after the first rain of the winter season, a swarm of the winged termites dropped to the pavement at the mouth of Strawberry Canyon, shed their wings and began to crawl in pairs up Mosswood Road. I noticed that many birds were coming from the shrubbery to feed on the insects and found that the following species were taking advantage of the sudden windfall: Wren-tits, Bewick Wrens, Hermit Thrushes, Brown and Spotted towhees, Golden-crowned Sparrows, Fox Sparrows and Song Sparrows. Even a Flicker swooped down as if to alight on the pavement but swerved when he saw me.

As I said at the beginning of this account, questions have presented themselves during the years that are still awaiting satisfactory solutions. Some suggestions have been offered and it is to be hoped that they may bring out other evidence that is hidden away in the notes of other bird watchers or bird banders which may help to clarify certain obscure points. If this confession of inadequate consecutive observations leads to a filling in of certain gaps, it will have accomplished its purpose.

Berkeley, California, May 5, 1943.