

appear to be first, to discredit the theory of evolution and "to bring evidence to the aid of faith . . . to assist people . . . to believe implicitly in the actual and active personality of God"; and second, to discourage the hope that aviation has a future of any economic importance.

There is much information on flying—both of birds and aircraft—in this book which is undoubtedly sound and very illuminating. The author brings out forcefully, but at almost too much length, the fact that birds in flight do not ordinarily feel the "pressure of the wind," since they form an intrinsic part of the moving medium, with their own speed superimposed, plus or minus, upon that of the wind, the direction of flight being a resultant vector. From this it follows that, regardless of the strength of the wind, a bird flying in any direction feels only the pressure from directly ahead, which is proportional to its rate of speed. The situation is precisely like that of a fish moving within a current in the sea, or of a fly being carried along by the apparently still air enclosed within a railroad carriage or a ship's cabin. The author, however, boasts of the fact that he arrives at his conclusions from "deduction" rather than observation, and the resulting errors are manifold.

He fails to take the physical fact of inertia sufficiently into consideration, nor does he grant to most birds the superiority over normal meteorological conditions which they undoubtedly have. He builds up an elaborate theory in which zoological dispersal, migration, and other natural phenomena are dependent ultimately upon temperature plus the winds. While his deductions and reasoning are not without considerable value, they are undoubtedly of most value to one capable of realizing the weakness of Commander Acworth's ornithological information. As a matter of fact, the distribution of birds, fossil and extant, bears practically no relation to his idea of this subject. He is obviously innocent of knowledge about any recent experimental work on the incipience of migratory impulse in birds. In developing his own special theories he sets up one straw man after another and succeeds to his own satisfaction in knocking it down.—R. C. M.

**Collinge on British Corvidae.**<sup>1</sup>—Supplementing previous separate reports on the Jackdaw and Rook, the present paper deals with four other members of the family occurring in the British Isles. In an introductory way Dr. Collinge says: "Among the whole of our British wild birds there are few families more difficult to deal with and to estimate the economic status of the different species than the Crow family, for their activities affect a wide series of interests, the least important of which—from an economic standpoint—is perhaps the noisiest and most persistent in their wholesale condemnation. It is therefore highly important that we draw no hasty conclusions, but endeavor to sift all the evidence and take a wide view of the sum total of their activities. The persecution of the members of this family is due entirely to the fact that for a few weeks of the year

<sup>1</sup> Collinge, Walter E., *The Food and Feeding Habits of some Corvidae*, Journ. Ministry Agr., May 1930, pp. 151-158, 4 graphs.

they include among their food the eggs and young of game birds; they have, moreover, also been known to take the eggs and young of poultry, and have been attacked for this reason. The amount of damage they thus entail has, in the writer's opinion, been exaggerated, and the benefits they confer have been almost ignored. If there were no preservation of game in this country we should hear fewer complaints against these birds; it is therefore essential that we should know, as precisely as possible, the actual damage they do, and carefully weigh against this the benefits they confer in the interests of agriculture."

It is axiomatic that most damage to agriculture by birds must occur in connection with the taking of vegetable food. The four species of *Corvidae* treated by Dr. Collinge are so highly carnivorous (Carrion Crow 79%, Hooded Crow 95.5%, Magpie 74.5%, and Jay 71.5%) that one should not expect them to do much direct harm to agriculture. So the author finds and his conclusions as to these four birds as well as to the two previously published upon are summarized in the following table:

Species	Food Percentages		
	Beneficial	Injurious	Neutral
(1) Carrion Crow.....	23.0	21.0	56.0
(2) Hooded Crow .....	30.5	19.0	50.5
(3) Jackdaw.....	48.5	23.0	28.5
(4) Rook.....	28.5	52.0	19.5
(5) Magpie.....	43.0	16.5	40.5
(6) Jay .....	42.0	16.5	41.5
Total .....	215.5	148.0	236.5
Averages .....	35.9	24.7	39.4

"In conclusion," Dr. Collinge says, "there are two very important points in connection with the economic status of the members of the family *Corvidae* which we should like to emphasize. First, so long as these birds are not too numerous we believe that the benefits they confer far outweigh any injuries they inflict, but if, as in the case of the Rook, they rise above the 'highwater mark of abundance,' the injuries are greater than the benefits. Secondly, the persecution of the four species here treated of is, in the writer's opinion, largely, if not entirely, due to misunderstanding. By countenancing such destruction the agriculturist is robbing himself of a valuable economic factor, since the four species are all distinctly beneficial to agriculture."

There are valuable hints here for American agriculturists as our Crow tribe are "birds of a feather" with those of the British Isles, and similarity in their economic status is to be expected.—W. L. M.

**Bird Protection in Japan.**—Although no review of this 1927 paper<sup>1</sup> has hitherto appeared in 'The Auk,' it is so full of interest that it should

<sup>1</sup> Uchida, S., The Present Condition of the Protection of Birds and Mammals in Japan, 23 pp., 10 Pls., Dept. of Animal Industry, Ministry of Agriculture and Forestry, Tokyo, 1927.