

Communal Life Among Termites

The Soul of the White Ant

By Eugène N. Marais. With a Biographical Note by his Son and translated by Winifred de Kok. Pp. xv + 184 + 8 plates. (London: Methuen and Co., Ltd., 1937.) 7s. 6d. net.

THIS book is of considerable interest; it contains a number of original observations and there are some good plates and text figures. The original was written in Afrikaans and the translation is by Winifred de Kok.

The translator, in her preface, writes: "His years of unceasing work on the veld led Eugène Marais to formulate his theory that the individual nest of the termites is similar in every respect to the organism of an animal, workers and soldiers resembling red and white blood corpuscles, the fungus gardens the digestive organs, the queen functioning as the brain, and the sexual flight being in every respect analogous to the escape of spermatozoa and ova.

"About six years after these articles appeared (his original papers) Maurice Maeterlinck published his book "The Life of the White Ant", in which he describes this organic unity of the termitary and compares it with the human body. This theory aroused great interest at the time and was generally accepted as an original one formulated by Maeterlinck."

Marais further classes the workers as the mouth and teeth and the soldiers as the functional equivalent of the medulla oblongata; the fungus gardens as the stomach and liver, and the termitary itself as not a heap of dead earth, but as a separate animal at a certain stage of development—a composite animal in exactly the same way that man is a separate composite animal, only without the power of locomotion. By the operation of natural selection the final result will be a termitary which moves slowly over the veld! We fear we have not sufficient imagination to conjure up such a miracle. Such a theory would naturally appeal to the poetical mind of Maeterlinck; but he should at least have given Marais the credit for it.

It appears to us that the author in his endeavour to prove his theory over-reached himself, and probably thereby lost sight of a number of equally interesting facts and problems. We have seen it stated that if his facts are beyond question his theory is quite unanswerable. We do not agree with this statement; but at the same time we propose to show that in many instances what he says is incorrect.

The theory itself is only a poetical invention and gets one nowhere. One might equally well compare the termitary to the heavenly bodies, the queen being the sun, etc., and use similar arguments to try to prove it. The statement that the king and queen are ordinary four-winged *neuropterous* insects is contrary to what is known on the subject. Termites are now considered to be descended from a common ancestor to that of cockroaches, and possess some characters similar to those insects.

The queen is said by Marais to have the power of producing three different forms of insects: the queen, the worker, the soldier. As a matter of fact she can produce, as shown by Wheeler, sixteen different kinds of individuals, as follows: first-form males and females (true kings and queens); second-form males and females; third-form males and females; large male and female workers; small male and female workers; large male and female soldiers; medium-sized male and female soldiers; small male and female soldiers.

It is probable that not all these occur at once in one colony, but five or six are often to be met with in a single colony.

It is stated that all direct activity ceases in the termitary immediately the queen is destroyed, and there is an end to the community as such.

This may be the case in a small new termitary, but certainly not in a large old one. The second- and third-form adults are complementary or substitutional kings and queens, and can be used if, or when, the true queen (or king) dies. The second form have wing pads or incipient wings and perfectly formed reproductive organs, though smaller than in the first form, and the third form are entirely wingless, but possess mature reproductive organs which are smaller than in the second form.

The author says of the true kings and queens that one moment the insect is flying, a moment later the wings are detached, yet one finds no evidence of a lesion. Wheeler points out that the wings of the first-form adults break off at pre-formed basal sutures, and old individuals of this caste can always be recognized by the truncated wing-stubs. Marais also mentions wing-buds being sometimes present, but attributes this to atavism.

Many other instances might be brought forward, but the space at our disposal will not permit. It must be remembered that the habits of different species of termites (as with ants) differ, and the author was only observing one species.

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