32 The Lower Cretaceous Calcareous Algae in the Area Surrounding Geneva (Switzerland): Biostratigraphy and Depositional Environments

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32.1 Introduction

This work is based on samples collected by the following authors: Mouty (1966), Steinhauser (1970), Steinhauser and Charollais (1971), Jaquet (1973a, b) and Conrad (1969). In addition, samples belonging to the Swiss National Foundation were studied. All together, more than 3000 slides were investigated.

32.2 External Infralittoral Environment

This is characterized by the simultaneous occurrence of photophil algae and large bryozoans (Conrad, 1969). The following subenvironments are distinguished and summarized in Fig. 2:

32.2.1 Shallow Water Outer Platform

Well-sorted and rounded grainstones containing commonly mixed-up and transported algal-bryozoans assemblages (Alleves, Fontanil, Guiers and Lower Urgonian formations). Variant: corals-sponges-encrusting algae-bryozoans biostromes and/or small bioherms.

32.2.2 Former Sea-Grasses on Soft Substrates

Wackestones and boundstones with encrusting algae and encrusting bryozoans assemblages. Lithocodium and Bacinella are prominent. This association is completed by large dasyclads species bearing tight whors of numerous branches: Griphoporella aff. piae and Pseudocymoporia pluricellata within the Berriasian-Valanginian interval, Acroporella? parva, n. sp., in the Lower Barremian. Let us not forget that similar forms were described together with Lithocodium aggregatum: Pseudocymoporia aff. anadyomenea (see Praturlon, 1964, p. 172) and Pseudocymoporia orientalis (see Elliott, 1970, p. 325). The rareness of other types of dasyclads, in our material, suggests the possible existence of an environment encouraging the development of forms belonging to different genera and species, but having common morphological features. This subenvironment is common in the upper and lower parts of infralittoral formations surrounded by deeper water, circalittoral facies (Upper Chambotte, Allèves and Lower Urgonian formations).
32.2.3 Sea-Grasses on Banks

Strong skeletal production (?), abundant, diversified and heavily calcified dasyclads + large encrusting and/or ramose bryozoans. Pro parte coated grainstones. Lower Urgonian 1st. mb., with *Salpingoporella genevensis* (indicator organism?).

32.3 Middle Infralittoral Environments

Rather protected marine environment, lacking some suspension-feeders such as large bryozoans and sponges. Several subenvironments, probably depending on substrates. *Thaumatoporella* is a general indicator alga. Strong development of *Bacinella* within rudistid biostromes. Dasyclads are seldom abundant. Middle infralittoral environments are common in the “Purbeckian”, Pierre-Châtel, Allèves, Chambotte, and Urgonian formations.