



## Sixth International Coral Reef Symposium

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This meeting, held in Townsville, Australia, on 8-12 August 1988, was scheduled to follow the Fossil Cnidaria meeting at Brisbane, and to coincide with the 200th Anniversary of the settlement of Australia (perhaps the last time the coincidence of these two research groups will be possible?). As expected, living corals and coral reefs attract a far greater audience and group of experts than those restricted to the fossil record. There were about 800 participants, a meeting so large that it is beginning to create logistical problems for organizers. The last meeting of this group in Australia in 1973 was on the MS Marco Polo, which cruised up and down the Barrier Reef. This would have been nice, but clearly impossible in this decade. Even the 1985 Tahiti meeting was already an organizer's headache!

Modern reef research is multifold and diffuse: it attracts primarily the biologist, geneticist, biochemist, but also the paleontologist-sedimentologist, the geographer, the remote sensor, the parks management and human impact "engineers", the politician, oceanographer, climatologist and even the physicist (hydrodynamics). Many sessions ran concurrently and it is not always easy to pick out those which may interest you specifically as sometimes the titles of talks are deceptive. The significance of "Environmental Change in Time and Space" (sic) to a biologist may mean a few square metres of sea bottom over two years, but to a paleontologist may mean the whole planet through the entire Tertiary!

If anything, attendance at a meeting like this forces one to have eclectic tastes in order to sample the widest range of interesting reef delicacies. It also gives one a long-term perspective over the change in ideas and important themes over the last two decades of reef research. What makes a reef grow? This fundamental question is still hotly debated, and the answers drift from meeting to meeting, as one "hot issue" fades away into another. Bradbury pointed out, in a philo-

sophical paper, that there have been major shifts in our ideas on the important limiting factors in reef growth. Twenty years ago it was predation (the India meeting), then chance factors (on the Marco Polo), then competition-interaction (Miami), then disturbance (Tahiti), and, at the Townsville meeting, probably "forcing" (hydrodynamic controls). What will happen four years from now to change our ideas? It is a sobering thought. Reef history probably cannot be fully understood while research is so fragmented into smaller issues (and will become increasingly fragmented?).

The importance of reef studies is very marked in Australia, which has the largest extant reef province of our planet. This was stressed by the opening address of one of the Australian cabinet ministers who flew to the meeting specifically to demonstrate the value of the Barrier Reef to Australian politics. I can think of very few international scientific meetings which are addressed by Canadian cabinet ministers!

Head-line subjects for geologists? These are difficult to select. Sessions on inter-regional comparisons of living reef provinces can give us a clue to fossil provinciality. The role of metabolism, recruitment and reproduction is important to biologists, but at best speculative for geologists. The issue of what corals eat still is not clear: are they carnivores, omnivores, suspension feeders, zooxanthellae consumers, or all of the above opportunists? A mini-symposium on *Halimeda* bioherms was of solid interest because such bioherms may be widespread as mud-mound facies in the geologic record. These occur in relatively deep waters today. The role of herbivory and detritivory on reefs may be significant, but the main participants (fish, soft algae) leave almost no fossil record. However, the discovery of fluorescent bands in coral skeletons may be important as keys to freshwater and land-derived organic matter.

Most geologists attended the sessions on Pleistocene-Holocene changes. This involved sea level change, controls of pre-existing karst on reef growth following climatic warming, and analysis of global short- and longer term climatic change and its effect on reef growth and a range of other topics. A consensus on what is happening today is not easy to find, except perhaps that reefs should be monitored over periods of decades rather than the duration of research grants or theses (3-5 years)! The problem of reefs and plate tectonics was discussed at a Tertiary session. One interesting discovery by Japanese workers (using a submersible) was that of Cretaceous rudist reefs at several thousand metres depth in a sinking Pacific trench belt. Reefs preferentially develop in certain tectonic regimes which maximize the capacity for coral growth (e.g., passive margins, island arcs in the tropics). Many of the Tertiary reefs occur in offshore

belts and are known to petroleum geologists, but not well documented in available literature. The diagenesis of reefs did not receive as much attention as in the past. Perhaps these factors are now well established.

In summary, if you are interested in all aspects of reef studies, buy the Symposium volumes when they are published in 1989. These will give you a smorgasbord for thought.

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