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## PHILADELPHIA TO THE COAST IN EARLY DAYS, AND THE DEVELOPMENT OF WESTERN ORNITHOLOGY PRIOR TO 1850\*

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IT IS MY PRIVILEGE at this meeting to represent the Academy of Natural Sciences of Philadelphia. On the long journey from coast to coast that the eastern members have just completed, the names both of localities that we passed and of birds that we saw, have constantly called to mind the fact that other and more worthy Philadelphia ornithologists had made this trip before. They came not to participate in scientific meetings nor to enjoy the generous hospitality of friends and fellow students, but as pioneers in investigating the natural resources of one of the richest sections of our continent, to search out in the wilderness the new species of birds, mammals, plants, etc., to bring home specimens upon which scientific descriptions and names might be established.

They came, not surrounded by all the comforts of modern travel, but on foot or on horseback, picking their way through unexplored wilds, exposed to indian attack and at the mercy of the elements, dependent largely upon the country through which they passed for sustenance. Some of them gave up their lives in the pursuit of our favorite science, and to one and all we owe a debt of gratitude for the part they played in developing our knowledge of the ornithology of the Pacific Coast. Though we are inclined to think of these early explorers as men of mature years, they were mostly young fellows from 19 to 21 or 30 years of age, ready for any hardships or danger in the pursuit of their object.

Does it not seem that this is the proper time and place for us to pause in the activities of today to review the achievements of these early pioneers and in so doing pay a well merited tribute to their memory? I think you will agree with me that it is, and will bear with me while I briefly review their labors in the west.

\*Read at the Thirty-third Stated Meeting of the American Ornithologists' Union, San Francisco, May 18, 1915.

Most of the men who laid the foundations of western ornithology were Philadelphians, but they did not all come from the Quaker City, and it seems only fair to stretch my theme sufficiently to include these latter, as well as some mention of other sources through which a knowledge of Pacific Coast birds was obtained in the years before the great transcontinental expeditions.

Prior to 1800 but little was known of the bird life of the west coast. Early voyagers touched at several points, but as a rule had no interest in wild life except as it afforded them food or profit. Captain Cook on one of his famous voyages touched, among other places, at Nootka Sound, Vancouver Island, and Prince William Sound, now in the territory of Alaska, in April and May, 1778; and Sir Joseph Banks who accompanied him obtained the first specimens of west coast birds of which we have record.

At the former locality Cook mentions among the dried skins and fragments of birds brought them by the natives "a small species of hawk; a heron; and the *alcyon* or large-crested American king-fisher". "There are also," he writes, "some, which, I believe, are not mentioned, or at least vary, very considerably, from the accounts given of them by any writers who have treated professedly on this part of natural history. The first two of these are *species* of woodpeckers. One less than a thrush, of a black colour above, with some white spots on the wings, a crimson head, neck and breast, and a yellowish olive-coloured belly; from which last circumstance it might perhaps not improperly be called the yellow-bellied woodpecker. The other is a larger, and much more elegant bird, of a dusky brown colour, on the upper part, richly waved with black, except about the head; the belly of a reddish cast, with round black spots; a black spot on the breast; and the under-side of the wings and tail of a plain scarlet colour, though blackish above; with a crimson streak running from the angle of the mouth, a little down the neck on each side.\*" These are easily identified as the Red-breasted Sapsucker and the Red-shafted Flicker, while a small bird of the finch kind is obviously a Junco. Cook also mentions Hummingbirds, which he regards as migrants from farther south since they saw none at first, but later the "natives brought them to the ships in great numbers". These were the Rufous Hummer.

At Prince William's Sound were seen the White-headed Eagle, the Alcyon or great Kingfisher, the Hummingbird, and a small land bird evidently the Golden-crowned Sparrow. Steller's Jay was also obtained at Nootka Sound, a bird which had been previously observed by this explorer at the same place. A number of these species were described by Latham and Pennant and in due course named by Gmelin.

In 1786 a party of French explorers under Comte de La Pérouse touched at San Francisco and Monterey and obtained two birds which were figured under the names "Perdrix de la Californie" and "Promerops de la Californie Septentrionale"—respectively the California Quail and the California Thrasher. It was this early discovery that led Gambel when he found and described the Thrasher some sixty years later to bestow upon it the name *redivivus*: resurrected.

A British expedition commanded by Capt. Vancouver visited the same ports in November, 1792, and Archibald Menzies, the botanist, procured specimens of the California Vulture and the Quail which were duly described, figured and named by Shaw in 1798.

\*A Voyage to the Pacific Ocean, etc., Dublin, 1784, vol. 2, pp. 296-297.

This completes the summary of actual ornithological discovery on the coast prior to 1800. We must, however, remember that various species of west coast birds, or geographic races which were at that time and for half a century later regarded as identical with them, were already known from the eastern United States, Hudson's Bay, or Mexico. When the western races of these birds were first found on the coast the discovery caused little or no comment as the early explorers thought they were the same as those of the east and often failed to preserve specimens. It is therefore difficult to say just when they were actually discovered.

Up to the time of the publication of Wilson's Ornithology, 1808-12, no less than 80 species of Californian land birds were thus known from identical or closely related races in the east although only one or two had been actually identified from the coast. While Wilson's great work was in progress the first of the transcontinental expeditions was organized mainly through the efforts of Thomas Jefferson, then president of the United States. Philadelphia has no direct claim upon this expedition which was under the leadership of two Virginians, Meriweather Lewis, Jefferson's private secretary, and Capt. William Clarke. From the fact, however, that the few birds which they brought back were deposited in Peale's "Philadelphia Museum", while the manuscripts of the expedition are still among the treasures of the American Philosophical Society in Philadelphia, the enterprise seems in a measure identified with our city.

Had a naturalist been included in the Lewis and Clarke party there is no telling what discoveries would have ensued, but as it was, specimens of only three new species were brought back, which were named, figured and described by Wilson as Clarke's Crow, Lewis' Woodpecker, and the Louisiana Tanager. Twenty-six other land birds as well as a number of water birds are mentioned in the painstaking diaries that were kept by the explorers, but these were mostly either well known eastern species or so vaguely described as not to be clearly recognizable. The Sharp-tailed and Franklin's Grouse, the Sage Hen, and the Magpie are easily identified, as also the Whistling Swan which was named by Ord from Lewis and Clarke's description.

This expedition rendezvoused at the mouth of Wood River in Illinois opposite the Missouri and consisted, besides the commanders who were then 30 and 34 years of age respectively, of nine young men from Kentucky, fourteen volunteers from the U. S. Army, two French watermen, an interpreter and hunter, and Capt. Clarke's negro servant, twenty-nine in all, with a detail of seven soldiers and nine watermen to escort them up the Missouri as far as the Mandan Nation (now Bismark, North Dakota). They set out on May 14, 1804, reached Fort Clatsop (Vancouver, Washington) December, 1805, and returning March 23, 1806, reached the Mississippi September 23.

The discovery of Clarke's Crow or Nutcracker, is thus described in Clarke's original journal under date of August 22, 1805, from western Montana. "I saw today [a] Bird of the woodpecker kind which fed on Pine burs its Bill and tail white the wings black every other part of a light brown, and about the Size of a robin"\*. The identification of this bird as a woodpecker gives us some idea of the extent of his ornithological knowledge. The Lewis's Woodpecker was encountered on July 20 and in Lewis's diary is the following: "We encamped on the Lar<sup>d</sup> side [of the river] near a spring on a high

\*Thwait's Original Journal of the Lewis and Clarke Expedition, vol. III, p. 17, 1905.

bank [El Dorado, 12 miles northeast of Helena] the prickly pears are so abundant that we could scarcely find room to lye. I saw a black woodpecker (or crow) today about the size of the lark woodpecker [Flicker] as black as a crow. I endeavored to get a shoot at it but could not it was a distinct species of woodpecker; it has a long tail and flies a good deal like the jay bird."\* No specimen of either was secured until about May 27, 1806, on the homeward journey, and in the diary of this and the following day detailed descriptions are given. The specimens were taken on the Upper Kooskooski near the base of the Bitter-root Mountains, in Idaho, and were now clearly recognized as a crow and a woodpecker, respectively.

The Sage Grouse is mentioned in many places, and a sketch of it was made. The first reference is as follows: August 12, 1805, near Dillon, Montana. "we also saw several of the heath cock with a long pointed tail and an uniform dark brown colour but could not kill one of them. they are much larger than the common dunghill fowls and in their [h]abits and manner of flying resemble the grouse or prairie hen."† On August 20, Capt. Clarke says, "I killed a Pheasant at the Indian Camp larger than a dungal [dunghill] fowl with f[l]eshy protuberances about the head like a turkey."† This completes the contributions of Lewis and Clarke to American ornithology.

Pike's expedition to the Rocky Mountains in 1806 was no better equipped with naturalists than was that of Lewis and Clarke, and added nothing to our knowledge of western ornithology. It is mentioned in this connection only because of its possibilities in this line, for Alex. Wilson, endorsed by William Bartram, the veteran Philadelphia naturalist, made an earnest plea to President Jefferson to be allowed to accompany the party. He received no reply whatever to his letter, and, in as much as he had already had a cordial exchange of letters with Jefferson on ornithological matters, it seems probable that his application never reached the President's eye.

The organization of Major Long's party for another expedition to the Rockies in 1819 showed an appreciation of the scientific possibilities of such expeditions and two able Philadelphia naturalists were selected to accompany it, Thomas Say, one of the founders of the Philadelphia Academy who was then 32 years of age, and Titian Peale, youngest son of the founder of the famous Philadelphia Museum, who had just turned 19.

This expedition did not propose to pass beyond the Rocky Mountains, and strictly speaking has no bearing upon the ornithology of the coast; but since it brought to light no less than twelve characteristic coast birds, even though they were secured on the eastern edge of their range, it seems to have a place in this connection. The new birds were the Dusky Grouse, Band-tailed Pigeon, Arkansas Flycatcher, Arkansas Goldfinch, Lark Sparrow, Lazuli Bunting, Cliff Swallow, Orange-crowned Warbler, Rock Wren, Say's Flycatcher, Yellow-headed Blackbird, House Finch, and Burrowing Owl.

Long's expedition followed the regular highway to the frontier, the Ohio River, down which Lewis and Clarke had gone in 1803 to join their men; down which in 1808 went Audubon and his bride to establish himself in business in Kentucky; and down which in 1810 Alexander Wilson had guided his little row boat "The Ornithologist" on his trip to New Orleans. They left Pittsburgh on May 5, 1819, reaching St. Louis June 9, and Council Bluffs (near the

\*Thwait's Original Journal of the Lewis and Clarke Expedition, vol. II, p. 252, 1904. fdo. vol. II, pp. 335 and 386.

present city of Omaha) in the early autumn and here passed the winter. The summer of 1820 was spent in exploring the eastern base of the central Rockies, returning to the mouth of the Ohio by November.

The Rocky Mountain party consisted of twenty persons with twenty riding animals and eight pack horses, each man carrying his personal belongings. Peale was appointed by Major Long as assistant naturalist, his services to be collecting and preserving of specimens, draughting and delineating them, preserving skins, etc. Sixty skins were preserved, several thousand insects, 500 species of plants, and many shells and rocks, while 122 sketches were made, all of which were deposited in Peale's Museum at Philadelphia. Say described some of the birds in the report of the expedition and others were described by Bonaparte in his continuation of Wilson's Ornithology, Peale preparing the illustrations. Say was mainly interested in entomology and conchology and while he, as chief naturalist, published the new birds, it was probably mainly due to young Peale that such important ornithological results were obtained.

Peale lived to a ripe old age and did not pass away until 1885, just before I became connected with the Philadelphia Academy. I occupied what had formerly been his room and in it were stored his collection of butterflies and many relics of the U. S. Exploring Expedition (1838-42) which he had accompanied on its voyage around the world. During this voyage, by the way, he made some collections in California. Being on board the *Peacock* which was wrecked at the mouth of the Columbia, May 18, 1840, he was forced to journey overland to San Francisco to join another vessel, the *Vincennes*.

During the interim of fifteen years following the return of Long's expedition in 1820 some thirty west coast birds were made known to science, but only a very few were obtained from within the confines of the present United States.

Swainson in 1827 described a number of species obtained in northern Mexico by Mr. Bullock, a collector and proprietor of a museum in England. Among these were the California Woodpecker, Black Phoebe, Bullock's Oriole, Black-headed Grosbeak, Violet-green Swallow, and Dipper.

Wagler described from the same country the Ladder-backed Woodpecker, and Brewer's Blackbird.

From California, Lesson, the Frenchman, described the Road-runner from a specimen obtained by Dr. Botta, a surgeon on a French sailing vessel, and deposited in the duke of Rivoli's collection at Paris, which later came to Philadelphia. This bird is probably referred to by Hernandez long before, but the description is too vague for positive identification.

The next transcontinental expedition which figures in ornithological annals was organized in 1834 by Capt. Wyeth who was interested in the Columbia River Fishing and Trading Company. John K. Townsend and Thomas Nuttall, the former of Philadelphia, the latter professor of natural history at Harvard University, joined the party for the purpose of making ornithological and botanical researches in the far west. Townsend was but twenty-five years old but was already a competent authority on the birds of the east, while Nuttall was forty-eight and had just published the first volume of his classic "Manual", though he was at this time, and probably always, more of a botanist than an ornithologist.

The two naturalists took the usual route down the Ohio to St. Louis and thence across the state on foot to Independence where the caravan was encamped. They had in all 70 men and 250 horses, and the order of march

was thus described by Townsend: "Captain Wyeth and Milton Sublette took the lead, Mr. Nuttall and myself rode beside them; then the men in double file, each leading, with a line, two horses heavily laden, and Captain Thing (Captain W's assistant), brought up the rear. The band of missionaries, with their horned cattle, rode along the flanks."\* Later on at Ft. Hall some of the caravan went on ahead leaving 30 men and 116 horses in Wyeth's party during the latter days of the march. They left Independence on April 28, reaching Fort Vancouver on the Columbia on September 16, after the usual vicissitudes of transcontinental travel. The narrative of their journey written and published by Townsend is most interesting reading, full of incidents of buffalo hunting and of the habits and peculiarities of the various tribes of Indians with which they came in contact.

Townsend got many birds *en route*, a number of which were new, and many others at Fort Vancouver and elsewhere about the mouth of the Columbia. Unfortunately he gives but little information about birds in his narrative, apparently deeming ornithology of but little general interest, and only once does he refer to his collection. This is in a description of a violent storm which overtook them on the Columbia below Fort Walla Walla during which Mr. Nuttall's dried plants were somewhat damaged, "but", he says, "my bale of birds escaped without any material injury".

The Band-tailed Pigeon appealed to the sportsman in him, and he writes of it on May 21, 1835, as "very abundant near the river, found in flocks of fifty to sixty and perching upon the dead trees along the margin of the stream. They are feeding upon the buds of the balsam poplar; are very fat and excellent eating. In the course of the morning, and without leaving the canoe, I killed enough to supply our people with provisions for two days"†. The Pintail duck also occurred in abundance, and Townsend and an Indian killed 26 by simultaneous discharge of their guns.

There has been some comment among our friends the herpetologists as to why Townsend failed to procure any reptiles. A close perusal of his narrative clears up any doubt on this point. In speaking of the behavior of one of their men after reaching the Columbia he says: "His appetite for ardent spirits was of the most inordinate kind. During the journey across the country I constantly carried a large two-gallon bottle of whiskey, in which I deposited various kinds of lizards and serpents, and when we arrived at the Columbia the vessel was almost full of these crawling creatures. I left the bottle on board the brig when I paid my first visit to the Willammet falls, and on my return found that he had decanted the liquor from the precious reptiles which I had destined for immortality, and he and one of his pot companions had been 'happy' upon it for a whole day. . . . I did not discover the theft until too late to save my specimens, which were in consequence all destroyed."‡

Townsend and Nuttall visited the Sandwich Islands during the winter of 1834-5. Nuttall then visited California, stopping at Monterey, Santa Barbara and San Diego, and returning round the Horn reached home in 1836. Townsend remained until 1837, and then returned by the same route, reaching home November 17.

Nuttall obtained specimens of the Yellow-billed Magpie and the Tricolored Redwing which he gave to Audubon who published them in his great

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\*Townsend's Narrative, Phila. 1839, p. 27.  
†do. p. 220.  
‡do. p. 224.

work. The greater part of Townsend's birds were apparently brought back by Nuttall and the history of their publication is amusing. Audubon after the publication of the third volume of the Ornithological Biography returned to America from Scotland in August, 1836. "In Boston", he says, "I heard of the arrival of Thos. Nuttall Esq., the well-known zoologist, botanist and mineralogist who had performed a journey over the Rocky Mountains to the Pacific Ocean accompanied by our mutual friend John Kirk Townsend. Mr. Nuttall generously gave me of his ornithological treasures all that was new and inscribed in my journal the observations which he had made respecting the habits and distribution of all the new and rare species which were unknown to me. . . .

"Dr. Townsend's collection was at Philadelphia; my anxiety to examine his specimens was extreme; and I therefore, bidding farewell to my Boston friends, hurried off to New York" and Philadelphia. "Soon after my arrival, I called on my learned friend Dr. Charles Pickering" . . . ; "Having obtained access to the collection sent by Dr. Townsend, I turned over and over the new and rare species; but he was absent at Fort Vancouver, on the shores of the Columbia River; Thos. Nuttall had not yet come from Boston, and loud murmurs were uttered by the *soidisant* friends of science, who objected to my seeing, much less portraying and describing those valuable relics of birds, many of which had not yet been introduced into our Fauna.

"The traveller's appetite is much increased by the knowledge of the distance which he has to tramp before he can obtain a meal; and with me the desire of obtaining the specimens in question increased in proportion to the difficulties that presented themselves. . . . I at length succeeded. It was agreed that I might *purchase duplicates, provided* the specific names agreed upon by Mr. Nuttall [who had now arrived] and myself were published in Dr Townsend's name.

"This latter part of the affair was perfectly congenial to my feelings, as I have seldom cared much about priority in the naming of species. I therefore paid for the skins which I received and have now published such as proved to be new, according to my promise."\*

The birds described in the paper published in the Philadelphia Academy *Journal* in 1837 prior to Townsend's return were: Chestnut-backed Titmouse, Bush-tit, Mountain Mocking Bird, Hermit Warbler, Black-throated Gray Warbler, Townsend's Warbler, Audubon's Warbler, Western Bluebird, Chestnut-collared Longspur, Oregon Junco, Lark Finch, and Rocky Mountain Plover. Townsend added in the Appendix to his "Narrative": Vaux's Swift, and MacGillivray's Warbler.

Later, on Townsend's arrival, Audubon purchased all his additional novelties and secured memoranda relating to the habits of the western birds from both him and Nuttall. These are all published in vols. IV and V of the Ornithological Biography, while practically the same matter is reprinted by Nuttall in the second edition of his "Manual" in which the western species are added.

It is regrettable that Townsend and Nuttall never published the complete ornithology of their expedition over their own names and in their own way. The fragments that we pick out of Audubon and Nuttall only whet our appetites for more. Their notes had the stamp of scientific accuracy, but while both were fluent writers they apparently did not believe in flowery elaboration.

\*Ornithological Biography, Introduction to vol. IV, p. ix.

in scientific matters. Audubon seemed to miss this element in the short pithy notes with which they supplied him, and to make up for it launched forth in a picturesque, if wholly imaginary, account of their trip in the opening of his fourth volume (1838) which is in strong contrast to Townsend's own narrative which appeared in 1839, but it has no doubt fired many a youthful mind with a determination to visit the wonderful country which was pictured in such brilliant colors. He says:

"How delightful, I have often exclaimed, must have been the feelings of those enthusiastic naturalists, my friends Nuttall and Townsend, while traversing the ridges of the Rocky Mountains! How grand and impressive the scenery presented to their admiring gaze, when from an elevated station they saw the mountain torrent hurling its foaming waters over the black crags of the rugged ravine, while on wide-spread wings the Great Vulture sailed overhead watching the departure of the travellers, that he might feast on the salmon, which on striving to ascend the catarract had been thrown on the stony beach! Now the weary travellers are resting on the bank of a brawling brook, along which they are delighted to see the lively Dipper frisking wren-like from stone to stone. On the stunted bushes above them some curious Jays are chattering, and as my friends are looking upon the gay and restless birds, they are involuntarily led to extend their gaze to the green slope beneath the more distant crags, where they spy a mountain sheep, watching the movements of the travellers, as well as those of yon wolves stealing silently toward the fleet-footed animal. Again the pilgrims are in motion; they wind their pathless way round rocks and fissures; they have reached the greatest height of the sterile platform; and as they gaze on the valleys whose waters hasten to join the Pacific Ocean, and bid adieu, perhaps for the last time, to the dear friends they have left in the distant east, how intense must be their feelings, as thoughts of the past and future blend themselves in their anxious minds! But now I see them brother-like, with lighter steps, descending towards the head waters of the famed Oregon. They have reached the great stream, and seating themselves in a canoe, shoot adown the current, gazing on the beautiful shrubs and flowers that ornament the banks, and the majestic trees that cover the sides of the valley, all new to them, and presenting a wide field of discovery. The melodies of unknown songsters enliven their spirits, and glimpses of gaudily plumed birds excite their desire to search those beautiful thickets; but time is urgent, and onward they must speed. A deer crosses the stream, they pursue and capture it; and it being now evening, they land and soon form a camp, carefully concealed from the prying eyes of the lurking savage. The night is past, the dawn smiles upon the refreshed travellers, who launch their frail bark; and as they slowly float on the stream, both listen attentively to the notes of the Red-and-White-winged Troupial, and wonder how similar they are to those of the Red-winged Starling". From these rhetorical heights we come to earth with an unpleasant jar as our eye catches a pencilled note in Townsend's hand on the margin of our Academy copy of Audubon. It says the name *tricolor* which Audubon gave to this blackbird should be credited to Nuttall, who communicated both specimen and name to Audubon, who appropriated the latter! Thus early did scientific jealousies develop and the never ceasing contest for priority and credit!!

John K. Townsend was evidently a genius whom force of circumstances prevented from reaching his proper place in ornithological annals. Had he had the financial backing that Edward Harris was ever ready to provide for



Audubon, or had there been salaried scientific positions in those early days by which an ornithologist could make a living, the name of Townsend would have been among the leaders in American ornithology. I have talked with his cousin who remembers him dressed in the furs and skins that he brought from the far west, and with his brother-in-law who knew him in the intimacy of family relationship; and I have read the opinions of Cassin in his confidential letters to Baird and all testify to his high character and ability.

Townsend filled minor positions at Washington looking after the birds of the U. S. Exploring Expedition, and later practiced dentistry in Philadelphia. He seems always to have been handicapped by financial conditions and died suddenly on February 6, 1851, at the age of 42. It is deplorable that a man of his capabilities could not have been given the opportunities of developing them.

Prior to the appearance of Townsend's Narrative, two foreign expeditions had collected in California. A German explorer then in Mexico, Ferdinand Deppe, travelled northward to Monterey and went from there to the Hawaiian Islands, where, by the way, he met Townsend. He made some collections and his ornithological discoveries were published by Lichtenstein in 1838. They did not amount to much, however, as he secured only one new species, the Ferruginous Rough-leg.

A British expedition under Capt. Beechey (1825) obtained a much larger collection which was reported on by Vigors in 1839. The material was actually collected by Dr. Collie, Mr. Lay and Lt. Belcher. One hundred species were listed (many from Mexico), but the California Jay, Pygmy Nuthatch, California Towhee and Red-shafted Flicker, were described as new from California.

This brings us to the next transcontinental expedition, that of William Gambel. Gambel was a young protege of Thomas Nuttall. All I have been able to learn of his ancestry was that he lived in Philadelphia with his mother and sister who were in humble circumstances. He later had some sort of occupation at the Academy of Natural Sciences, and in 1842 (Cassin says 1841) at the solicitation of Nuttall, he made a journey to California with a party of trappers. He took a more southerly route than any of the previous parties, following the Santa Fe trail, exploring the Raton Mountains of northern New Mexico and passing thence from Santa Fe to the Colorado River and into southern California. He returned round the Horn reaching Philadelphia with his treasures in August, 1845.

The new species which Gambel discovered included the Wren-tit, in many ways one of the most remarkable birds of the coast, Plain Titmouse, Mountain Chickadee, California Thrasher, Gambel's Quail, Elegant Tern, and Nuttall's Woodpecker. Diagnoses of some of his new species were sent from the west to Nuttall and published before Gambel's return. His final report, a fully annotated list of 176 species, is the first paper of note on Californian ornithology and forms the basis of all subsequent work. Gambel and his specimens reached Philadelphia about August 15, 1845, and Cassin, writing to Baird on this date, says: "Gambel is here with his California birds and others—not very many but some of the most magnificent specimens I ever saw. He has four new species in addition to those already described: a queer little *Parus crested* but totally distinct from *bicolor*; another which he calls *Parus* but is hardly of that genus more like *Setophaga*; an extraordinarily large long billed bird which he

calls *Promerops*; a new *Mergulus* like *alle* but entirely distinct, with others that need examining. He has the most beautiful specimens of well-known birds and others not so well known, as *Sitta pygmaea*, *Tyrannula saya*, *Tyrannula nigricans*, *Sialia occidentalis*, etc. Decidedly the gem of his collection is a most superb specimen of *Leptostoma longicauda* a beautiful Cuckoo-like bird which walks on the ground, but I have not time really to tell you about it. His *Lophortyx gambelii* is splendid and I can find no description of it in books to which I have access."

The crested titmouse was the Plain Titmouse, the other one "like *Setophaga*" was the Wren-tit, and the *Mergulus* was Cassin's Auklet.

On April 5, 1849, Gambel left on another expedition to California, joining a company with Isaac J. Wistar, then a young man of twenty-one, later general in the Civil War and president both of the Philadelphia Academy and of the American Philosophical Society. General Wistar has told me the few details of the trip up to a point where the party divided, Gambel going with those who followed Hudspeth's trail which crossed the Sierra near the head of the Sacramento Valley. They suffered great hardships being caught by the snows in the mountains, and Gambel and a few others were the only ones to reach California. He almost immediately contracted typhoid and died on December 13, 1849. He was buried on a sunny hillside on the Feather River. His death terminated a career that would probably have yielded results of the utmost value to ornithology; for in the short space of eight years Gambel demonstrated that he was possessed of remarkable ability both as an explorer and field naturalist and as a student of natural history.

Immediately after the acquisition of California by the United States at the close of the Mexican War, John G. Bell, the famous taxidermist of New York, who had accompanied Audubon up the Missouri in 1843, made a trip to the coast, crossing through Central America as did so many of those who rushed westward in search of gold. Bell returned April 17, 1850, having gotten a number of interesting novelties which were described by Cassin and purchased for the Philadelphia Academy; among these were Bell's Sparrow, Lawrence's Goldfinch, Williamson's Sapsucker, and White-headed Woodpecker. Of the last, Bell says: "I shot this bird in Oregon Cañon near Georgetown about 12 miles from Sutter's Mill. It seemed to prefer the tall pine trees and generally kept very high".

Baird was about to describe the same bird some years later from a specimen which had been obtained by some other collector for the Smithsonian Institution, and we find in Cassin's letters the following amusing sentence: "I guess you had better not describe that new woodpecker—black with a white head—it is not so very new—compare it with *Melanerpes albolarvatus* Cassin Jour. A. N. S. last number published—perhaps you had better not describe any of them. Send them this way!" He was constantly arguing or joking with Baird about the new birds that were discovered and was jealous of any one else publishing the novelties. Baird seems to have good-naturedly sent him most of the Pacific Railroad material, and of course with the birds and books to which Cassin then had access at Philadelphia he could determine what was new better than any one else.

One lot sent for his opinion some years later contained a fine new species of Purple Finch, which he considered the best thing in the collection, adding as a suggestion to Baird, name it *Cassini*, which, by the way, he did. Regarding Hutton's Vireo, Cassin writes: "Calling that Vireo after your

friend Hutton is one of the severest things. I don't want to do it—when he gets better known I will call something after him. This kind of thing is bad enough at the best, but to name a bird after a person utterly unknown is worse than that. I do not doubt his entire capability but I don't like to thrust honors upon him." Baird, however, stood firm and a little later Cassin writes: "Please give me the name in full of Mr. Hutton, his name, style, address, business, locality, age whether young or adult, present pursuits, occupations and whereabouts to the best of your knowledge and belief and I must have it early as the paper goes to the printer about Wednesday or Thursday next."

It seems also that Henry's Nighthawk came near having another name, but in this case Baird gave in to Cassin's wishes. Cassin writes: "By the way, cannot *Chordeiles Gunnisoni* be called *C. Henryi*—name some other bird after Lt. Gunnison—Henry ought to have one named after him and I do not like the idea exactly of giving him one of the Buteos—too many already named in that style—just give in, Professor, for once. I think a bird can be found to call *Gunnisoni*—I think moreover that Henry's claim is the superior!"

But to return to Bell. Cassin in naming the sparrow after him says he is "a gentleman possessed of a very extensive knowledge of natural history and whose attachment to the pursuit of which, induced him to make the visit to California which resulted in the discovery of this and other interesting birds."

One other name deserves to be mentioned among these early transcontinental travellers. This is A. L. Heermann, another member of the Philadelphia Academy. As a young man of thirty, Heermann went to California in 1849 and spent nearly three years "in making," to quote Cassin, "researches and collections with excellent judgment and great enterprise and has succeeded in bringing safely home the most extensive collections ever made in that country."

In a letter to Baird dated August 28, 1852, Cassin wrote with much enthusiasm: "Heermann has arrived from California with a collection of about 1200 bird skins. I have not seen them all but expect to tomorrow. I have a portion of them brought in his trunk among which are—a Hummingbird, *T. alexandri* which is new to our fauna, a Wren *T. mexicanus* and an undescribed finch [*Am. rostratus*]; also a Squirrel which LeConte says is new and the greatest kind of a lot of nests and eggs." Heermann's Gull was another novelty which he obtained. Later Heermann was naturalist on Lt. Williamson's party which surveyed the 32nd and 35th parallels in southern California on one of the Pacific Railroad Surveys. Heermann's paper dealing with his experiences with 125 land birds of California is the second great California ornithological contribution.

With the rush of settlers that followed 1849 and the military occupancy of the Pacific coast posts, numerous ornithologists found their way to California and knowledge of its birds increased apace. The great Pacific Railroad Surveys and the resultant report by Baird, Cassin and Lawrence, brought all the scattered contributions together in systematic form. But these operations belong to another period in the history of western ornithological development and are clearly beyond my theme. I feel that I owe you an apology as it is, for occupying so much time in presenting matter that is not new. Sometimes, however, well worn facts may be assembled in new combinations so that the resultant structure has some elements of novelty and that, together

with the fact that many details which I have given are new to most of those here present, must be my excuse.

In closing let us name over once more these sturdy pioneers who each in his way did what he could for the advancement of western ornithology: Lewis and Clarke, Townsend and Nuttall, Peale and Say, Gambel, Bell, and Heermann. Others equally worthy followed after, but they belong to another chapter. When we think of these men, the results they achieved, and the difficulties amid which they labored, and realize that we are following in their footsteps, striving to uphold and carry on the great work which they established on firm foundations, we recall the closing words of the beautiful tribute of Dr. Coues to the memory of John Cassin. "A higher trust than we perhaps appreciate is laid upon the few of us of this later day who pay devotion to the beautiful study of ornithology. It is no less than the keeping bright and untarnished, and transmitting to our successors, the name and fame of the science that absorbed such minds as these. May we prove worthy servitors, guarding with jealous care our trust, watchful that the vestal fires shall ever burn at the shrine we worship with a clear and steady flame."

## CHARACTERISTIC BIRDS OF THE DAKOTA PRAIRIES

### III. AMONG THE SLOUGHS AND MARSHES

By FLORENCE MERRIAM BAILEY

**T**O ME THE MOST interesting prairie birds were water birds. Their abundance is easily explained geologically, for where there are no high mountains to drain off the water, and the highest mountains in North Dakota are merely piles of glacial drift, then whatever water falls must lie in the surface depressions. Owing to the plowing of the ice sheet and the great number of moraines these depressions are numerous on the prairie, producing sloughs of various sizes, and marshes and lakes that afford ideal breeding grounds for water fowl. Would that every bird student could visit them and bring back intimate studies of the birds on their own home grounds! But though few are vouchsafed unconditioned days of field work, the least fortunate sojourners in North Dakota will find much to enjoy.

A surprising variety of water birds are seen even on the shallowest hollows of the prairie. Some of these small sloughs that would be called tanks farther west are not much larger than the buffalo wallows left since the days when fresh buffalo trails crossed the prairie to water. Two small roadside sloughs were near my part of Stump Lake. On one of them, the Rural Route mail carrier told me, a pair of strange birds were to be seen; one was almost always there when he passed along his route. When I drove over the prairie to investigate, there on the edge of the slough stood a Black-crowned Night Heron in its calm judicial pose, its black back contrasting strikingly with its broad ashy wings. Seeing that it was observed it rose and flew away across the prairie in the direction of a clump of trees on the shore. At the nearest house the people told me that the Herons had been in the neighborhood for several years and that they seemed to divide their time between the small slough and a larger one down the lake.