

and *polynikes* on New Guinea and the *majuscula* subgroup (*majuscula*, *lindrothi*, *zimmermani*) on Fiji. These last three elements are assumed to have evolved to their present state at least in part through interaction with the third and final invasion wave, which has given rise to the modern *inconspicua* subgroup (*inconspicua*, *sculpturata*, *vitiensis*). In addition, there exists evidence, from the pattern of geographic variation in *inconspicua*, that displacement has occurred between *inconspicua* and the *flavaclavata* subgroup. This will be treated in more detail in a later part of the paper. If we may deduce this much from the general pattern exhibited by other Ponerinae, each invading population has reached its maximum range in Melanesia during the early period of its residency there. The first two waves have since "broken", i. e., the populations have been fragmented and displaced at least in part through the agency of interaction of populations invading in later times.

ORIGIN OF OTHER CERAPACHYINE SPECIES IN MELANESIA

The *opaca* group of *Cerapachys* appears to be peculiar to New Guinea. It probably originated ultimately from an Oriental source fauna, since no member of the subgenus *Cerapachys* is known from Australia. A different consideration holds for the members of the *papuanus* group, comprising the subgenus *Syscia*. The western Melanesian species are closely related to *australis* of eastern Australia, although there is no way of determining which is the source and which the derivative species. *C. crypta* and *C. fuscior* are giant versions of *australis-papuanus* that are precinctive to Fiji.

Sphinctomyrmex papuanus is evidently close to *steinheili* of eastern Australia and *caledonicus* of New Caledonia. Since *steinheili* is a wide spread, abundant species of a genus well developed in Australia, it seems reasonable to guess that *papuanus* and *caledonicus* were derived from it by independent invasions of New Guinea and New Caledonia. The same consideration holds with respect to *Phyracaces marginata* of New Guinea and *P. cohici* and *P. dumbletoni* of New Caledonia. These three species are allied to the *adamus* group of Queensland. The relationships of *P. krombeini* of New Guinea have not been determined, but judging from the description alone it appears likely to be closest to one of the many large, bicolorous species of Australia.

SYSTEMATICS

The types of the new species described herein are deposited at the Museum of Comparative Zoology (MCZ), U. S. National Museum, Washington, D. C. (USNM), California Academy of Sciences, San Francisco (CAS) and B. P. Bishop Museum, Honolulu (BISHOP).

Genus *Cerapachys* Fr. Smith

KEY TO SPECIES OF CERAPACHYS OF WESTERN MELANESIA

Worker Caste

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| 1. Antenna 9-segmented (subg. <i>Syscia</i>)..... | 2 |
| Antenna 12-segmented (subg. <i>Cerapachys</i>)..... | 4 |