are not yet back to their former bad condition.

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SYSTEMATISTS AND GENERAL BIOLOGISTS

MAY I endorse the suggestion by Dr. L. O. Howard?[1] He says that he does not know whether determination of species is important to the experimental embryologist. When, as zoological recorder for Echinoderma, it was my duty to read a large number of papers by those workers, I formed the opinion that it certainly was important, and wrote:[2]

> It is well to urge on those gentlemen the need for an accurate determination of the material with which they work. They are too much inclined to infer the universal from the particular, and to overlook the fact that species and even local races differ from one another in their reproduction and development, just as much as in their habits and perhaps more than in their structure.

This plea was strongly supported by Viguier.[3]

Accurate discrimination of species is no less necessary for the field naturalist. J. H. Fabre, always ready to gird at the museum worker, had to confess that he had confused under the one name *Eumenes pomiformis* three species of mason-wasps, so that it was not possible for him "to ascribe to each of them its respective nest" (I quote from the selection just published under the title "The Wonders of Instinct," London, Fisher Unwin).

Most geologists have by this time learned that, for lack of the precautions advocated by Dr. Howard, many of their fossil lists are not worth the paper they are printed on. Recent advances in stratigraphical geology are almost entirely due to the keener appreciation of minute specific differences.

In a word, every kind of biologist should find in the despised taxonomist a valuable, indeed an indispensable, ally; and in our museums he should recognize a depository where the evidence for his conclusions may be preserved for future generations of workers.

LONDON F. A. BATHER

[2] *Zool. Rec.*, for 1901.

[1] SCIENCE, January 25, p. 93.

[3] 1903. *Ann. Sci. Nat. Zool.*, ser. 8, Vol. 17, p. 71.

SCIENTIFIC BOOKS

Lectures on Heredity. By H. S. JENNINGS, Ph.D., LL.D., Johns Hopkins University; OSCAR RIDDLE, Ph.D., Department of Experimental Evolution, Carnegie Institution; and W. E. CASTLE, Ph.D., Harvard University. Delivered under the auspices of the Washington Academy of Sciences, Washington, D. C. 1917. Pp. 82. Bound in buckram, 50 cents.

This is the second annual series of lectures presented before the Washington Academy of Sciences and reprinted in collected form from the *Journal* of that academy.

The study of genetics has become so highly specialized that workers in the different fields have ceased, except in rare instances, to make a serious effort to coordinate their work with that of others.

Dr. Jennings's classical work on the nature of variations in lower organisms deals with one of these highly specialized branches, and students of other branches should appreciate the service rendered by Dr. Jennings in his painstaking comparison.

"Having satisfied myself as to the nature of the variations that arise in the creatures that I have studied, I have looked about to see what other workers have found; and to determine whether any unified picture of the matter can be made."

After claiming that the idea of genotypes must be admitted as a general condition, the author concludes that this result "is not final, that it does not proceed to the end."

In a uniparental organism, from which all question of the recombination of existing diversities is eliminated, Dr. Jennings finds that "the immense majority of the hereditary variations were minute gradations. Variation is as continuous as can be detected."

The points at issue between the "genotypic mutationists" and the upholders of gradual change are clearly and concisely stated. Setting aside the question whether the evidence held to support the gradual change theory is conclusive or not, he proceeds directly into territory of the mutationists and shows that the "multiple allelomorphs" found in *Droso-*