

people that gathered about the stand, but went on about her business of gathering food. She moved from flower to flower on the various shelves but gave special attention to the fiery-red stalks of the snow plant. It was noted that she was especially fond of the bright red flowers, such as *Silene californica*, *Zauschneria*, *Castilleja*, and *Pentstemon menziesii*.—C. W. MICHAEL, *Yosemite, California, June 2, 1921.*

Dipper Nesting in Santa Barbara County, California.—Jack Hawley of San Diego told me recently of a Dipper (*Cinclus mexicanus unicolor*) apparently nesting on a stream in Carpinteria, Santa Barbara County. I visited the spot on April 21 and saw the female enter the nest, which I found contained young about three days old. The nest is a little above where the stream emerges from the lowest ridge of the Santa Ynez range on the coast side, at an elevation of less than 500 feet. There is another pair farther up the same stream and another on the next stream, at this season, all presumably nesting.—RALPH HOFFMANN, *Carpinteria, California, April 23, 1921.*

The California Brown Pelican as a Navigator.—Along the coast north of San Diego the long line of bluff is of even contour, broken only by the typical sloughs which occur every two or three miles, but otherwise rises abruptly from the shore and to a height of from twenty-five to over a hundred feet. The prevailing west wind, striking this bluff, is deflected upward, and along this lane of ascending air the California Brown Pelican (*Pelecanus californicus*), in his southward migration, sails swiftly with outstretched wings and head folded back on his body.

The pelicans fly in line formation in small flocks of from five to twenty, and when wind conditions are favorable will often pass and disappear from sight without once flapping their wings. It is an interesting sight to hide near the crest of a bluff and watch them pass, and to note with what poise and little apparent effort they maintain their rapid flight, the only appreciable movement of the body being an occasional slight adjustment in response, no doubt, to the minor eddies and air currents. Occasionally a bird, feeling a desire for nourishment perhaps, which he may be carrying in his pouch for such an occasion, will raise his beak abruptly, his whole body will quiver in a momentary collapse, and then with a few quick wing-beats the bird regains his lost momentum and maintains his place in the line.

The rate of speed seems to depend directly on the velocity of the wind, and probably to some extent on the angle at which it strikes the bluff. The axis of the body is held at an angle with the shore line, with a slight deflection to windward. The phenomenon of the birds' flight is, of course, a process of volplaning down an ascending stream of air and maintaining a definite position relative to the ground. One is surprised, however, at the remarkable efficiency which they exhibit, evidenced by their high velocity in a very moderate wind, and the slight angle at which the body is held in relation to their line of flight. The position usually taken is, roughly, about 75 feet west of the crest of the bluff and about 20 or 30 feet above it. This position may vary from day to day, but at any given time one flock will follow another in very nearly the same line, the birds seeming to instinctively adjust their positions to obtain the maximum lift from the ascending air.

The Pelican is an adept navigator, the observations made above recalling to mind the common sight of the birds racing at express speed along the crest of the long rolling swells before they break on the shore, the case being practically parallel, since the wind striking the outer side of the swell is deflected upward, the angle of deflection increasing as the swell nears the shore. In this case, however, owing to the lesser height, it is necessary for the bird to barely clear the crest of the swell to obtain the desired reaction.

When one observes their apparently effortless and swift flight southward along this stretch of coast one is apt to speculate on how much of his journey the California Brown Pelican is able to make gliding "on the breast of the wind", and judging from observations in this locality I am confident that on an economy run down the coast, on a "miles per gallon" basis, our friend the pelican would be hard to beat.

We are accustomed to observing various birds taking advantage of ascending air currents in their casual flights, but a record of other birds taking such advantage