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## BIRDS OF A VOYAGE ON SALTON SEA

By J. GRINNELL

WITH FOUR PHOTOS BY THE AUTHOR

ON the morning of April 19, 1908, in company with Chas. Richardson, Jr., and Donham, the boatman, I started from Mecca, California, for a cruise on Salton Sea. Our object was to ascertain what waterbirds were nesting on or about the Sea, and to secure specimens of birds, mammals and reptiles, all in the interests of the Museum of Vertebrate Zoology, at the University of California.

Mecca, where our base camp was located under a clump of cottonwoods by an artesian well, is a station (once called Walters) on the Southern Pacific about a mile west of the westernmost encroachment of Salton Sea. The railroad towards Yuma used to be a straight track eastward from Mecca past the now submerged site of the Salton salt works; but the rising water compelled the building of one and then a second new route out around the north margin of the Sea. The line of telegraph poles out into the water, successively deeper and deeper, until only the crosstree of the last one shows above the surface, marks the course of the old route.

From our camp at Mecca, we were compelled to carry our outfit down the railroad to the landing, a gravelly beach flanking the railroad which is protected from the waves by a tier of sand-bags. Our launch was unmoored from its berth in a half-submerged mesquite clump, and after the usual tinkering with the gasoline engine we were under way.

The boat had been christened the "Vinegaroon", which word Donham told us was the Mexican name for a curious "bug" (a Solpugid I judged from his description) whose movements are very quick and as rapid in one direction as in another. But we found that our craft could hardly bear out the analogy. Nine hours were occupied in covering the forty miles to our first objective point, Echo Island.

The first part of the voyage of the Vinegaroon over the Colorado Desert was thoroly enjoyable. There was a cool, gentle breeze from the east. On the north the bare rain-sculptured ridges of the Chocolate Mountains presented ever-changing shades of brown, which give them their name. On the south rose the eastern spurs of the Santa Rosa Mountains, a land of mystery to me then as regards its animal life; but later in the summer the scene of many weeks of field work. The western end of Salton Sea is very shallow, and over several square miles the water is dotted with protruding bushes; and here and there rows of cottonwoods, all dead, mark the site of former ranches. In passing one of these spots, our propeller caught in a section of chicken-wire fencing, which was buoyed nearly to the surface by an attached fence-post.

Fishes were plentiful—swarming by the hundreds along the railroad, where refuse was regularly thrown from the trains to them. There were carp, "bony-tail", or Colorado perch, and cat-fish. These formed a plentiful food-supply for the fish-eating birds. The partly submerged telegraph poles each served as a perch for from one to three cormorants; while Great Blue Herons were roosting on the bush tops. A good many ducks were seen in the brush tracts close to shore, but we found no evidence of their breeding.

As we cruised along, further out on the open sea, we came up with flocks of from 20 to 50 American Eared Grebes (*Colymbus californicus*). Fully fifteen such companies were encountered, their proximity being detected usually thru hearing their strange saw-filing calls. For the birds themselves were difficult to see at any distance on the water because of the glassy glare, this after the breeze began to die out. Donham steered us into some of the flocks, and we succeeded in shooting several of the grebes, tho as soon as alarmed they easily dove beyond the reach of the clumsy Vinegaroon. Six Western Grebes (*Aechmophorus occidentalis*) were encountered, five in a company, and one lonely one. But they all quickly disappeared, as soon as the wheezing launch started in their direction. I have no reason to believe that either the Eared or Western Grebe nest anywhere in the Salton Sea region. They were probably at this date about to leave for their more northern breeding grounds, the former nesting in numbers as far south at least as Bear Lake, in the San Bernardino Mountains, only 60 miles away but in a much higher life zone.

Fully a dozen Common Loons (*Gavia immer*) in full plumage were seen singly at a distance. And several Caspian Terns (*Sterna caspia*) flew by out of range. Cormorants (*Phalacrocorax auritus albociliatus*), kept flying curiously across our bow, and the three we dropped kept us busy the rest of the day's voyage scraping grease. About noon all vestige of a breeze vanished; the water became smooth and glary. We had no awning; and the desert sun beat down on our backs, leaving burns which constantly recalled the experience for a week afterward. Scraping grease from fishy seabirds on an open boat in the frying sun is one phase of collecting well worth avoiding—if one can.

All along our course a number of immature Ring-billed Gulls (*Larus delawarensis*) were repeatedly seen, evidently keeping us in view for the sake of the pieces of meat and fat we kept throwing overboard.

About one o'clock a curious shifting mirage made its appearance ahead, announcing the location of our first objective point. But it was not until three-thirty that we reached it.

Echo Island lies twelve miles or more south of the present station of Lano which is somewhere in the vicinity of the old station of Volcano, now submerged. As we neared the Island, a curious frosted patch became conspicuous on the

highest hill. This soon proved to be a great colony of American White Pelicans (*Pelecanus erythrorhynchos*) tho not a bird had been seen on the Sea, and only two or three scouts reconnoitered about our boat just before we made a landing in a sandy cove on the northeast side. As soon as possible I got out my camera and sneaked up onto the colony of pelicans. But they were wild, and began to fly by the time I was within 150 yards. I tried several snaps; but later developments showed these to have been improperly focused. So that only a series of pictures of the nests, two of which accompany this article, were obtained.

The sight of the great white birds rising in masses from their nesting grounds was exciting in the extreme; for I had never seen this species under such circumstances before. They wheeled in great circles overhead, crossing and re-crossing



PORTION OF WHITE PELICAN COLONY ON ECHO ISLAND, SALTON SEA: THIS COLONY CONTAINED 980 NESTS WITH EGGS ON APRIL 20, 1908

over their breeding grounds, or glided out to sea in intersecting V's. When flapping, their wings gave out a loud swish, and the many at once produced a roar. But when sailing close overhead on motionless wings they made a whispering, whistling sound, as of the wind blowing thru the chinks of an old building. Occasionally a grunting quack was to be heard, but no other note was uttered.

We had discovered the southernmost recorded nesting-colony of the American White Pelican, and we set about taking a census of it, as accurately as possible. Three separate divisions of the colony were located: the first on the north prominence of the Island consisted of 44 nests, each containing one or two eggs; in a second division, in the saddle between the two hills and occupying a drift terrace at the

back edge of the beach, there were 236 nests; and in the largest division, that on the southern hill-top there were 700 nests containing eggs, not exactly, but approximately, for we got confused in one place. Thus there were 980 occupied nests, besides many others in process of construction. At the very minimum there were 2000 pelicans here assembled.

We collected five sets of two eggs each to save as specimens, a very modest representation from the standpoint of the old-fashioned egg-collector! But these few were recorded with great care, and photos of the nests secured. The eggs at this date (April 19) were largely either fresh, or incubated but slightly. One set was far advanced in incubation, but no hatched young were seen on this island. Probably on this account no freshly caught fish were to be seen about the nests,



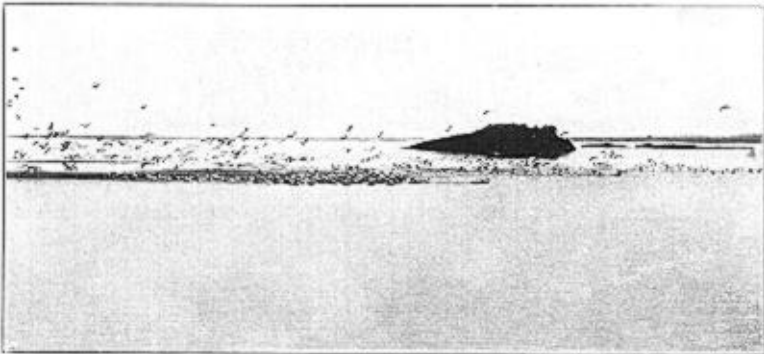
TYPICAL NEST OF WHITE PELICAN FROM SOUTHERN HILLTOP OF ECHO ISLAND, SALTON SEA

tho several very large dried carp were noted, doubtless left over from last year's nesting time. A few dried-up young of last year were also seen. The usual number of eggs in a nest was two; several sets of three were seen, and one of four. (Donham later arranged a surprise for me, and I found a set of ten!)

The nests varied greatly in size and composition, according to location. A nest on the drift line just at highest water mark was a tall, steep-sided affair, like the pictures I have seen of flamingo's nests. Appropriate material was plentiful, consisting of sections of plant stems, chips and chunks of pumice. Planks and railroad ties sometimes interfered with the symmetry of the nests. The finer material had evidently been heaped up by the bird as she sat on the nest. For the nests were often surrounded by radiating spoke-like grooves, plainly bill marks.

The material is thus pulled towards the sitter, but not from a farther distance than 828 mm from the center, beyond which the bird is evidently not able to reach. The spacing of the nests in the colony, quite regular in places, seems to be dependent on the reach and conflicting interests of the inhabitants. The sets of eggs were never closer together than 828 mm, usually 1380 mm apart. The ground between the nests was usually absolutely clear of even the finer fragments, these having been scraped up onto the walls of the nests. On the upper hill-slopes, the nests were more scanty, for material was scarce. Some were made wholly of angular pumice or dried mud fragments, some of brush stems, and some of just soft earth. But their diameter was an almost constant quantity, between 414 and 532 mm. The depression was 46 to 69 mm deep, so that there was nearly always a well-defined rim to the nest. The higher nests, those in the drift, were mounds as much as 276 mm tall.

While gulls, cormorants and herons were seen in the vicinity, the pelicans were the only water birds nesting on Echo Island. As long as we remained on the Island, until late the next forenoon, the latter refused to return to their nests even in the night. They remained in large "rafts" on the water a mile or so off-shore.



WHITE PELICANS "RAFTING" OFF-SHORE NEAR ECHO ISLAND, SALTON SEA, APRIL 19, 1908

Occasionally a party would fly past overhead. From one of these, two of the big birds were shot and Richardson and I skinned them out on the beach, using the fine pumice sand as an absorbent to very good advantage.

During the night a stiff breeze came up from the east, and before we were aroused, the boat beached broadside on. We were wakened by the pounding of the waves on her sides, and hurried out; but all our efforts failed to keep her from filling. The batteries were ruined, and our further explorations were curtailed. After the wind went down, and after a vast amount of bailing and heaving, we got the boat off the sand. But meanwhile we had enjoyed a prolonged bath in the tepid brackish waters of Salton Sea. Before noon we took leave of Echo Island, and bent to the oars heading for the station of Lano about north of us some 12 miles. Incidentally, without pulling much out of our way, we were able to land on Pelican Island, a small rocky ledge three miles from Echo Island.

Here we found a large breeding colony of Farallone Cormorants (*Phalacrocorax auritus albociliatus*). Long before we reached Pelican Island, cormorants kept flying past us towards it, each one carrying a stick or bark shred. As we landed hordes of birds left their nests or roosting places and circled about close over us. According to Donham this was formerly (that is two and three years ago) *the*

nesting grounds of the pelicans. But now we found but three pelican's nests on the Island, each containing two eggs. One set was just hatching, one of the escaping youngsters uttering a vigorous croak at measured intervals.

A census of cormorant's nests showed 147 containing eggs, besides many others partly built. The nests were tall, compact structures, composed altogether of angular shrub-trunks, and lined with mesquite bark-strips and old feathers. The outer basal sticks and the surrounding rocks were all white-washed with excrement. A typical nest was 414 mm high and 552 mm across, slightly saucered. The tendency seemed to be to locate the nests on prominent rock ledges or pinnacles. The number of eggs in a nest ranged from one to six, commonly four or five.



TYPICAL NEST OF FARALLONE CORMORANT, ON PELICAN ISLAND, SALTON SEA, APRIL 20, 1908

A number of Great Blue Herons had their headquarters on this Island. We took one specimen, showing this to be a pale form probably meriting the lately proposed name *Ardea herodias treganzai*. We found seven nests of this heron, each containing three or four eggs in which incubation varied from fresh to nearly complete. The nests were built on the rocks, usually on shelves beneath higher prominences. They were made of large crooked drift-worn brush stalks, with a few old weathered quill-feathers directly beneath the eggs. One set rested on the bare rock-surface and was kept from rolling off by a partial rim of straggling sticks on the lower side.

There were a number of gulls (*Larus delawarensis*) flying about the Island,

just out of sympathy for the cormorants and herons, I suppose. Four-fifths of the gulls were plainly immature, and the rest may have been non-breeders, too. I saw no sign of their nesting anywhere on the sea.

After collecting a few specimens and taking some pictures, we left the Island at three-thirty, and proceeded on our arduous way towards the mainland, which we reached at dark. We had to tie up to a bush several hundred yards off shore, because of the shallowness, and waded to shore with our effects. Richardson and I caught a train the next morning, and returned to Mecca, leaving Donham to take care of his boat.

In the preceding account I have mentioned only the water birds met with on Salton Sea. The land birds found in the vicinity of Mecca will receive attention in another paper.

*Berkeley, California.*

## A FEW SUMMER BIRDS OF LAKE CHELAN, WASHINGTON

By J. H. BOWLES

LAKE Chelan is situated in the north central part of the State of Washington, and extends east and west almost entirely across the northern end of Chelan County. At the western end of the lake is its main feeder, the Stehekin River, which flows directly out of the Cascade Mountains. At the eastern end is its outlet, the Chelan River, which flows thru a deep gorge into the Columbia River. As the Chelan River is only four miles in length, the lake may be said to connect the Cascade Mountains with the sandy wastes of the Columbia. Consequently a great variety of country is encountered, as the lake is fifty-two miles in length and four or five miles in width. At the eastern end one finds almost the typical sage brush desert region, altho its altitude of 1500 feet has sprinkled it with what are commonly called bull pines (*Pinus jeffreyi*). At the western end the foothills of the mountains are encountered, and consequently an entire change of physical surroundings. Sand and sage brush have long since been left behind, and instead of scattered pines we find walls of rock and forests of cedar, pine, hemlock and cottonwood.

Such a country as is above described must necessarily attract a wide variety of bird life, and this is indeed the case to a really astonishing degree. At times I have almost imagined that a part of my old New England hunting grounds must have suddenly extended over the 3000 miles that intervene; for I have sat listening to the well-remembered songs and call-notes of Red-eyed Vireos, Catbirds, Kingbirds, Olive-backed Thrushes and Redstarts, all announcing their presence at the same time. Intermingled, and almost in discord, so out of place did they seem, would be heard the songs of the Louisiana Tanager and Bullock Oriole, as well as many other notes of our typical far western bird life.

I shall not attempt to give a full list of the birds of the region, merely mentioning such as seem to me to be of unusual interest for one reason or another, more particularly the typical forms common to the eastern United States.

The dates upon which these notes were taken cover the time from June 10 to the 23rd, of the present year (1908), at which period it seems beyond any reasonable doubt that all of the birds noted were breeding.