

such. The 'visa factor' effect we have hypothesized needs to be accounted for in all claims that colony-brood recognition in ants has been demonstrated.

This is of interest because of the previously noted similarity between *Nothomyrmecia* colonies in the composition of their epicuticular waxes, which could furnish the appropriate chemical visa cues (Brown et al., 1990). Despite the rarity of *Nothomyrmecia*, this matter, like so many others, would be worthy of further research.

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### References

- Andersson, M., 1984. The evolution of eusociality. *Ann. Rev. Ecol. Syst.* 15:165–189.  
Bartell, R., 1985. The Dinosaur ant. *Bogong, March–April 1985* 10–12.  
Bertin, J., 1977. *La graphique et le traitement graphique de l'information*. Flammarion, Paris.  
Billen, J. P. J., 1988. Comparaison entre les fourmis Australiennes des genres *Myrmecia* et *Nothomyrmecia*. *Actes Coll. Ins. Soc.* 4:27–33.  
Billen, J. P. J., 1990. The sting bulb gland in *Myrmecia* and *Nothomyrmecia* (Hymenoptera: Formicidae): a new exocrine gland in ants. *Int. J. Insect Morphol. & Embryol.* 19:133–139.  
Billen, J. P. J., B. D. Jackson and E. D. Morgan, 1988. Secretion of the Dufour gland of the ant *Nothomyrmecia macrops* (Hymenoptera: Formicidae). *Experientia* 44:715–719.  
Bolton, B., 1990. Army ants reassessed: the phylogeny of the doryline section (Hymenoptera, Formicidae). *J. Nat. Hist.* 24:1339–1364.  
Brown, W. L., 1954. Remarks on the internal phylogeny and subfamily classification of the family Formicidae. *Ins. Soc.*, 1:21–31.  
Brown, W. V., P. Jaisson, R. W. Taylor and M. J. Lacey, 1990. Novel internally branched, internal alkenes as major components of the cuticular hydrocarbons of the primitive Australian ant *Nothomyrmecia macrops* Clark (Hymenoptera: Formicidae). *J. Chem. Ecol.* 16:2623–2635.  
Corbara, B., D. Fresneau and J.-P. Lachaud, 1986. An automated technique for behavioural investigations of social insects. *Behav. Process.* 13:237–249.  
Corbara, B., J.-P. Lachaud and D. Fresneau, 1989. Individual variability, social structure and division of labour in the ponerine ant *Ectatomma ruidum* Roger (Hymenoptera: Formicidae). *Ethology* 82:89–100.  
Crosland, M. W. J., R. H. Crozier and E. Jefferson, 1988. Aspects of the biology of the primitive ant genus *Myrmecia* F. (Hymenoptera: Formicidae). *J. Aust. ent. Soc.* 27:305–309.  
Dantas de Araujo, C., D. Fresneau and J. P. Lachaud, 1988. Premiers résultats sur l'éthologie d'une fourmi sans reine: *Dinoponera quadriceps*. *Actes Coll. Ins. Soc.* 4:149–155.  
Freeland, J., 1958. Biological and social patterns in the Australian bulldog ants of the genus *Myrmecia*. *Aust. J. Zool.* 6:1–18.  
Fresneau, D., 1984. Développement ovarien et statut social chez une fourmi primitive: *Neoponera obscuricornis* (Hym., Formicidae, Ponerinae). *Ins. Soc.* 31:387–402.  
Fresneau, D. and A. Charpin, 1977. Une solution photographique au problème du marquage individuel des petits insectes. *Ann. Soc. Entomol. Fr. (N.S.)* 13:1–5.  
Fresneau, D. and P. Dupuy, 1988. A study of polyethism in a ponerine ant: *Neoponera apicalis* (Hymenoptera: Formicidae). *Anim. Behav.* 36:1389–1399.  
Haskins, C. P. and R. M. Whelden, 1954. Note on the exchange of ingluvial food in the genus *Myrmecia*. *Ins. Soc.* 1:33–37.