

**COMPARATIVE STUDIES IN
THE
PSYCHOLOGY OF ANTS
AND OF HIGHER ANIMALS**

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Comparative Studies in the Psychology of Ants and of Higher Animals by Erich Wasmann

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BY

ERIC WASMANN, S. J.

*Plus enim formicularum et apicularum opera
stupemus quam immensa corpora balnearum,
(S. Augustine, De Civit. Dei, l. 22, c. 24, n. 5.)*

Authorized English Version of the second German Edition.
Enlarged and revised by the Author.

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PREFACE TO THE FIRST EDITION.

SOME time ago we published an essay entitled "Instinct and Intelligence in the Animal Kingdom," examining in detail the concepts of *instinct* and *intelligence*, with their application to animals. The discussion showed that *intelligence* is the spiritual power of abstraction, and not the mere faculty of forming complex sense-representations; for the laws of association in sense-perceptions belong to the sphere of instinctive sensitive life and not to spiritual intelligence. Now, what modern animal psychology terms "intelligence of animals," is nothing but inborn instinct, raised to a higher level of perfection by the individual's sensuous experience. This, in its turn, is based on the very same laws of association of sense-representations. Hence, there is no reason for ascribing to animals *intelligence in the strict sense*. Indeed, our reasoning led us to take a further step, and we proved that *animals have no intelligence at all*. If they were gifted with a spiritual power of abstraction, it would necessarily be manifested in their *outward* actions, especially by the formation of an arbitrary phonetic or graphic language. Animals, however, have no language; hence, they have no intelligence.

Besides, we have shown in the same essay that the manifestations of the psychic life, both of higher and of lower animals, are to be judged according to *one and the same critical standard*. The anatomical

Preface to the First Edition.

difference, that exists between the sense organs and the nervous system of Arthropods on the one hand and of Vertebrates on the other, is not a sufficient *a priori* reason for ascribing intelligence to the latter only and denying it to the former. The proof of these assertions forms the groundwork of the present essay. We shall compare more at length the psychic life of the most "intelligent" Arthropods, namely the ants, with that of the higher Vertebrates and of man. From this discussion we shall learn, whether the "missing link," with which modern evolutionists hope to bridge over the chasm between the instinct of animals and the spiritual soul of man, is to be looked for in ants or in the higher Vertebrates, or whether, in fact, it exists at all. Biologists will be pleased to find that the present essay contains many new observations on the habits of ants and their guests.

PREFACE TO THE SECOND EDITION.

THE numerous observations of modern scientists, illustrating the relations between the psychic life of ants and of higher animals, have been extensively utilized in preparing this second edition. We have paid due regard to the observations and experiments, published since 1897, on the differentiation of castes in bee-hives. Besides, we have turned to account the results of a statistical chart now completed, extending over five years and comprising all the colonies of *Formica sanguinea* in the neighborhood of Exaten, Holland. This ant is the most interesting of all European species. Thus we are able to publish many new facts of interest in scientific biology regarding the slave-making habits of this ant, its methods of nest construction, its relationship to its guest *Lomechusa*, and the influence of the latter in the differentiation of castes in ant communities. Finally, two additional illustrations of *Lomechusa strumosa* and of its larva have been added in the text.

TRANSLATOR'S PREFACE.

WASMANN'S "Instinct and Intelligence in the Animal Kingdom," which appeared recently in an English dress (Herder, St. Louis, Mo.), was so favorably received, that it has been thought advisable to follow it up with this translation of another essay by the same author. These two books supplement each other, as may be gathered from the frequent cross references they contain, and, more especially, from the close relationship of the subjects of which they treat.

The best recommendation of Wasmann's biological and psychological essays is given in the following lines of *W. M. Wheeler*, Prof. of the University of Texas:¹ "Wasmann in his numerous writings has undoubtedly done much, at least in Germany, towards the exposure of this pseudo-psychology (of Brehm, Buechner and others) and a more rational conception of ant behavior. His long familiarity with these animals and their guests has given him a singularly lucid insight into their activities. My own more limited observations on our North American species lead me to agree with him so far as the facts are concerned, and many of the inferences which he has drawn from them." As to his additional remark: "I am constrained to say, however, that I cannot adopt

¹) "The Compound and Mixed Nests of American Ants," in "American Naturalist," Vol. XXV, 1901, p. 808.

Translator's Preface.

either his psychological definitions or his psychogenetic reservations,"—we call the critic's attention to the end of the fourth chapter of "Instinct and Intelligence in the Animal Kingdom," where Prof. Wheeler's objections have been answered.

In order to make the English translation more valuable for North America, the author has kindly added a series of notes and observations on the ant fauna of the United States. He has added, moreover, the figures representing the North American form of *Formica sanguinea* and that of its guest *Xenodusa cava*. The present work, therefore, is more than a translation; it may be called a new edition, revised and enlarged by Father Wasmann.

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