

Further evidence, of more scientific character, is presented in a report of Allen Frost, "Effect upon Wildlife of Spraying for Control of Gipsy Moths" (Journ. Wildlife Management, vol. 2, 1938, pp. 13-16). At a state park in New York, areas within and without the park and purposely well delineated by north-south lines and east-west boundaries, were set apart for controls. All the areas were surveyed before and at different times after the spraying with the same poisons generally used. In some areas sprayed there were no birds left; in the one least affected, a reduction of 50 per cent was noted; and in the others but one or two or three birds could be found. Evidence of like fatality to other wild life is also described, even to the observed exodus of snakes, which is indicative of other effects.

In the search for other remedies I have learned that a contact spray like that of nicotine or tobacco juice has a degree of efficiency when applied precisely at the time or times of the activity of the caterpillar; that it is not toxic; hence presumably does not poison directly and indirectly birds, mammals, or other insects that may be beneficial ones, bees for example; that it evaporates or volatilizes in a few days and leaves the vegetation unaffected. But it does have the objection of the impracticability of general opportune timeliness, as too late for the earlier larvae and too early for the unmetamorphosed ones and the escape of many in unreached spots.

Any process of spraying presumably has a disturbing effect on birds especially during the nesting period which is when most of the spraying is done; the parents are scared away, nests destroyed and nestlings possibly smothered.

Lamps illuminated at night and surrounded by electrocuting meshes do attract and kill moths in great quantities; but as Prof. W. B. Herms has found by experiment, the moth of the California oak worm (*Phryganidia californica*) has its idiosyncrasy for an ultra violet light, practically invisible in the hours of dusk when it is on the wing. On a San Mateo estate this lamp and also one of mercury vapor were totally ineffective.

This leaves me at least with no means that I would other than condemn; all methods are inefficient and positively with no lasting effect. We much need some better process that may replace those which are all of them disastrous to bird life and even to other valuable life; and even though the oak trees do not perish nor probably even suffer from lasting injury, it is desirable for their sake to relieve them of this pest. And as it is, it will be understood why I disadvise spraying and do not myself do it.

San Francisco, California, April 15, 1938.

HIGHLIGHTS OF ORNITHOLOGICAL WORK IN UTAH

By WILLIAM H. BEHLE

Looking back over the published record of the ornithological work done in Utah, one is confronted with somewhat of an anomalous situation. Most of the known ornithological features of the area were discovered in the early days of exploration and survey. An annotated list of the birds of the then Territory of Utah was published as early as 1874, just 27 years after the arrival of the first colony of Mormon pioneers who entered the region for permanent settlement. Yet despite this early activity, there has been comparatively little advance made in the ornithological knowledge of this faunally attractive region since the decade of 1870. Of late there have been signs of a renaissance in bird work in the state, however, so that it now seems desirable to summarize the work in ornithology that has already been done and so prepare the way for future intensive work.

In treating the sequence of events, the chronological order has been followed. Citations are included to the most important publications dealing with birds in Utah. I am indebted to Dr. Josselyn Van Tyne of the University of Michigan for bringing to my attention information relative to the chapters of the Agassiz Association in Utah.

The earliest references to the wild life of Utah are to be found in the accounts of itinerant missionaries and fur traders who traversed the region in the early part of the 19th century. These are for the most part casual observations and I have not been concerned with them in this attempt to trace out the really scientific work on the birds of the state. Likewise we may pass hurriedly over the varied accounts of the Mormon pioneers concerning the gulls from Great Salt Lake which saved in part the first crops of grain of the pioneers from the "Mormon crickets" (*Anabrus simplex*).

The unfortunate misunderstanding regarding the identity of the gulls involved has been to a certain extent cleared up (see Goodwin, 1905, and Bailey, 1905); but even of recent years in certain texts the Franklin Gull, *Larus franklini*, is given the credit rather than the California Gull, *Larus californicus*, which latter is the species that nests in such great numbers on the islands in the Great Salt Lake. (See Behle, 1935.) It should be remembered in this connection, though, that there is a colony of nesting Franklin Gulls in the state, located at the mouth of the Bear River as it enters Great Salt Lake.

Our attention first focuses, then, on the naturalist activities of the early government expeditions for exploration and survey. In the John C. Fremont report of 1845 there is mention of certain birds in the Great Salt Lake region, observed there in the early fall of 1843. Although collections of geological and botanical materials were made on Fremont's first and second expeditions, to which the above cited report refers, apparently no birds were saved, for there is no accompanying scientific report on birds nor is there any reference in the text that I can find stating that bird specimens were saved. The ornithological observations of interest to us are contained in the account of Fremont's daily journal and apply for the most part to conditions at the extensive marsh area at the mouth of the Bear River.

In the fall of 1843 the party followed the Bear River to its mouth at Great Salt Lake, and a few members including Fremont himself and Kit Carson even navigated out in an India-rubber boat to what is now known as Fremont Island, in Great Salt Lake. Under date of September 3, when encamped near the overflows at the mouth of the Bear River, Fremont recorded that "the water fowl made this morning a noise like thunder. A pelican (*pelecanus onocrotalus*) was killed as he passed by, and many geese and ducks flew over the camp." At the overflows at the mouth of the river he found that "The whole morass was animated with multitudes of water fowl, which appeared to be very wild—rising for the space of a mile round about at the sound of a gun, with a noise like distant thunder. Several of the people waded out into the marshes, and we had tonight a delicious supper of ducks, geese, and plover." One night the party had a supper of "sea-gulls," which Carson killed near the lake. These observations are significant for they give us our first mention of that important marsh area which is now the famous Bear River Migratory Bird Refuge.

The first government expedition which paid especial attention to the natural history of the Utah region apparently was the Stansbury expedition to the shores of Great Salt Lake in 1849-50. This expedition was organized under orders of Colonel J. J. Abert for the purpose of making "a survey of the Great Salt Lake, and an exploration of its valley." The party, under command of Captain Howard Stansbury, left Fort Leavenworth on May 31, 1849, arriving at the City of the Great Salt Lake on August 28, 1849. They wintered at Salt Lake City. The lake was surveyed in the spring of 1850 and the company departed from the region August 28, 1850.

No naturalist accompanied the party, as far as I know, but nevertheless, natural history specimens were taken which were of great importance. The birds were deposited in the United States National Museum and were reported on by Spencer Fullerton Baird in appendix C of Stansbury's Report which first appeared in 1852. Thirty-one species are listed, many of which were only sight records, however. Notations on abundance were frequently given and it is notable that the great majority of the species mentioned are water birds. They were all taken in Salt Lake Valley and mostly in the spring of 1850. Baird wrote in the preface to his report that no government expedition since the days of Major Long's visit to Missouri had ever presented such important additions to natural history.

One or two items in the Stansbury and Baird reports are worthy perhaps of special comment. Among the land birds brought back was a specimen of the Mountain Bluebird, *Sialia currucoides*. This was thought at the time by Baird to be a new species and was accordingly described as *Sialia macroptera*. The second specimen of *Leucosticte* known to science was the one taken by some member of the party in Salt Lake Valley, March 21, 1850. The Cinnamon Teal shot on the Jordan River comprised the second record for the species from North America at that time. In addition to the formal report of Baird there is contained in the daily accounts of Stansbury's journal the first descriptions of the colonies of gulls, pelicans, cormorants and herons on the islands of Great Salt Lake (see Behle, *op. cit.*, p. 29).

Three years following the return of the Stansbury expedition, another government exploration and survey party entered Utah Territory and contributed in a small way to the knowledge of the ornithology of the region. This was one of the Pacific Railroad surveys and more pertinent ornithological results probably would have resulted had it not been for the tragic death of many of the party including the leader and the naturalist of the expedition. The expedition to which I refer was the Gunnison-Beckwith party of 1853-54. The expedition was commissioned to make a "survey of the pass through the Rocky mountains, in the vicinity [*sic*] of the headwaters of the Rio del Norte [Rio Grande], by way of the Huerfano river and Coo-che-to-pa, or some other eligible pass, into the region of [the] Grand and Green rivers, and westwardly to the Vegas de Santa Clara [Santa Clara River, southwestern Utah] and Nicollet river [Sevier] of the Great Basin, and thence northward to the vicinity of Lake Utah on a return route, to explore the most available passes and cañones [*sic*] of the Wahsatch range and South Pass to Fort Laramie."

As to personnel, there was Captain J. W. Gunnison in charge, assisted by First Lieutenant E. G. Beckwith. The military escort was composed of some 30 non-commissioned officers and men. F. Kreuzfeldt served as botanist, probably collected some birds and presumably was assisted in collecting by Dr. James Schiel, surgeon and geologist.

The members of the group left their preparatory encampment near Fort Leavenworth on June 23, 1853. By September 29 they had entered the present confines of Utah, having come down from the divide separating the waters of the Grand and Green rivers. They crossed the Green River probably at the ford near the present town of Greenriver, Utah. Having come upon the Old Spanish Trail they followed along it or in its general direction westwardly through Wasatch Pass and Salina Canyon to the Sevier river. Sevier Valley was entered, October 17. Captain Gunnison, Kreuzfeldt and a few others pushed on toward Sevier Lake ahead of the main party and were massacred by Pavant Indians on October 25. Following this tragic affair, Lieutenant Beckwith assumed charge of the expedition which wintered in Salt Lake City. A spring trip was made to Fort Bridger and return to the winter base. Then with new orders the party continued across the Great Basin to explore new routes over the Sierra Nevada.

Beckwith's account of the expedition appears in the second volume of the Pacific Railroad Reports issued in 1855. However, Baird's report on the birds collected was not printed until 1859 and then appeared in volume 10 of the railroad reports (Baird, 1859). Certain specimens are listed from Salt Lake City indicating that some member of the party collected specimens even after Mr. Kreuzfeldt's death. Of the species listed, only 7 as near as I can ascertain, were taken in Utah as outlined today. Of these, the Raven, Mud-hen, Red-head, and Golden Eye are listed for the first time from the state. The others had previously been recorded by Stansbury. Baird's report on the birds of the Gunnison-Beckwith survey comprises the second published scientific account dealing with birds in Utah.

"Johnston's Army" of the United States government entered the valley of the Great Salt Lake on the 26th of June, 1858, under the command of Colonel Albert Sidney Johnston. Permanent camp (Camp Floyd) was made at Fairfield, Utah, where at least part of the army remained until 1861. At various intervals during the army's sojourn at Camp Floyd, Captain J. H. Simpson made several surveying trips to surrounding areas. His most notable expedition was made in 1859 for the exploration of a direct wagon route from Camp Floyd to Genoa in Carson Valley, Nevada. Henry Engelmann served under him as geologist, meteorologist and botanical collector; Charles S. McCarthy was the taxidermist. The Genoa expedition left Camp Floyd, May 2, 1859, returning August 4 the same year. The report of this survey was not printed, however, until 1876. As a part of this report, there is in appendix C a list of identifications by Baird of all the birds taken by McCarthy, not only on the Genoa trip but also from various points in Utah. For many specimens the locality was simply designated as "Utah." Thus many of those so marked may have actually been taken outside the present confines of the state. The only distinctive thing about the bird collections known to have been taken definitely from within Utah as outlined today, is again the preponderance of water birds. Most were taken at Utah Lake, but a few are from Camp Floyd, evidently having been collected on the pond there formed by the large spring that gushes forth in the midst of a desert area.

Perhaps the most intensive work on birds ever done in the state was that of Robert Ridgway while he was serving as Zoologist for the King expedition for the geological exploration of the 40th parallel. The first camp of this survey was established June 6, 1867, at Sacramento, California. The winter of 1867 was spent in Carson City, Nevada, and vicinity. The group worked eastward the following summer of 1868. The first locality in Utah where collections of birds were made was Deep Creek, Tooele County, which was reached on October 5. The winter of 1868-69 was spent at Salt Lake City and in the vicinity. On May 20, 1869, spring collecting was begun by Ridgway at Salt Lake City and continued until June 21 when camp was moved to Parley's Park, about twenty-five miles east of Salt Lake City near the present Park City. In the meantime, Antelope, Stansbury, and Carrington islands in Great Salt Lake had been visited. On July 2, Ridgway made an excursion in company with the botanists of the expedition eastward to the western spurs of the Uintah Mountains (Pack's Cañon). A return route was made to the Parley's Park base camp via Provo Cañon, Utah Lake and Salt Lake City. Work was continued at Parley's Park until August 16 when collections, notes and specimens were packed and field work ended.

Three publications relating to the ornithology of this expedition resulted. "Notes on the bird-fauna of the Salt Lake Valley and adjacent portions of the Wahsatch Mountains" was published in 1873 (Ridgway, 1873). "Lists of birds observed at various localities contiguous to the Central Pacific Railroad, from Sacramento City, California, to Salt Lake City, Utah" appeared the following year (Ridgway, 1874). Then finally

there was the main ornithological report published in 1877 which comprised part 3 of volume 4 of the general report of the expedition. Results pertaining to the birds of Utah are particularly important. During the months of May and June, 107 species were noted in the vicinity of Salt Lake City. At Parley's Park 116 species were found, and 21 at Pack's Canyon in the Uintah Range. Ridgway thus had opportunity to compare the montane avifauna with the desert one. His observations were made during the breeding season and so tied in nicely with the autumn observations of Allen, Nelson and others who collected in Utah during the subsequent few years. Ridgway's work was particularly valuable because of the natural history, habitat and distributional notes recorded. Heretofore the information recorded about the birds of Utah had consisted mostly of mere records of occurrence.

In the spring of 1871 an expedition to the "Great Plains and the Rocky Mountains" was sent out by the Museum of Comparative Zoology. J. A. Allen was in charge of the party. He was accompanied by C. W. Bennett as taxidermist, and Richard Bliss as ichthyologist. Both of these men aided in the ornithological work, especially Bennett. The party ultimately reached Ogden, Utah, and collected in that vicinity from September 1 to October 8, 1871. The ornithological results of this expedition are found in a resumé article in the *American Naturalist* (Allen, 1872*a*) and in a final ornithological report which not only included an annotated list of birds from Ogden and each of the other places where stops were made, but also a general annotated summary list for the whole expedition was included.

In Utah, although Ogden was the principal field of operations, several excursions were made by Allen to the neighborhood of Salt Lake City and to different points along the eastern shore of Great Salt Lake. The region thus covered embraced the northeastern portion of the valley of the Great Salt Lake, including a portion of the lake shore near the mouth of the Weber River, the lower portion of the Weber Valley, Ogden Canyon and the mountains north and east of Ogden. Allen's annotated list for Ogden contains 137 species collected or observed by Bennett or himself during their five weeks there. In the report one finds emphasized the great variety of environmental conditions, which explanation was offered to account for the rich avian fauna. Habitats mentioned were the lake with its marshes, the flat valley and the abruptly rising mountains with alpine regions. He spoke of an increase in the number of small birds, especially the granivorous, insectivorous and frugivorous types as the result of the settlers' activities of transforming arid plains to farms with orchards and shade trees. Three species were reported to have been recently introduced, the English Sparrow, the California Quail and the eastern Quail or Bob-white. The first two are abundant today in Salt Lake Valley; the Bob-white does not seem to have survived.

In the month of June, 1872, C. Hart Merriam was engaged in ornithological work in northern Utah and southern Idaho, holding a position as ornithologist to the Hayden Geological Survey. For the year 1872, Merriam was attached to the Snake River division of the expedition, and in Utah he collected at Salt Lake City, Ogden, and along the Bear River. His collecting took place from June 5 to June 21. The survey began its labors near Ogden and most of the specimens taken in Utah were from Ogden and vicinity. Merriam's report (1873) was a part of the main report of the expedition appearing in 1873. At the end of the report of his ornithological activity in 1872, Merriam included a list without annotations of all the birds known to occur in Utah Territory. In this first list of Utah birds to be published, 176 kinds were included. Some of them, however, were based on information furnished by Ridgway, Allen and Henshaw.

The most prominent ornithological work in the state was that connected with the Explorations and Surveys west of the One Hundredth Meridian in charge of George M.

Wheeler. Although field work for the Wheeler Survey commenced in 1869, natural history work was not emphasized until the expedition of 1871. Work that year was centered mainly in Nevada and Arizona, and no birds are listed for Utah in the reports for the expedition of 1871. The following year the expedition worked almost entirely in Utah, with notable ornithological results. Naturalist activities were in charge of H. C. Yarrow with Henry W. Henshaw as assistant. The expedition for 1872 was organized at Salt Lake City. While the various field parties were assembling, the two naturalists moved south on July 22, about 50 miles to Provo which, because of its proximity to Utah Lake on one side and the mountain canyons and streams on the other, together with the orchards and cultivated fields, proved to be a good collecting area. Two weeks were spent here, then the two ornithologists departed to accompany two separate parties to different parts of the state. Yarrow apparently joined Lieutenant Hoxie's party which took a westwardly route to Fairfield and across the southern limit of the American Desert to extreme eastern Nevada, thence southeast to Fillmore, Utah. From Fillmore, the route was southward, thence eastward across the mountains at Fremont Pass, some 15 miles southeast of Beaver, to the eastern valley of the Sevier River which was followed south to Panguitch. From Panguitch the group traveled south and west to the Virgin River and the rendezvous camp at Toquerville.

The other party to which Henshaw was attached and which was under the leadership of Lieutenant Wheeler followed an easterly course from Provo to Strawberry Valley, thence south to Thistle and Sam Pitch (San Pete) Valley; south through Grass Valley, presumably to a point about ten miles north of Panguitch, from which locality they turned westward through Fremont Pass, coming out about 20 miles north of Parowan. Thence they journeyed south to Toquerville. At Toquerville the two collectors, again together, organized a minor party for naturalist activities. Under Yarrow's leadership the group proceeded south to Saint George, then west and north to Pine Valley, east to Harmony, north to Beaver and finally back to Provo where additional time was spent collecting until the entire expedition returned to Salt Lake City. Here it disbanded in December. Thus about six months were spent in the field and some 600 birds were collected in Utah. These represented 165 species, and a considerable portion of the state was covered. Among the specimens collected was the skin of a titmouse later designated by Ridgway (1882, p. 344) as the type of *Lophophanes inornatus griseus*. Henshaw (1919, p. 177) in his autobiographical notes gives an account of the life of the collectors on this expedition, the routine of collecting, and the equipment used.

The published results of the ornithological work of Yarrow and Henshaw are the most important treatises on the birds of Utah even today. An annotated distributional list of the birds of the state was compiled by Henshaw following his work in 1872. This was first read before the Lyceum of Natural History, New York, on April 6, 1874, and was published in the *Annals of the Society* (Henshaw, 1874). It was reprinted the same year with a few minor changes as a government publication. The pamphlet (Yarrow and Henshaw, 1874) in which the annotated list appears, also gives the ornithological results of the Wheeler expeditions for 1871, 1872 and 1873, and was issued in advance of the main report for the purpose of making the ornithological findings known considerably earlier than they would otherwise have appeared. Essentially the same material for Utah is contained in the main report (Henshaw, 1875).

In Henshaw's annotated list of the birds of Utah he notes 214 species. Of these, 160 were either seen or actually taken by Yarrow or Henshaw in 1872. Twenty-five others not encountered by them were found by Allen in the Ogden region. The others were records of Ridgway who furnished Henshaw with a list of his observations. The seasonal status was indicated, if known, in the list, and the authority for the records was

given and also the places of occurrence. This list is the highlight of Utah ornithology even today.

Quite coincidentally, while Henshaw and Yarrow were collecting around Provo, E. W. Nelson was collecting birds in the vicinity of Salt Lake City. He had been assisting Professor E. D. Cope in paleontological work in Wyoming, and at the conclusion of that project Nelson traveled across the Great Basin to California with a companion, W. W. Wentworth. They collected birds and made observations near Salt Lake City from July 27 to August 8, 1872. Their collecting was done at the mouth of the Jordan River and thence north ten miles along the lake shore and from there eastward over cultivated land to the base of the mountains. Observations were made on 41 species. Water birds figure prominently among these. An account of Nelson's collections and observations was later published (Nelson, 1875).

After the great activity in bird work in the region from 1869 to 1872 there was a lull in government expeditions which entered Utah and which were concerned with natural history work. Indeed, only one other large government expedition did ornithological work in the state and that was not until 1891. In the decade commencing with 1880, however, we find apparently the first manifestation of local ornithological interest. This was the formation of several Salt Lake chapters of the Agassiz Association which was a nation-wide organization at the time for the study of birds and wild-life. Quoting from the first volume, number one, November, 1885, of the Agassiz Notes, published in Salt Lake City, there is the following historical note. "The first Agassiz Chapter formed in Salt Lake began work August 1, 1882, under the name of Chapter 'A'. In the following year Chapters 'B' and 'C' were organized. Chapter 'A' existed till May, 1884, and then disbanded; Chapter 'B' continued about a month, and also disbanded; Chapter 'C' ran about a year and a half, then adjourned and has not met since. On November 1, 1884, some of the old members of 'A' and 'C' met at the residence of Professor M. E. Jones, and organized this Chapter under the name of Chapter 'D', but Mr. H. H. Ballard, the President of the Agassiz Association, not wishing to multiply nominal chapters in the city, thought it best for us to take the name 'A' reorganized. We have now seven active, two corresponding, and one honorary member. Hoping to awaken an interest in Natural Science we have determined to publish this pamphlet." Several articles on Utah birds are included in this publication, none particularly important.

In 1891, members of the Death Valley Expedition of the United States Biological Survey were carrying on field work in the Death Valley region of California. Two members of the party made a side trip in the spring of 1891, which took them into southwestern Utah where many valuable observations were made on Utah birds and many specimens were obtained. C. Hart Merriam and Vernon Bailey were the two ornithologists making this side trip into Utah and their travels took them to the valley of the Virgin River as far as St. George. Then they journeyed north as far as the Escalante Desert. Localities in Utah where birds were observed or collected included the Beaver Dam Mountains, Santa Clara Valley, St. George, Diamond Valley, Shoal Creek, Mountain Meadows, and the Escalante Desert. The records of occurrence and distributional notes obtained are included in A. K. Fisher's report on the ornithology of the Death Valley expedition (1893).

During the last quarter century, there have been a number of active and enthusiastic oölogists in Utah who have studied birds in the state and who have made collections of Utah birds or eggs. Their interest centered on birds mainly from the standpoint of pursuing hobbies, rather than from a basic scientific interest. Nevertheless, many worthwhile data have resulted from the activities of this group. Among the better known of these ornithologists and oölogists were John W. Sugden and his son Dr. John W. Sug-

den, O. H. Howard, Mr. and Mrs. A. O. Treganza, D. Moore Lindsay, J. Walcott Thompson, Ashley D. Boyle, J. A. Mullens, S. H. Goodwin, J. H. Paul, Harry Aldous, M. R. Cheeseman, and Claude T. Barnes.

Common interests brought many of these men together and they decided to organize a bird society. Accordingly, on December 27, 1912, the Utah Audubon Society came into existence with Claude T. Barnes, President, J. H. Paul, Vice-President, Walter Cluff, Secretary, and N. W. Reynolds, Treasurer. Many of the others listed above were trustees. This organization functioned actively for many years before interest tended to die out. Of recent years a reorganization has taken place under the guidance of Dr. A. M. Woodbury and C. W. Lockerbie. This new Utah Audubon Society comprises today the one active body of ornithologists in the state.

Also out of the socialization of the oölogists grew a chapter of the Cooper Ornithological Club. The local group sent a petition to the parent Pacific Coast organization requesting permission to establish an Intermountain Chapter of the Club. The request was granted by unanimous vote of both divisions of the Cooper Club and the first meeting of the new chapter was held September 14, 1915. Dr. D. Moore Lindsay was the first president. Meetings were held regularly and the minutes were printed in the Condor until 1918. The organization then experienced a period of inactivity. For a brief time in 1919, minutes of meetings were sent in. Gradually the meetings merged with those of the Audubon Society, since the officers of the two societies were the same. No minutes of the meetings of the Cooper Club chapter were submitted after 1920, although the group continued to meet sporadically up to a few years ago, when the organization seemed to disband entirely after the death of John W. Sugden who was the dean of the group.

Today great interest is centered on the status of the pelicans, cormorants and other water birds that nest on certain of the islands of Great Salt Lake. Changing environmental conditions resulting in change in habits of the birds make this a most interesting point of attention. The Bear River Migratory Bird Refuge, which was established after the disastrous duck sickness of the period centering about 1915, is a significant arena of scientific study and information. The state with its diversified topography is an attractive area for the study of bird distribution. The lack of such information on Utah birds is keenly felt among systematists at large and by local, interested students. It is hoped that there will soon appear a publication on the birds of Utah. Ornithologists at the University of Utah are gathering data for such a publication.

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Museum of Vertebrate Zoology, Berkeley, California, July 12, 1937.

BIRD LIFE IN NEVADA WITH REFERENCE TO MODIFICATIONS IN STRUCTURE AND BEHAVIOR

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No doubt many readers of the *Condor* have traveled across the state of Nevada, either by way of a transcontinental railroad line or by one of the main automobile highways. Whatever the route, I suspect that the most vivid impression was of barrenness and desolation. Indeed, the comment I have heard most often, when bird life in Nevada was mentioned, has been that "no birds live there." Sometimes, I have been told by persons who had lived for a long time in the state that only one or two kinds of birds lived in their neighborhood. Even naturalists have remarked that they considered Nevada a place characterized by absence of animal life and especially of birds. It is little wonder that, although more than eighty persons have done some bird work in the state, scarcely anyone has resided there for long who observed birds in serious fashion.