

Birds as Carriers of the Chestnut-Blight Fungus.¹— Birds have been charged with distributing various plant diseases, but their relation to chestnut blight is the only case of this nature that has been scientifically investigated. The writers of the article here cited examined 36 birds belonging to 9 different species which were collected among diseased chestnuts in Pennsylvania. Using a most careful and thorough technique, they found that of the 36 birds tested 19 were “carrying spores of the chestnut-blight fungus. The highest positive results were obtained from two Downy Woodpeckers, which were found to be carrying 757,074 and 624,341 viable spores of *Endothia parasitica*. The next highest was a Brown Creeper with 254,019 spores.” (p. 412). The other birds upon which spores were found were the Golden-crowned Kinglet, Junco, White-breasted Nuthatch, and Sapsucker. Three species, the Black and White Creeper, Flicker, and Hairy Woodpecker gave negative results. It was found also that the birds carried spores of a large number of fungi other than that producing chestnut-blight.

The authors conclude that “birds in general are important carriers of fungous spores,” and that in particular “birds which climb or creep over the bark of chestnut trees are important agents in carrying viable pycnospores of the chestnut-blight fungus, especially after a period of considerable rainfall.”

“Birds are probably not very important agents in spreading the chestnut blight locally, on account of the predominance of other and more important factors of dissemination, as, for example, the wind.”

“The writers believe, however, that many of the so-called ‘spot infections’ (local centers of infection isolated from the area of general infection) have had their origin from pycnospores carried by migratory birds. Some of the birds tested were not permanent residents of eastern Pennsylvania, but were shot during their migration northward. These, no doubt, carry spores great distances. Each time the bird climbs or creeps over the trunk or limbs of a tree some of the spores may be brushed off and may lodge in crevices or on the rough bark. From this position they may be washed down into wounds by the rain and may thus cause infections.” (p. 421).

The findings of this paper are based upon unimpeachable evidence and the conclusions must be accepted at face value. Nevertheless, the part birds play in the general spread of this disease is so small that it will never be seriously urged as a reason for diminishing bird protection.— W. L. M.

Reichenow's “Die Vögel.”² The second volume of this important work was distributed on October 24. It follows the plan of volume one,

¹ Heald, F. D., and Studhalter, R. A., Journ. Agr. Research, II, No. 6, Sept. 1914, pp. 405–422, Pl. XXXVII, 2 figs.

² Die Vögel. Handbuch der Systematischen Ornithologie von Anton Reichenow Zwei Bände. Zweiter Band. Mit 273 text bildern gezeichnet von G. Krause. Verlag von Ferdinand Euhe. Stuttgart, 1914. 8vo. pp. 1–628. Price, M. 18.40.

citing nearly all of the important genera and a fairly representative list of species under each, although some of the most common North American species, such as the Downy Woodpecker, are omitted. The text illustrations are numerous, well chosen, and admirable both in execution and in reproduction.

With the completed work before us Dr. Reichenow's classification can be better understood than from the outline given in Vol. I.

He divides the birds primarily into I, Ratitæ; II, Natatores; III, Gallatores; IV, Cutinares; V, Fibulatores; and VI, Arboricolæ. The limits of the first three groups are easily understood. The others can be best appreciated in tabular form as follows:

4. Reihe: Cutinares
 Ord. Deserticolæ (*Turnicidæ*, *Thinocoridæ* and *Pteroclidæ*)
 Crypturi (Tinamous)
 Rassores (Gallinaeous birds)
 Gyrantes (Doves)
 Raptores (Vultures, Hawks and Owls)
5. Reihe: Fibulatores
 Ord. Psittaci (Parrots)
 Scansores (Woodpeckers, Toucans, etc., and also Trogons and Cuckoos)
6. Reihe: Arboricolæ
 Ord. Inessoros (Hornbills, Kingfishers, Hoopoes, Rollers, Motmots, Bee-eaters, etc.)
 Strisores (Nightjars, Swifts and Hummingbirds)
 Clamatores (in the usual sense)
 Oscines (including the Lyre-bird and the true song-birds)

Such a classification takes us back a good many years, to the time when characters of bill and feet were the basis of our systems. It was this fact and the ignoring of various generally recognized relationships that caused us to refer to the classification as conservative in reviewing Volume I. It was perhaps unfair, however, to make this remark without setting forth the underlying principles of Dr. Reichenow's system which we preferred not to discuss until the whole work was before us.

Briefly his views, as we understand them, are, that in order to become acquainted with the great multitude of bird species it is necessary to arrange them in a system wherein each one finds its place through a successive subdivision of groups from orders down to species. Further that such a system for general, practical use had better be based upon more or less obvious external characters, than upon deep seated phylogenetic characters which are not recognizable without dissection and minute study. He does not belittle the importance of the latter but does not regard them as practical for a "logical system." Indeed he states definitely that "System and Genealogy have absolutely different ends in view and must advance side by side."

While these premises make criticism of the "system" to a great extent impossible we nevertheless cannot agree with the principle. Such a stand is absolutely opposed to the modern views of classification, and we fail to see why we are better off in grouping together two species which are superficially alike when we know that they have sprung from very different stocks, and have converged through the action of similar necessities of life or environment. Even the popular student would, we think, prefer to know that a system reflected the actual phylogenetic relationship of the groups, even though he were unable to see similarities in a cursory examination of the species.

No linear arrangement such as is necessitated in a book can be truly accurate phylogenetically or "systematically" but we see no need for two arrangements and consider that the best "system" is a phylogenetic one.

Apart from the nature of the "System" the uniting of a number of families into several composite groups it seems to us serves no purpose, especially when the larger groups are put in different primary divisions; as the "Scansores" and "Insesores," of Dr. Reichenow's system. The reduction in the number of families is on the same line and we can see no advantage in uniting the *Phytotomidae* and *Cotingidae*; the *Tyrannidae*, *Pipridae* and *Ozyrhynchidae*; or in the grand amalgamation of *Timaliidae*, Wrens, Mockers, Thrushes and Old World Warblers under the family name of *Sylviidae*!

More misleading still is the disposition of some of the genera. The removal of *Vireosylva* from the *Vireonidae* to the *Mniotiltidae* is certainly not due to any obvious external characters. And the appearance in the latter family of the genera *Rhodinocichla*, *Phœnicophilus*, and *Tachyphonus* is hardly less unfortunate, especially in the case of *Rhodinocichla* which Dr. Hubert Lyman Clarke has shown pretty conclusively to be *Tanagrine* in its affinities. (Auk, 1913, p. 11.)

While, as said before, we can see no reason for a system such as Dr. Reichenow advocates, nevertheless if we adopt such a system, it would, it seems to us, have been more consistent to have carried it further and placed the swallows in the same group with the swifts, and to have recognized several other obvious cases of external resemblance.

However, no matter what system is adopted 'Die Vögel' fills a long-felt want in presenting the more important genera and species in a concise manner under each family as well as furnishing in a convenient form a vast amount of valuable information. It will thus take its place among the standard works of reference on the birds of the world — a broad field truly, but one which Dr. Reichenow is eminently fitted to cover.— W. S.

Second Report on the Food of Birds of Scotland.— In 1912 Miss Laura Florence published analyses of the contents of 616 stomachs of Scottish birds. Now a report ¹ has appeared upon the continuation of that work. It includes analyses of 1390 stomachs representing 81 species.

¹ Trans. Highland and Agr. Soc. Scotland. Fifth Series, Vol. XXVI, 1914, pp. 1-74.