Barbara group of islands, eight in number, off the coast of southern California, whereas the Grinnell list included only the water birds in the vicinity of Santa Catalina and Santa Barbara islands. Aside from the increase of territory covered, the present paper closely follows the model set by Grinnell in his 1898 list, especially in the concise manner of recording facts.

Mr. Willett, more than any other southern California ornithologist, has given special attention to the birds occurring along the shore and among the islands off the coast, and his activity has, in a way, set the pace for others, with the result that an immense amount of data has been accumulated. Some of this has been published in random notes, but much of it was kept in cold storage in the inaccessible note books of individual workers. The Club, therefore, was particularly happy in its selection of a collaborator so well qualified to carry out the work. His long list of "acknowledgements" indicates how zealously he has followed up every source of information available. Besides this formal acknowledgement, full credit is given in the body of the work to each individual contributor. Previous to 1898, when the Grinnell list was issued, aside from occasional trips to the islands and along the beaches, no systematic work was done among the water fowl and shore birds. Since that time, under the example of Mr. Willett, that branch of ornithology has been actively investigated, with the result that some thirty-nine species have been added to those recorded in 1898. The total number of three hundred land and water birds recorded in 1898, has been increased to 377 in the present paper, about equally distributed between the land birds, and the shore and water birds. Much of this increase, however, is accounted for by the more extensive territory covered and the greater number of workers over the larger area. The work previous to 1898, was centered in scarcely half a dozen earnest students, in a limited area.

In many cases the notes enable us to make comparisons with conditions which existed previous to 1898. For instance, Grinnell and Gaylord visited a colony of Cassin Auklet (*Ptychoramphus aleuticus*) on Santa Barbara Island on May 16, 1897. In June, 1911, Mr. Willett found "that the old breeding colony of these birds was entirely abandoned. From the bones and feathers of this bird found all over the island, I concluded that they had been exterminated by the cats with which the island is infested. On a detached rocky islet, a quarter of a mile from the main island, I found about one hundred pairs of auklets nesting." It seems that the cat question has thrust itself even to the islands of the Pacific!

The list adheres closely to the nomenclature employed in the A. O. U. Check-List of 1910, although in a number of instances the author differs from this authority on questions of distribution of certain species and subspecies. Indeed, who of our California workers does not? In each case he gives full reason for his contrary opinions. A hypothetical list gives eighteen species of more or less doubtful occurrence. The paper concludes with an index of the scientific and common names of all species noted. That this contribution has passed under the able editorship of Joseph Grinnell and Harry S. Swarth, vouches for its high standard in every respect. Indeed, Pacific Coast Avifauna No. 7 maintains the high standard set by the previous publications of the Club, and is a model which may be enlarged upon, but can scarcely be improved.

FRANK S. DAGGETT.

MAGEN- UND GEWOLLUNTERSUCHUNGEN UNSERER EINHEIMISCHEN RAUBVOGEL, by DR. EUGEN GRESCHIK. [—Aquila, vol. 18, pp. 111-177, 6 figs. in text].

One of the first, and in our estimation one of the best of the publications of the U. S. Biological Survey, was Fisher's "Hawks and Owls of the United States." As the economic value of the birds of prey is far more evident than that of other birds, it seems very fitting that these birds should be the first ones to be considered by the economic ornithologist. In several foreign countries interest is centered at the present time in the food of hawks and owls.

In *Aquila* for 1911, Dr. Eugen Greschik continues a report of his researches on the food of the native birds of prey of Hungary. The paper is entitled: "Stomach and Pellet Examination of Our Native Birds of Prey." The first installment, published in *Aquila* for 1910, furnished evidence as to the food of the hawks, whereas the more recent article deals with the owls.

The introduction to the last contribution points out the need of protection for owls, owing to the great yearly slaughter. Evidence is advanced that at least 11,593 Uhreulen and 18,738 other owls were shot in 1907. Attention is called to the value of these birds to the agriculturist and forester, so that better protection may result. Reference is also made to the economic work of the U. S. Biological Survey, and to that of certain European museums and societies. Emphasis is laid on the necessity of "positive data" as to the food of birds as a means of determining their real value.

A discussion of the food of the seven species of owls to be found in Hungary forms the main part of the paper. Short descriptions of the habitat and habits, and figures of the

commoner species with accompanying figures of pellets, are added for the benefit of the agriculturist. The result of the stomach and pellet examinations are given in tabular form. Data consisting of the date, locality, and the kind and number of insects and animals making up the food, is given for each stomach and pellet examination. These tables answer for the owls, therefore, two questions submitted by the author in his introduction: How much food do birds consume? and: What kind of food do they take?

According to the tables, the field mouse (*Microtus arvalis*), and the Waldmaus (*Mus sylvaticus*) and the house mouse (*Mus musculus*) is the food most often taken. Shrews, sparrows, frogs, and insects, and even occasionally larger mammals such as the rabbit and weasel, were found to make up a small percentage of the food.

Evidence of the occurrence of certain small mammals abundant in Germany but seldom recorded in Hungary, was presented by the discovery of an Ackermaus (*Microtus agrestis*) in the stomach of an Uhu (*Bubo bubo*), and of the nordische Wuhlratte (*Mus ratticeps*) in the stomach of a Waldkauz (*Syrnium aluco*).

Constant reference to the results of similar investigations in Germany strengthens the evidence. The large number of pellet examinations recorded, shows the interest taken in this line of work in Germany. Of the Schleiereule (*Strix flammea*) alone, 703, 9,472, and 2,821 pellets have been examined by three different investigators.

Dr. Greschik's doctor's thesis entitled: "Beitrage zur Kenntnis der Molaren der einheimischen Murinen," published in 1910 *Aquila*, was a contribution of permanent value. The determination of seeds, insects, and animals found in the stomachs of birds is not an easy task, and the presentation of improved methods adds to the accuracy and efficiency of future workers in the field. The method of determining species of mice by means of tooth characters described by Dr. Greschik furnishes a dependable method of determining species.

We therefore recognize in Dr. Greschik's present contribution the same admirable type of work as that to be seen in his thesis. The desire to furnish "positive data" as to the food of birds is the ideal that should lead and influence every economic ornithologist. May the day be hastened when still more of this type of work will be seen in our ornithological and agricultural publications.—H. C. BRYANT.

MICHIGAN BIRD LIFE. By WALTER BRADFORD BARROWS, S. B. [Special Bulletin of the Department of Zoology and Physiology, Michigan Agricultural College, 1912, pp. i-xiv, 1-822, 70 pls., 152 figs. in text].

This should be an extremely useful book to anyone interested in Michigan birds—to the specialist desiring accurate, thorough information regarding the species occurring in the state, to the student endeavoring to identify birds, either alive or in the hand, or to the "average citizen" out for sport or recreation, who chances upon some interesting specimen. The treatment seems adequate to meet any of these contingencies. Descriptions are brief, but accurate, bringing out clearly the salient features of the species. The accounts of the life histories and status within the state of the various species treated, have evidently been most carefully drawn up; and in the doubtful cases, such as *Bonasa u. umbellus* and *B. u. togata*, the facts in the case are impartially submitted, while the conclusions drawn seem sound and sensible. "Keys" are used, but not to excess, and there is a sufficiency of excellent illustrations so that the person needing the "key" (and who but seldom uses it) will in many cases be able to utilize the pictures as short cuts to the information desired.

The introduction may be profitably read and studied by ornithologists of any region, the author's remarks on distribution, the changes produced by varying conditions in the state, methods of study, migration, and kindred subjects being eminently interesting and suggestive.

On the whole this account of the birds of Michigan appeals to the reviewer as a most admirable piece of work. Not the least of its merits is the fact that it has been published in such a way as to be obtainable by those who will most need and appreciate it.—H. S. SWARTH.

MINUTES OF COOPER CLUB MEETINGS

SOUTHERN DIVISION

AUGUST.—The August meeting of the Southern Division of the Cooper Ornithological Club was held on August 29, 1912, in the Committee Room of the Museum of History, Science and Art. Mr. F. S. Daggett was elected temporary chairman.

The following members were present: Appleton, Daggett, Law, Rich, Zahn.

The minutes of the Southern Divsion for July were read and approved. Upon motion of Dr. Rich, seconded by Mr. Zahn, and duly carried, the Secretary was instructed to cast the unanimous ballot of those present electing to active membership, Messrs. Samuel Hubbard, Jr., Jesse J. Wood, William A.