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## ON THE IDENTITY OF ADLERZIA FOREL

(Hymenoptera: Formicidae)

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It would be difficult to find a subfamily of insects in which generic placement of a given specimen is as difficult as in the Myrmicinae. The standard keys of Emery and Wheeler, both published in 1922, are virtually useless in determining many genera even when in the hands of a myrmecologist with long experience. This unhappy situation reflects the chaotic state of myrmicine classification even as it stood in 1922. In that year, so many genera were wrongly defined, synonymous with others, or hopelessly heterogeneous in composition that one is astonished that the aforementioned authors had the courage to attempt keys to the world genera without first radically altering the classification. Of course, it must be said that such alteration might well consume a lifetime without particularly satisfactory results achieved in the end, and evidently the opinion then was that any key, however imperfect, was better than none. After a quarter century of description from various quarters, one may well doubt the wisdom of this opinion.

Authors since 1922 have been all too content to accept the keys, which are similar and therefore seem to support each other, as practically the only basis for generic identification. In this way, a great crop of generic synonyms has arisen during the last 25 years or so, and, what is worse, very many species have been steered through the dichotomies, missed a turn, and ended as new species in the wrong genus. The phylogeny and limits of the genera have now become so obscure that the most accomplished myrmecographer finds many generic assignments impossible or very highly uncertain.

In the earlier days, up to about 1900, it was possible for a specialist to have a fair idea of the species of the entire family and their proper generic assignments. However, the earlier workers have sown the seeds of the chaos now prevailing, for, knowing the species and genera by habitus more than by the characters they themselves had used in definition, they too often added species

without reference to the crucial characters used to delimit the genera. Most of the work was hasty in the extreme, with species thrown chock-a-block into the handiest receptacle or else arbitrarily made the type of a new genus or subgenus.

The subgenus particularly has been a refuge for the uncertain specialist confronted with inadequate material, and the myrmecological world is only now awakening to the fact that most of the subgenera are really either indefensible as such or else are good genera. In the latter category belong many familiar names among ants, formerly placed as subgenera in large genera like *Atta*, *Dorylus*, *Eciton*, *Dolichoderus*, *Polyrhachis*, *Lasius*, *Strumigenys*, *Solenopsis*, *Monomorium* and many others. The subgenus will continue to have its function for a long while yet, but the time has come to embrace and expand the critical study of subgenera begun by Borgmeier, Creighton, and others.

As a small contribution to the tremendous job which lies before us, of unscrambling the genera of the Myrmicinae, and as a miniature illustration of the self-propagating confusion of ant taxonomy as it is today, I should like to bring to the reader's attention the case of the ant going under the name *Monomorium (Adlerzia) froggatti* Forel.

Forel proposed the new subgenus *Adlerzia* and assigned it to *Monomorium* on the basis of a single small worker ant (*froggatti*) described as new at the same time in Rev. Suisse Zool., X, pp. 445-447 (1902). There it has remained buried without again being reported from its homeland in southeastern Australia.

In 1950, while passing through Sydney on my way north to Queensland, I spent a day collecting in the woods along the golf links at Pymble, an outer suburb of Sydney I had heard of through Father McAreavey of Melbourne. Among other ants taken was one series, found in a nest of *Camponotus consobrinus* (Erichson) under a large stone, of small tawny ants with highly dimorphic workers. These ants seen in the field fitted my rather sketchy idea of *Machomyrma* Forel as remembered from the literature and specimens in the Wheeler Collection casually examined in past years. I then put the specimens in alcohol and forgot them.

Upon my return home, I mounted these and several hundred other specimens obtained during my trip, and during the process of mounting, one of the minor workers of my "*Machomyrma*" somehow got placed on a point by itself, without an accompanying

soldier. When the remainder of the specimens had been mounted, workers and soldiers to each pin, I began the rough sorting of my collections to genera. As is usual with dimorphic myrmicines, I sorted the species falling into this category by examining the large-headed soldiers, and did not pay much attention to minor workers. Soon, however, I was confronted by my accidentally-segregated minor worker. The ant was not at all familiar to me. Reaching for Wheeler's key to the genera (*loc. cit.*), I then spent an hour or so running out to blind ends in the dichotomies and finally came uneasily to rest with my specimen in *Monomorium* subgenus *Adlerzia*.

Reference to the Genera Insectorum (Emery, *op. cit.*, p. 182) convinced me that I was in the correct genus, and I labelled the specimen accordingly. Later on the same date, I chanced to be verifying my determination of the "*Machomyrma*" soldiers with accompanying workers, and happened to look more closely at the latter. To my astonishment, I found them identical with the specimen just placed in *Adlerzia*, and this was confirmed by careful comparison. Investigation proved that all had come from the same nest series, and there could be no doubt that the workers and soldiers were different castes of the same species.

My first thought was that *Adlerzia* might have to be synonymized under *Machomyrma* Forel, for the soldiers keyed to this genus in both Wheeler's and Emery's tables. However, I checked with Dr. Charles Ferrière, of the Museum d'Histoire Naturelle, Geneva, who kindly sent camera lucida sketches and a brief characterization of the unique type of *M. (Adlerzia) froggatti*; these proved beyond a reasonable doubt that my identification of the worker had been correct.

Upon my request, Dr. Ferrière and Dr. M. R. Smith both graciously sent information concerning the two known species of *Machomyrma* Forel, as the original descriptions are not presently available to me. Although a definite conclusion is not safely reached until the types of the genotype, *Machomyrma dispar* Forel, and the additional species, *M. silvestrii* Emery, are directly studied, the indications are that the two *Machomyrma* species are not congeneric. The *M. silvestrii* characterization and figures seem to place this ant solidly in *Adlerzia* with *A. froggatti*, and it is quite possible that the two are synonymous.

One fact is clear: *Adlerzia* has no connection with *Monomo-*

rium. Rather, it seems to go into the tribe Pheidolini, and I here place it provisionally as a distinct genus. The new arrangement may be schematized as follows:

#### MACHOMYRMA Forel

Genotype: *Liomyrmex* (*Muchomyrma*) *dispar* Forel, 1895, Monobasic.

#### ADLERZIA Forel (NEW STATUS; TRIBAL TRANSFER)

Genotype: *Monomorium* (*Adlerzia*) *froggatti* Forel, 1902, Monobasic.

Additional species: *Adlerzia silvestrii* (Emery), 1914.

For full references and generic characteristics, see Emery, 1922, *Genera Insectorum*, Fascicule 174, pp. 76-77 (*Machomyrma*) and pp. 168, 182 (*Adlerzia*).

I have dwelt at some length on this small taxonomic puzzle because it points up so starkly the deficiencies in the keys and in the basic classification of the ants. It is far from being an isolated example; many tangles of much greater scope and difficulty exist, becoming ever aggravated by the addition of new species year by year.

In our present-day studies of the group, there is far too much isolated description of one or a few species or subspecies scattered through many genera of ants, and far too little work of a broad revisionary nature. Creighton, Borgmeier and a few others have shown the way out of the tangle, but the majority of myrmecologists have been slow to follow. Our first and most urgent task is the reduction of the synonymy at the species- and subspecies-levels, for this synonymy has virtually stifled intelligent revision of the larger and more difficult groups under the sheer weight of numbers of presently-unchallenged and insufficiently identified names. Probably as much as 25 to 50 per cent of the names in some genera are unrecognized synonyms; this percentage, when applied to a genus like *Camponotus*, with more than 1,000 current names, is enough to discourage any reviser from taking a world approach. I find it a good rule to establish at least one clearcut synonymy for each new name I propose. Unfortunately, the establishment of one certain synonym almost invariably occupies far more time than did the original description of the synonym. New synonymy should be clearly labelled as such and provided with the original references, so that cataloguers can easily detect and disseminate it as they would newly-described species. A system which makes new synonymy bear a greater burden of proof and investigative effort than

does description of novelties is bound to perish under the weight of its own accretion. It is small comfort to this myrmecologist to realize that 1950 (with the publication of Creighton's "Ants of North America") is probably the first year in a century that the number of unrecognized synonyms did not gain on that of good species and subspecies.

## REFERENCES

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## NOTES ON NESTING AND HIBERNATION OF POLISTES

(Hymenoptera: Vespidae)

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Students have known for some time that occasionally two females (queens) of *Polistes* will found a nest together. Those recorded were noted to be of the same species. However, on one occasion I have taken a female each of *Polistes fuscatus aurifer* Saussure<sup>1</sup> and *P. apachus* Saussure contributing toward a future colony together. As they were watched for some time there is very little chance of an error. In a letter of January 30, 1951, J. C. Bequaert comments that, "Whether queens of different species would be successful in this is not known." Unfortunately, I collected the wasps and nest at once. At the time, there were thirteen cells with larvae and eggs.

In hibernation, the social Vespidae are rather gregarious. At various times I have taken *P. f. aurifer*, *P. apachus*, *P. hunteri californicus* Bohart, *Vespula pennsylvanica* Saussure, and *Mischocyttarus flavitarsis* Saussure hibernating together. In fact, I have taken three of *aurifer*, seven of *P. h. californicus*, two of *M. flavitarsis* and a few inches away, several of *V. pennsylvanica*.

<sup>1</sup>The wasps were identified by Dr. R. M. Bohart. I am indebted to him and to Dr. J. C. Bequaert for help.