

greediness the birds swallow many of the seeds. Mr. Webber experimented with a captive Mockingbird and found that the seeds were readily swallowed with the fruit and were evacuated in from fifteen minutes to an hour in good condition for germination. During about four hours the bird ate and evacuated fifty-one seeds. A number of these were planted, and a fair proportion grew into healthy young plants. The Mockingbird is also responsible for a third method of dissemination. It will readily be seen that, as the bird feeds, many of the seeds drop directly down. Some of them fall into the crown of upturned leaves immediately beneath the fruit-stalk and stick there. After the cluster has ripened all its fruit, a lateral branch develops and shoots up beside the fruit-stalk, bearing a new crown of leaves and thus prolonging the trunk, while the old leaves reflex and point downwards. With the reflexion of these leaves, the seeds, now dry, roll or slide down the inclined plane thus formed and are shot out to a safe distance from the parent plant. Those seeds which originally fall between the leaves of the crown naturally reach the ground in the same way by the reflexed blades of the previous leaf-cluster. This yucca has in the larva of a moth another aid to dissemination, but that is a story for the entomologist.—F. H. A.

Loomis on California Water Birds.¹—The present paper gives the results of Mr. Loomis's observations made off Monterey, California, from Dec. 11, 1894, to Jan. 13, 1895. Forty-three species are formally noticed, of which 11 are Gulls of the genus *Larus*—probably a number not exceeded on any coast, at this or any other season. The annotations relate generally to the manner of occurrence of the various species, but in several cases include descriptions of little-known phases of plumage. The Ancient Murrelet (*Synthliborhamphus antiquus*) is reported as common, wintering in considerable numbers on the coast of California, although previously recorded as a California bird, as Mr. Loomis observes, apparently from only a single specimen taken off Monterey in January, 1874. Mr. Loomis also reports the Mew Gull (*Larus canus*) as apparently common on the California coast in winter, although its distribution in the second edition of the A. O. U. 'Check-List' is stated to be "Europe and Asia; accidental in Labrador?" Mr. Loomis calls attention, however, to a former record for California by Mr. Henshaw (Auk, II, p. 232).

Preceding the annotated list (pp. 2-14) Mr. Loomis presents and discusses the general facts of migration as observed in respect to the water birds of the California coast in winter. He brings into special prominence the evidence of a southward migration in winter to breeding grounds in the southern hemisphere of certain species of Shearwaters, and

¹ California Water Birds, No. II. Vicinity of Monterey in Midwinter. By Leverett M. Loomis, Curator of the Department of Ornithology in the California Academy of Sciences. Proc. Cal. Acad. Sci., Ser. 2, Vol. VI, 1896, pp. 1-30, with Map. (Feb. 21, 1896.)

from this proceeds to discuss the causes of migration in general, and the means by which birds are guided in their long migratory journeys. He discredits the possession by birds of a "mysterious sense of direction," believing they are guided by natural phenomena.

This paper is an excellent counterpart of his former paper, giving an account of his observations at the same locality during midsummer, 1894, the two together adding greatly to our knowledge of the movements, habits and relative abundance of the water birds of the California coast.
—J. A. A.

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