AN IMPORTANT FACTOR IN THE STUDY OF WESTERN BIRD-LIFE.

BY CARL F. BAKER.

PROBABLY no better instance of the progressiveness of the American can be offered than that of the settlement of the arid lands of the Western States. Through the magic touch of irrigation a desert has been made to support a vegetation of almost tropical richness. Where once was but a barren plain, now spread broad fields of luxuriantly growing crops, fine orchards, and green meadows.

It would seem that in this wonderful transformation, brought about in so short a time, the zoölogist would find a field of surpassing interest for study, and one promising varied and valuable results. How it has affected the buffalo, antelope, elk, and badger are familiar facts. But its effects on the smaller mammals and birds have never been traced, although they must in many instances be nearly as marked as on those species mentioned. Compare for an instant the two sets of conditions. *Then*, a treeless, uninhabited tract (except along the streams which were few and far between) covered with a very scant herbaceous vegetation, upon which fell but very little rain. *Now*, covered with farms having ornamental trees and orchards in abundance, the face of the country not gray brown, but green, and water everywhere. These changes have been effected over immense tracts within a very few years, and are going on rapidly to-day.

It seems as if here was an opportunity such as occurs but once in an age. It is true that similar changes are in progress in all inhabited countries, but in no instance have changes on so grand a scale been brought about in so short a time. With a single exception, in none of the literature at my command can I find that such studies have been carefully prosecuted. This exception is an article by Dr. H. H. Behr (Proc. Calif. Acad. Sci., Vol. I), entitled 'Changes in Fauna and Flora of California.' Ornithological literature is full of specific instances of variation of habit produced by the settlement of the country, such as those of the Phœbe, Martin, Barn Swallow, and others. But I cannot find

that such a faunal study as I have mentioned, embracing any extended area, has ever been made.

In a recent article in 'The Auk' (Vol. XII, 'The Summer Range of Colorado Birds') Prof. Cooke ignores any such element as this in the study of Colorado birds, and for this reason he may describe anything but a natural state of affairs. For instance, the present status of the Western Meadowlark, Mourning Dove, Say's Phœbe, and Bullock's Oriole, in the Cache la Poudre Valley, must of a necessity be very different from what it was forty years ago, when nothing existed there to modify the natural distribution of the species. Thus it is entirely possible that Prof. Cooke's statement that "there is a greater variety of birds among the foothills, but not so many individuals as on the plains," may represent only an artificial condition. To describe the range of an animal like the buffalo, which occurred in immense numbers over a large part of the United States, as "very rare, occurring in small herds of some half a dozen individuals each, in remote fastnesses of the Rocky Mountains," would be but illy describing the life and distribution of the hordes of the plains.

At some few localities investigations have been carried on to determine the primitive and natural distribution of birds in our desert regions. But these regions are not now being irrigated and probably never will be. Studies should be prosecuted now in those regions liable to irrigation. It is from these as a basis that exact comparisons can be drawn in future years, and exact values given of effects produced by such tremendous surface changes as those occasioned by irrigation and the settlement of the arid region.

THE PINE GROSBEAK IN CAPTIVITY.

BY O. W. KNIGHT.

THE winter of 1892–93 will be long remembered by Maine ornithologists on account of the great number of Pine Grosbeaks (*Pinicola enucleator*) which visited this State. November 16, 1892,