

TECHNICAL SECTION

Social Insect Buffs Swarm in Paris and decide to go to Adelaide

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Unlike their solitary counterparts, social animals live in groups that have varying degrees of cohesion, division of labour, communication, cooperation and conflict. Not surprisingly, individual members of social species have an instinctive urge to belong to and stay with their groups. Although man is a striking example of a social animal, many insect societies surpass human societies in their levels of cohesion, cooperation and altruism and have therefore been quite rightly designated as highly social or eusocial, a pinnacle of social evolution that man is clearly excluded from. Nevertheless human societies exhibit levels of sophistication in their modes of communication and in their cognitive abilities that far surpass any animal society. An interesting consequence of this is that humans not only have that urge to belong to a group but can simultaneously be loyal to a number of different kinds of groups. So great is our need for being members of a fraternity that we have no difficulty in relating simultaneously and intimately to our family, our department, our University, our cricket team, our parent teachers association, our house building cooperative society and so on, even though the members of the different fraternities and their interests and aspirations vary from group to group and sometimes are at conflict with each other.

Scientists, like all other human beings have their fraternity instincts and we have created a plethora of scientific societies to meet this urge. The International Union for the Study of Social Insects is one such society which is over 50 years old and has over 1000 members. Its members meet once every 4 years and the 12th meeting occurred in the enchanting city of Paris from 21 to 27 August 1994 under the Presidentship of Pierre Jaisson. About 600 members attended this meeting which was held in the remarkable University buildings in Sorbonne, in the old centre of Paris. The four days of scientific deliberations were broken in the middle by a visit to the palace in Versailles. Each day began with a plenary talk and was followed by invited symposia talks (a total of 147) and contributed oral presentations (a total of 97). There were also simultaneous poster presentations (a total of

187) open throughout the meeting, four films and ample opportunities for informal meetings and discussions.

The four plenary talks covered diverse topics: Regulation of division of labour in honey bees: integrated hormonal, genetic, and neural analysis of social behaviour by Gene Robinson, Social insects as central place foragers: egocentric or geocentric systems of reference? by R. Wehner, The evolution of eusociality by R. Gadagkar and Life history evolution: the role of the phenotype in evolutionary theory by S.C. Stearns. The 22 symposia covered an even more impressively diverse array of topics: Behavioural ecology of stingless bees, Biodiversity, Molecular biology, Origin of sociality: cockroaches and termites, Primitive ants, Behavioural ecology, Biology of Halictine bees, Cognition in social insects?, Defence substances, Pest ants, Sociality in arthropods other than Isoptera and Hymenoptera, Aspects of colony and individual recognition, Foraging, Intracolony conflicts - ultimate factors, Plant-social insects relationships, Social evolution in insects, Symbiosis and Parasitism, Communication in honey bees, Exocrine glands and social organization, Insect societies: adaptive design and auto-organization, Intracolony conflicts - proximate factors, and Termites in urban areas. In addition to the themes of the symposia, other themes addressed by the contributed oral presentations included Social regulation and homeostasis, Pheromones, Foraging, Life cycles, Biogeography and ecology, Diseases and human benefits and Phylogeny. The poster presentations addressed a similarly diverse set of topics. The proceedings of the congress edited by Alain Lenoir, Gerard Arnold and Michel Lepage and containing extended abstracts of all presentations including posters and films was made available at the time of registration. This greatly facilitated selection of talks to go to in a congress with six parallel sessions.

As these meetings are held once in every four years, comparison of the presentations in consecutive meetings should help in assessing the growth of the study of social insects. The scientific content of the Paris meetings had at least four features that made them stand out in

comparison with the previous meetings in Bangalore. First, the integration of ethology, genetics, neurobiology and endocrinology, especially in studies of the honey bee was shown to have finally become a reality. I must confess to the feeling however that new questions are being raised more rapidly than they are being answered but that is never a bad thing in science. Second, there was clear evidence of increasing use of molecular, especially DNA data in dealing with questions related to phylogeny, biogeography, and social interactions. However, the use of DNA-based techniques are only beginning to show what could be done in the future; what has already been accomplished is instructive and promising but not quite enlightening yet. Third, there was a significant increase in the use of phylogenetic, especially cladistic techniques in the study of behaviour and evolution. The recognition of phylogenetic constraints in virtually every aspect of the biology of social insects would be a welcome change in philosophy but the level of analysis in most cases is still so crude that we have some way to go before cladistics will

become a house-hold technique for social insect researchers. Finally we witnessed a slow but sure move towards accepting the role of complex cognitive abilities of social insects in shaping their life and evolution but we have a very long way to go even to decide how we are going to incorporate the role of cognition and other kinds of seemingly complex behaviours within our normal framework of study.

I would not say therefore that there have been any spectacular advances in the study of social insects since the last meeting in Bangalore. The period between the Bangalore and the Paris meetings was largely a period of consolidation and of initiatives in new directions with great promise for the immediate future (4 years?). In case you have not guessed it already, yes, I am lobbying for even greater attendance during the next meeting to be organized by our new President, Ross Crozier, in Adelaide in 1998!