

FROM FIELD AND STUDY

Flights of Shearwaters along the California Coast.—In the past summer large numbers of shearwaters have been seen along the coast south of San Francisco Bay. On June 12, 1937, from the new ocean shore road from Thornton to Edgemar, San Mateo County, Mrs. Parmenter and I saw at least 25000 shearwaters. Again, twelve days later, more than 1000 were seen off the San Francisco beach. In both instances the birds were moving northward.

On July 12, 1937, at 12:40 p.m., at the Cliff House, San Francisco, we sighted a line of shearwaters flying northward just seaward of buoys numbers 2 and 4 that mark the eastern side of the "south channel" to the entrance of the Golden Gate. The line was therefore between three-quarters of a mile and a mile off-shore. We did not see the end of the line to the north, however, so we do not know for how long the birds had been passing.

We decided we would head south and see how far we could see the line. We therefore followed the shore highway to Point Pedro, Shelter Cove, stopping at intervals to observe the shearwaters which were continuing north in a compact line, with numerous "rafts" where the birds were feeding. They were passing fairly close to the Point, and as we observed them with our 10x50 mm. and 8x40 mm. binoculars we had no doubt but that they were the Sooty Shearwater (*Puffinus griseus*).

Their manner of flying, with rapid wing-beats followed by soaring or sailing, and their stiff wings were remindful of the albatross. They continually changed the angle or inclination of their sailing plane, their wing tips nearly touching the water. This manner of soaring exposed the upper and lower parts alternately so that we had good conditions for observation. From Point Pedro as far south as we could see, the line of birds was continuous and north-bound.

We continued south on the highway over Montara Mountain and picked up the line of birds as soon as we were again near the shore. From there we could see that the birds extended north to Point Pedro, so if by chance the line had been broken, there could have been only a rather short interval.

We then proceeded south to Halfmoon Bay and as far as Martin's Beach, about eight miles beyond. We reached that point at 3:53 p.m., some 3 hours and 13 minutes after the birds were first sighted off the Cliff House. It is about 30 miles from the Cliff House to Martin's Beach in a direct line by sea.

Assuming that the progress of the birds was at least 25 miles per hour, they had covered at least 80 miles in the 3 hours and 13 minutes; and as we were 30 miles from our starting point, the line of shearwaters was about 110 miles long, no account being taken of the distances the line may have extended north of the Cliff House when we first sighted it or south of Martin's Beach when we left it.

A "raft" of birds a mile long by one-eighth wide would cover 3590400 square feet. Allowing 10 square feet to a bird, there would be at least 359000 birds in a raft of those dimensions. We observed many "rafts" of varying sizes, large and small. We believe that a conservative estimate of the number of birds seen by us was at least 750000.

Since July 12, we have seen the shearwaters in diminished numbers; some were flying south and some north; by August 11 there were just a few scattered birds. Murphy (*Oceanic Birds of South America*, vol. II, 1936, p. 667) quotes Beck as saying that 100000 is a low estimate of the number of shearwaters one may see in the course of a single day when the migrating hordes are southward bound off the California shores.

In the course of our residence previously in Santa Barbara we several times (usually in May) saw large flights of shearwaters northward bound in the Santa Barbara Channel. In one instance a line of birds at least 30 miles in length was noted, the line being very compact with practically no rafts. Our computation of that particular line was about 300000 birds.

While on the U.S.S. Albatross some years ago, I remember vividly our steaming through an immense raft of shearwaters in the vicinity of the Aleutian Islands. The birds did not rise from the water, but flapped away from our bow, while some dove.—HENRY E. PARMENTER, *San Francisco, California, August 19, 1937.*

Nesting of the Western Robin at Redlands, California.—Inasmuch as Willett in his "Revised list of the birds of southwestern California" (*Pac. Coast Avif.* no. 21, 1933, p. 130) says that the Western Robin (*Turdus migratorius propinquus*) is a summer resident in mountains from 5000 to 9000 feet altitude, nesting but rarely in the foothills, the nesting of robins at Redlands, elevation 1400 feet, seems worthy of record. Robins were first noticed at Redlands in the summer in 1935. On June 19 at Smiley Park a nest holding young nearly ready to fly was found, situated about fifteen feet up in