

way." This is the matter in a nutshell. Moulting birds have not fallen into the hands of some of the older observers and they have jumped to the conclusion that no moult had taken place. Even so, it is not easy to understand why the observations of Bachman, Homeyer, Brehm and others who have traced the various stages of moult in many species should have had so little weight against the opinions of Ord, Yarrell, Schlegel, Fatio, Gätke, and the other delusionists. But since we find the latter still supported by reputable writers of to-day, the present paper is all the more welcome, and ought to stimulate further investigations; for if it can be proved that a certain species acquires by moult the plumage that it theoretically should acquire by recoloration and rejuvenation, theory begins to totter. This is exactly what Dr. Allen does, and he cites a number of species in his support, so that the theories for the most part become respectable ruins. The fact seems to be that few observers have had sufficient material on which to build, and if the time devoted to inventing theories to fit the material had been intelligently spent in accumulating such specimens as were needed, the many fanciful and superfluous hypotheses now current would not have arisen. It is hardly profitable to dwell upon them and they may be read in the paper now under discussion. Neither is a microscope necessary to controvert them. When, for example, Severtzof by aid of this instrument describes a color bearing fluid ascending in the old feather by capillarity, exuding from the broken barbs, or depositing its pigment in successive layers on the cell walls, what do such observations mean if the feather is really renewed by a moult? Dr. Allen, by proving the delusionists wrong in part, believes them wrong in all their conclusions and gives adherence to the opinion of Bachman who, in 1839, said: "If the feathers in birds, then, which have been long stationary in their growth, are capable of receiving a new set of secretions, and of assuming opposite colors, we must seek for some new law of nature not hitherto discovered." — J. D., JR.

The Mockingbird and *Yucca aloifolia*.—The sixth annual report of the Missouri Botanical Garden¹ contains one paper of especial interest to ornithologists. It is entitled 'Studies on the Dissemination and Leaf Reflexions of *Yucca aloifolia* and other Species,' by Herbert J. Webber, and the facts it brings to light are strikingly illustrative of the close relations which economic ornithology and botany may have for each other. The fruit of this species of yucca has an edible sticky pulp, in which the seeds are imbedded without a core. Mr. Webber finds that the Mockingbird is particularly fond of this fruit and is an important agent in the dissemination of the seeds. In eating the pulp some of the seeds stick to the bill and are shaken off, falling at a suitable distance from the plant to allow of germination and growth. But in their haste and

¹ Missouri Botanical Garden. Sixth Annual Report. St. Louis, Mo. Published by the Board of Trustees, 1895.

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.)