

## Third Seaweed Biogeography Workshop

### PREFACE

Evolutionary and ecological aspects of seaweed distribution were the broad subjects of the Third Seaweed Biogeography Workshop. This workshop was held in March 1986 on the island of Helgoland (FRG) by the International Working Group on Seaweed Biogeography; the financial support by the Biologische Anstalt Helgoland is gratefully acknowledged. Previous workshops were held at Hamburg (1982) and Groningen (1984; published in *Helgoländer Meeresunters.* 38, 225–417).

Twelve of the papers presented at the workshop are published here, some in a modified or extended form. A profitable interchange of ideas was also gained from the following seven additional contributions to the workshop: J. Thiede (Kiel) on the paleogeography of Mesozoic and Cenozoic northern hemisphere oceans and epicontinental seas; K. Bandel (Hamburg) on dispersal mechanisms in benthic marine gastropods; D. G. Müller (Constance) on implications of crossing experiments in the distribution of *Ectocarpus siliculosus*; P. V. M. Bot (Groningen) on the biogeography of marine *Cladophora* species; A. Peters (Constance) on environmental control of the life history in *Stilophora rhizoides* and *Sphaerotrichia divaricata*, W. Prud'Homme van Reine (Leiden) on seaweed biogeography of the Macaronesian Islands (Azores, Madeira, Canary Islands, Cape Verde Islands) and A. M. T. Joosten & C. van den Hoek (Groningen) on ordination and classification techniques in world-wide distributions of red algal genera.

Basically, it is seaweed distribution and its possible causes that serve to unify the papers in the workshop. The initial impact of vicariance biogeography and phylogenetic systematics is evident from the papers presented by Garbary and by Lindstrom, whereas van den Hoek points out the importance of long-distance dispersal, as evident from seaweed floras of mid-oceanic islands. South's overview of the possible history of the North Atlantic seaweed flora profits from a checklist recently accomplished by South & Tittley.

Ecological biogeography is represented first by three papers reporting on the basic question of ecotypic differentiation (Guiry et al.; Lüning et al.; tom Dieck), and these papers are in part a fruit of the cooperation experienced at the former workshop at Groningen. Further contributions to ecological biogeography are the papers by Yarish et al. and Cambridge et al., both exhibiting the importance of temperature for distribution. The paper by Kain gives insight into photoperiodic and temperature control in a larger red alga, beyond a size that lends itself to cultivation in petri and crystallizing dishes. The modifying action of salinity on temperature behaviour in *Fucus vesiculosus* is stressed by Russell.

Just as the series of papers was opened by examples showing the introduction of new taxonomic and phylogenetic concepts to seaweed biogeography, so were the papers treating the experimental ecological aspects finally complemented by another, probably revolutionary, approach: the paper by Olsen et al. The latter may open the curtain onto a new stage scenery by introducing molecular genetics to seaweed biogeography. This paper is the fruit of a tenacious and long-term battle to adapt methods developed for other organismic groups to seaweeds.

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