

ORNITHOLOGICAL LITERATURE

THE CALIFORNIA CONDOR. By Carl B. Koford. National Audubon Society, New York, 1953: 7½ × 10½ in., xiii + 154 pp., 31 pls., 15 text-figs. \$3.00.

This is a most thorough report upon the history, distribution, population, mechanics of flight, and behavior of the magnificent bird based upon experience gained in nearly 500 days spent by the author watching condors. His work in the rugged terrain occupied by condors was facilitated by his ruggedness as a mountaineer. His sponsors in the National Audubon Society and the Museum of Vertebrate Zoology of the University of California, realized the necessity for so detailed a life history study as a basis for understanding how best to assist the condor in maintaining its numbers. For the condor is affected deeply by the activities of man, consequently it is up to man to regulate these activities appropriately—assuming of course that we all want the condor with us. It is a surprise to learn that some do not; an article has actually appeared entitled "What price condor?" and there have been various attempts to sacrifice the bird's welfare to exploitation of minerals in its roosting and nesting areas.

A model of tactful writing, the book avoids caustic comments upon human foibles and so may win more to the condor's side. The author's heaviest sarcasm (regarding oil development) is mild indeed: "most of the interest has been in buying and selling leases rather than in drilling and production." Reading between the lines we find as profound a study of man as is ever likely to come out in an ornithological publication. By his own example Dr. Koford has demonstrated the feasibility of his suggested program of conservation by education, through personal contact, of those persons who meet the condor in their daily lives.

The reader must appreciate that variability in the condor's behavior necessitates the detail presented by Dr. Koford; many aspects of its activity do not resolve themselves into the clear-cut patterns we find in studies of more stereotyped species. The reviewer has watched the growth of this condor project over the years in seminars, a visit to the condors with Dr. Koford, informal discussions, and in the author's papers presented at scientific meetings. As the study matured, as the facts piled up (3500 pages of field notes!), generalities had to be abandoned. With 10 days of observations upon the condor a neat simple picture of its behavior could easily be portrayed. With 500 days the exceptions literally become the rule. It is purely the personal opinion of the reviewer that we see emerging from this wealth of information the one constant trait of the condor which is precisely its *inconstancy*; it is erratic, cautious, unpredictable and capricious. The condors roost a few days or weeks at one place. Then they move. A pair nests and years go by before the site is again used. The birds feed at a carcass one day and may never return; some carcasses are consumed, others in favorable locations are ignored. This constant shift, feint, and deployment, though occurring within one general mountainous area, might insure that the population as a whole will not suffer from a local catastrophe.

The approximately stable, total population of condors is about 60 individuals; therefore the prevention of the death of a single condor or of the failure of a single nest may mean that the population will show an increase rather than a decrease for a given year. Artificial provision of carcasses is impractical because the condor is so erratic in its selection of food. Rather, it is best to facilitate utilization of available carcasses (should they be free of disease) by not destroying them and where possible by dragging them to openings. The protection of former nest sites is justified because

of the tendency of the birds to use them again after many years. Extreme alarm, rather than tameness, prompts the condor to come near a human at the nest. "One man can keep a pair of condors from the egg all night or prevent the feeding of a chick for an entire day merely by exposing himself within 500 yards of a nest for a few minutes at one or two critical times of the day. Loud noises can alarm condors at distances of over one mile." The apparent success of a nest near a logging road in Tulare County was due to a fortunate series of coincidences which kept disturbance at a minimum and does not constitute evidence that nests would ordinarily succeed in such circumstances. Practically every phase of condor activity has been adequately photographed in color, both in motion pictures and stills, and since it is impossible to photograph the nesting birds without disturbing them there is no justification for further photography in any portion of the nest-roost-water area.

Sensational and false information about the condor frequently appears in the popular press. This prompts curious folk to seek out and disturb the bird. It is not enough to make available reliable information—it must be watched for distortions clear through the stages of publication.

Condors are especially cautious at their chosen nesting sites, roosts, and drinking and bathing places. Since they require very limited conditions of terrain for flight and feeding, and because of the enormously long fledging period, year-round freedom from disturbance in the limited area meeting their requirements is necessary. Fortunately this area is relatively inaccessible to man. As long as no more roads and trails are constructed near roosts and nests the outlook for the condor is good.

By far the most effective means of conservation is through education by personal contact, for the condors will not stay in a sanctuary. One man truly interested in condors can secure the cooperation of ranchers upon whose property the birds feed, of fire lookouts, trappers, forest rangers, game wardens, etc.—a select group of persons who naturally come in contact with the birds and who have the opportunity to pass on the information. "The interest and cooperation of these people can best be gained by helping them to understand something of the relation of the condor to its environment rather than by giving them a list of 'don'ts.' . . . If eventually it is possible to employ permanently a man to guard the interests of condors in the field, this man should spend much more time visiting persons throughout the condor range and securing their cooperation than in patrolling nesting areas against intruders. With education and cooperation, little, if any, patrolling probably would be necessary."

The condor is *not doomed to extinction*. Ever since 1890 writers have portrayed it as a relic of the Pleistocene with "one wing in the grave," in spite of which the great bird has persisted to this day and has even extended its breeding range into Tulare County. True enough, its breeding range has receded in historic times from San Diego County and along the coast from Monterey to San Luis Obispo counties; but this is far less severe than the impression of wholesale decimation one gets from incorrectly considering the former range as extending from the Columbia River to the San Pedro Martir Mountains of Baja California. There is no evidence that the birds at these far-flung outposts were breeding. Evidently they had gone there for particular food supplies, possibly salmon in the case of the Columbia River. "Inasmuch as the condor has persisted in spite of apathy and predictions of its early extinction, let us be optimistic and assume that the species will persist indefinitely if we give it aid." It seems to the reviewer that it is the duty of every ornithologist not only to read Dr. Koford's book but to insure that his recommendations for aid are actually carried out.—JOE T. MARSHALL, JR.

THE FULMAR. By James Fisher. Collins, St. James's Place, London, 1952: $5\frac{3}{4} \times 8\frac{1}{2}$ in., xv + 496 pp., frontis. (painting by Peter Scott), 82 photos (4 colored), 70 maps, diagrams, and line-drawings. Distributed in the U.S.A. by John De Graff, Inc., N.Y. \$8.00.

Examples of species which are expanding their ranges are not numerous, and studies of the dynamics of such range expansions are rarer still. We have James Fisher to thank for what is probably the most thorough such account prepared to date. In many ways Fisher's choice of a subject was fortunate: Fulmars were an important source of food to the inhabitants of islands where they nest, arctic explorers have contributed many observations on the species, and the Fulmar has been the subject of special cooperative studies by the British Trust for Ornithology. The scope of the research which went into the preparation of this book is perhaps best expressed by stating that 2,378 works were consulted, and unpublished material was obtained from 575 persons. (A copy of this bibliography has been filed with the Society for the Bibliography of Natural History.)

Following two chapters introducing the Fulmar and its relatives, the Antarctic and Pacific fulmars, are eight chapters which take up nearly half of the book and recount the history and spread of the Fulmar in the Arctic, Iceland, Faeroe Islands, Norway, St. Kilda, and Britain. Two chapters are devoted to the populations of the Fulmar and the geographic distribution of its color phases. Next are a series of chapters on the life history of the Fulmar, including accounts of the Fulmar at sea, its voice and display, yearly cycle, parasites and enemies, and food. The final chapters treat the possible causes of the Fulmar's spread and the question of how often the Fulmar breeds. A very short bibliography, an appendix, and an index complete the work.

The numerous illustrations are both attractive and well integrated with the text. They include a handsome frontispiece by Peter Scott; over eighty photographs, including many striking pictures of the cliffs on which the Fulmars nest and of the birds themselves; and a wealth of maps, graphs, and line drawings. Of particular value are several photographs showing some of the displays of the Fulmar.

One of Fisher's major contributions is in pointing out numerous problems which merit further study. A comprehensive study of the relationship between colony size and nesting success, in particular, would be valuable. Many of the calls and displays of the Fulmar have been described, but much remains to be learned about their significance. What determines the distribution of the dark and light phases of the bird is not clear. A close check on future changes in population size should be kept and, finally, an attempt to find out the reasons for the bird's spread should be made. Indeed, the groundwork has been laid for what could be a magnificent life history study.

A few parts of the book are not up to the standards of excellence of most of it. The measurements of Fulmars (Appendix III) were compiled from some fifteen references; it is always unwise to average measurements made by different workers. This is particularly true when, as seems to be the case here, wing lengths taken by Europeans, who measure the arc, and those taken by Americans, who usually measure the chord, are combined. The index contains two parts: a list of the vertebrates mentioned (in a systematic order) and a list of selected places. The lack of a more complete subject index hampers the reader who wants to look up an aspect of the Fulmar's life history. Finally, while it is understandable that the complete bibliography could not have been included, it is annoying to find works cited merely as "W. Stone (1892)" with no further clue as to where to find them without writing to the Society for the Bibliography of Natural History, the address of which, incidentally, is omitted from the book.

These defects, however, detract little from the great value of the work; the author and the other editors of the New Naturalist Series are to be congratulated on having produced an excellent book.—ROBERT W. STORER.

THE BIRDS OF NEW BRUNSWICK. By W. Austin Squires. Publ. New Brunswick Museum. Monographic Series No. 4. Saint John, 1952: 6 × 9¼ in., title + 164 pp., index, 12 photos., map (folding).

Ornithologists are still few and far between in New Brunswick. Nevertheless, there has been a handful of avid observers in various parts of the Province and a steady stream of visitors to fascinating and ornithologically fruitful Grand Manan Island at the mouth of the Bay of Fundy. There has been no systematic general collecting in the Province. As a consequence of these factors, the list of casuals and accidentals is formidable, but sub-specific determinations for common species are few.

In this list much new material has been added and a widely scattered literature has been brought together. The old lists have been sifted, and many dubious records have been rejected. However, many species admitted to the present list on the strength of sight records should probably be relegated to a hypothetical status.

New Brunswick birdlife presents a full quota of oddities. Both Richardson's Boreal Owl and the Brown Thrasher are breeding birds in the Province. Turkey and Black vultures, both casual, are equally numerous. Purple and Florida gallinules have been recorded with equal frequency as accidentals. Although Bald Eagles are numerous in summer, nests are rare. Banding has proved that most of the summer population is made up of post-breeding wanderers of the southern race (*H. l. leucocephalus*) from as far south as Florida, while eagles nesting in New Brunswick are of the northern race (*H. l. washingtonii*). The climate at the mouth of the Bay of Fundy is much colder in summer than that of the Gulf of St. Lawrence coast to the northeast. Thus, many of the most typically northern birds are found breeding in the southern portion of the Province rather than in the north.

As the first modern annotated list of the birds of New Brunswick this publication will find a welcome place on many ornithological bookshelves.—C. O. HANDLEY, JR.

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