

Pigeon Shoot on Christmas Day 1875" written in long hand by Frost and interspersed with amusing pen sketches, as well as two full page portraits of Frost by his wife and by Thomas Eakins.

Mr. Lanier has produced a beautiful and most readable book which should find a place in every sportsman's library, as well as in that of every lover of nature and outdoor life.—W. S.

**Madon's 'Les Rapaces d'Europe.'**<sup>1</sup>—This report brings into one volume the bulk of existing knowledge of the food habits of both the nocturnal and the diurnal raptors of Europe, and is a compilation of published and unpublished data from the works of economic ornithologists throughout continental Europe and the British Isles. The summarized data from analyses of the contents of no fewer than 10,000 stomachs and 65,600 pellets have entered into its text and tables. To say the least, the bringing together of these scattered data from a host of different sources, recorded in many languages, has been a task of considerable proportions.

From these summarized data the author concludes that only the Long-eared Owl (*Asio otus*) and the Short-eared Owl (*Asio flammeus*) of the nocturnal raptors merit complete protection. The European Barn Owl (*Tyto alba*), Tengmalm's Owl (*Aegolius funereus*) and the Eagle Owl (*Bubo bubo*) are classed as destructive, while for the Snowy Owl (*Nyctea nyctea*), the European Hawk Owl (*Surnia ulula*), and the Lap Owl (*Scotiaptex lapponica*) toleration is recommended, especially in the more sparsely populated regions where they exert considerable pressure on the migratory lemming. The Tawny Owl (*Strix aluco*) is considered more or less indifferent economically, while the Little Owl (*Athene noctua*) and the European Scops Owl (*Otus scops*) are thought to be of value occasionally. Of the diurnal birds of prey, the Vultures and the large Eagles are placed in a class by themselves as deserving protection because of their rarity. The Honey Buzzard (*Pernis apivorus*), the Short-toed Eagle (*Circus gallicus*), and the Western Red-legged Kestrel (*Falco tinnunculus*) are considered useful, and the Hen-Harrier (*Circus cyaneus*) indifferent. The Sparrow Hawk (*Accipiter nisus*), the Hobby (*Falco subbuteo*), and the Merlin (*Falco columbarius aesalon*), along with the Buzzard (*Buteo buteo*), are left more or less on the border line. Bonelli's Eagle (*Hieraaëtus fasciatus*), the Booted Eagle (*Hieraaëtus pennatus*), the Marsh Harrier (*Circus aeruginosus*), both Kites (*Milvus milvus* and *Milvus migrans*), the White-tailed Eagle (*Haliaeëtus albicilla*), the Goshawk (*Accipiter gentilis*), the Peregrine Falcon (*Falco peregrinus*), and the Osprey (*Pandion haliaëtus*) are "outlawed" as being too destructive to be tolerated. These conclusions, of course, are strictly those of the author, and do not necessarily represent the opinions of other European investigators whose data he uses.

<sup>1</sup> Les Rapaces d'Europe, leur régime, leurs relations avec l'Agriculture et la Chasse. P. Madon. Chez l'Auteur, 5, Avenue Vauban, Toulon, France. 292 pages. 1933. Price 35 francs.

The most revolutionary of these conclusions is that which concerns the Barn Owl, a raptor generally recognized as useful. In summarizing the economic status of this Owl the author writes as follows: "I maintain, therefore, although alone against all, that the Barn Owl is destructive everywhere in Europe, extremely destructive in France, because of favoring to the highest degree the multiplication of rodents and of insects harmful to our crops." Analysis has revealed that in Europe the food of this raptor consists of approximately 65 per cent rodents (chiefly Arvicolidae), 31 per cent shrews (principally *Crocidura* sp. and *Sorex vulgaris*), and the remainder of miscellaneous items including bats, reptiles, batrachians, and fish. It is on the basis of the shrew content that he contends the Barn Owl is one of the most destructive Owls in Europe, for to the shrews he attaches great importance in the control of small rodents and injurious insects. The actual ratio between shrews and meadow mice in the diet does not, in his opinion, convey the whole story. On the basis of comparative fecundity and precocity of shrews and meadow mice he writes, "The destruction of ten shrews has more significance than that of one hundred meadow mice, species of which the powers of reproduction permit immediate replacement when food abounds, and which can only be controlled by unlimited forces of action, such as diseases and inclemencies." In view of the latter statement, it is difficult to see justification for attaching so much importance to shrews in the control of meadow mice, and it is equally difficult likewise to justify the importance attached to shrews in the control of destructive insects. Shrews have generally been recognized as useful, but we know of no previous instance in which their usefulness has been so generously evaluated. (To appreciate Madon's discussions fully, one should read in this connection Guerin's 'L'Effraye commune en Vendee,' Encyclopedie Ornithologique, Vol. IV, inasmuch as both authors worked together over much of the Barn Owl material, and interestingly enough arrived at opposite conclusions on practically all major issues.)

We find in Madon's report a most positive and unqualified contention that preference plays an important part in determining the prey that enters the diet of raptors. We read, for instance, that the Barn Owl exhibits a preference for shrews, that the Osprey has a preference for fish, the Peregrine Falcon for Pigeons, et cetera. The Osprey, he says, represents a case of extreme specialization among raptors, and is an example of a bird showing preference to the highest degree in the taking of its prey. Specialization is one thing and preference something very different; Madon seems to confuse the two. The former may be the result of any of a number of factors or combination of factors, of which anatomical modification, size, strength, speed, versatility of flight, and temperament are only a few, that may serve in one way or another to determine the availability of prey. Preference implies a deliberate seeking out of certain types of prey when others are equally or more available. With the Osprey, the taking of fish to the exclusion of other prey illustrates

extreme specialization, but not necessarily preference in the correct usage of that term, since, practically speaking, fish may constitute the only type of prey available. The ecological information concerning the relationship between the raptor and its prey is too meagre for one to assert, positively and without reservations, that any raptor will take by preference any prey out of proportion to other easily obtainable and available ones.

Of particular interest to ornithologists in this country are the comparisons that Madon makes between certain American species and closely related or identical European ones. He has utilized the data from the analyses of 2,100 stomachs and 3,610 pellets of American raptors, drawing these data principally from Fisher's 'Hawks and Owls of the United States,' Henderson's 'Practical Value of Birds,' and Stoddard's 'Bob-white Quail.' It is unfortunate that suspicion has been cast upon one of our Owls generally recognized as useful. Concerning our Long-eared Owl (*Asio wilsonianus*), a close relative of the European Long-eared Owl (*Asio otus*), he writes, "Some 260 pellets from 2 localities have given 303 vertebrates, of which there were 30 Muridae, 224 Arvicolidae, 28 shrews, 8 moles, and 13 passerine birds. These latter three categories are represented in the diet to a greater extent than in Europe, and the usefulness of this owl ought to be contestable if the *Blarina* have habits of our shrews." These particular data were taken from Henderson's 'Practical Value of Birds.' In lumping the various species of small rodents he has obviously encountered some difficulty in the interpretation of common names, for he has placed the white-footed mice and Cooper's mice along with the house mice and a Norway rat with the Muridae, and likewise has erred in considering the lemming voles as moles. This entanglement is partly due to inconsistency in the use of common names by Henderson, who in the same paragraph uses the names field mice and meadow mice to denote *Microtus*, and the names Cooper's mouse and lemming vole to denote *Synaptomys cooperi*. At any rate, there were no moles represented in these analyses. As for the 28 shrews and 13 passerine birds, numerically they make up only slightly more than 13 per cent of the total number of vertebrates. On this basis, the useful role of the bird is hardly contestable.

The author has not been unmindful of the educational responsibilities that are attached to a work of this type. He has condemned bounties as being the cause of much of the indiscriminate persecution of raptors. He has voiced a protest against the commercialization of egg-collecting, which he claims has reached in Europe the status of postage-stamp-collecting. He has encouraged ornithologists, taxidermists, and hunters to forward stomachs of all birds of prey that may come into their hands to specialists, or, if this is not feasible, to make as detailed an examination of the contents as possible themselves, even if for only the vertebrate content. To assist such studies he has devoted several pages to describing skeletal characteristics of the major groups of vertebrate prey. It is to be regretted that the financial means were not available to include illustrations, which

greatly enhance the value of educational literature. Further, it is unfortunate that Madon's work is so replete with argumentative discussion and criticism of the investigations of other scientists, much of which is not particularly appealing to readers only mildly interested in the economics of wild life, and which serves to obscure the more significant matters that should receive emphasis.

In spite of its shortcomings, the report, with the exception of the index, has been mechanically worked up in good fashion; and owing to the abundance of tables summarizing available information it is valuable as a reference work on the food habits of European raptors.—A. L. NELSON.

**Lambrecht's 'Handbuch der Palaeornithologie'.<sup>1</sup>**—The product of many years of painstaking research and compilation this work has no equal in the literature of ornithology in scope and detail so far as the subject of fossils among birds is concerned.

The author begins with a brief statement of museums where fossil birds are found as well as collections of skeletons of modern birds for comparison. This is followed by an account of the bird skeleton where figures of the different bones have names indicated for parts and processes. The next section, in detailed statement covering nearly 600 pages, deals with all known fossil records from a systematic standpoint, including not only those forms that have been definitely named but also records identified to genus, family or order. The account is thus exceptionally complete. Under each species there is given the place of original description, other references in literature, including synonymy, a list of specimens with the museum in which they are found when this is known, the age and type locality, and remarks on status and other interesting matters. The details naturally are more complete for Old World species where the author has examined the material; in other cases there are usually quotations from the original describer.

In many instances under the Order there is included a general history of the group as shown by the known fossils with indication of the probable affinities of the different forms, fossil and living. Supposed lines of descent are frequently shown in tabular form with the geographic distribution of the fossils. As one interesting aside there is given a résumé of stories of the fabulous Roc of Marco Polo and other travelers. The entire work is profusely illustrated with reproductions of original figures and restorations. While the preface is dated July, 1931, an addendum brings the information included down to December 15, 1932.

To indicate briefly a few of the important proposals in this work, *Gastornis*, *Remiornis*, *Dasornis*, and *Macrornis* are included in the order Diatrymiformes with *Diatryma* and *Omorhamphus*. The family Elop-terygidae (p. 287) is erected for *Elopteryx nopcsai*, *Eostega lebedinskyi* and *Actiornis anglicus*.

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<sup>1</sup> Handbuch der Palaeornithologie | von | Kalmán Lambrecht | A. O. Universitätsprofessor | Mit 209 Textabbildungen und 4 Tafeln | Verlag von Gebrüder Borntraeger in Berlin W 35 | 1933. Pp. 1-xx + 1-1024, 209 figs., price 115 RM.