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THE MONTE CIGNO PLATTENKALK (S-ITALY). BIOSTRATIGRAPHY AND PALEOENVIRONMENT: A FIRST ACCOUNT.

The "ichthyolitic limestones" of Mount Cigno (I. G.M. sheet 1:25000:173 IV NO - Cerreto Sannita) are more than once mentioned in D' Argenio's important work (1963) that minutely
describes the well-known and geographically close, "ichthyolitic limestones" of Pietraroja (Benevento province). Aforesaid the Author considers coeval both the formations and ascribes them to the probable Aptian, together with some other similar Cretaceous formations of the Campania (eg.: ichthyolitic limestones of Castellammare di Stabia, near Neaples).
The researches carried out in the last years about these particular facies (plattenkalks and platy dolomites) in Southern Appennines, have permitted to update some of these horizons that, in any cases, are particularly rich in plants and vertebrates fossil remains in a very good state of preservation.
While the above mentioned plattenkalk of Pietraroja has been attributed to the lower Albian (Bravi,1996; Bravi & Garassino,1998a) and the plattenkalk of Castellammare di Stabia has been ascribed to the late Hauterivian-lower Barremian (Bravi & De Castro, 1995), the first biostratigraphic observations on the plattenkalk of Mount Cigno, here exposed, have shown that it is lower Aptian in age. For this aim, the higher portion of the plattenkalk, just below the passage to a different facies that is constituted by thick limestone strata (mudstones and wackestones), has been sampled in a qualitative way. The plattenkalk is formed by layers 0,5-5 cm thick, intercalated to more finely laminated horizons with greenish clayey interlayer spreadings.
The macrofossils are not very common and generally are present on the surface of the strata. They are constituted by fish coprolites, scales and ganoid fish bones, but seldom by strongly disarticulated carcasses.
The observations in thin section have shown that the strata of the plattenkalk are constituted by mudstones, wackestones and, occasionally, by packstones and grainstones with microfauna and microflora. By a sedimentological point of view, they appear finely graded, with the coarse granules at the base, passing upward into mudstones (Fig. 1). Their deposition was by decantation. These sedimentary structures, closely similar to those have been observed in a number of plattenkalks and platy dolomites in carbonatic platform environments of the Southern Apennine (Bravi, 1996; Bravi & Garassino, 1998a, b) are indicative of instantaneous sedimentary events, as microturbidites, which coming from limitrophe environments, entered the sedimentary basin of the plattenkalk. They

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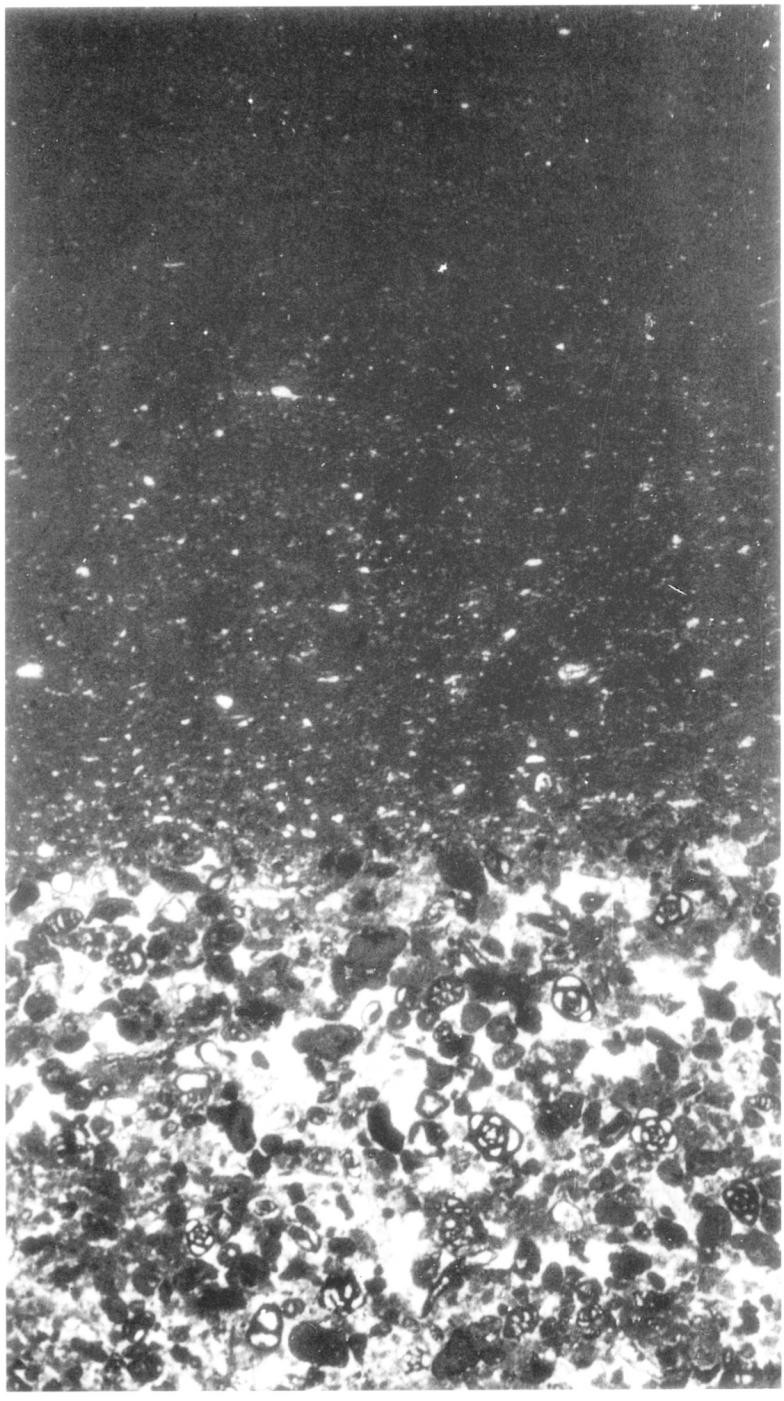

Fig. 1. The trypical, finely graded structure of the thin strata in the Monte Cigno plattenkalk.

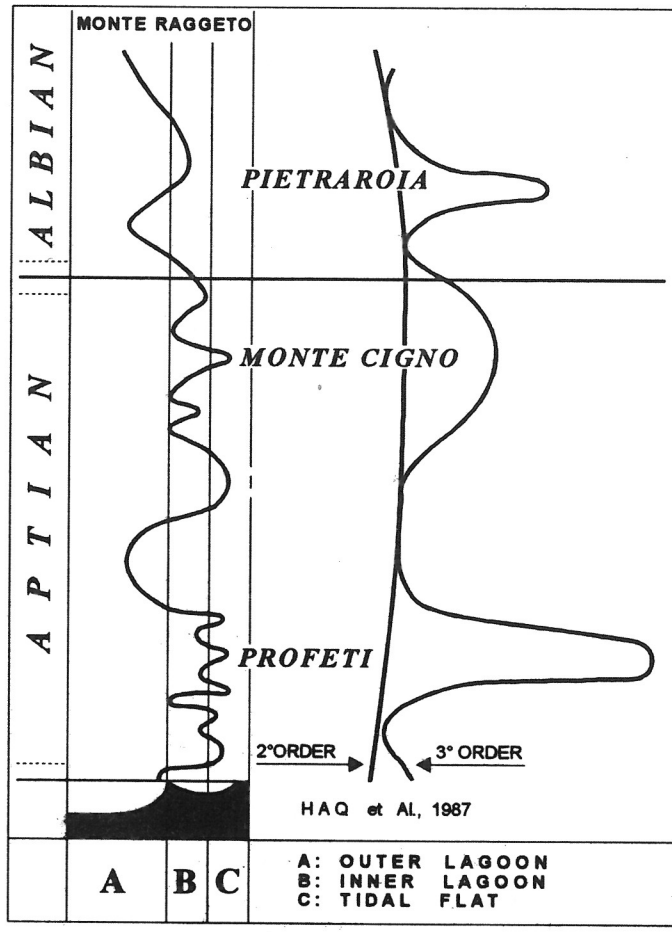

Fig. 2. The position of the Monte Cigno plattenkalk in the III° order eustatic curve.

were essentially due to tide mechanisms.

Among the microfossils which are present in the mudstone levels of the plattenkalk, the sponge spicules are often abundant and, subordinately, the ostracods with thin valves. In spite of that we generally find in similar Mesozoic facies of the Southern Apennines, the strata of this plattenkalk are sometimes rich in benthonic foraminifers and calcareous algae. The first are mainly represented by Miliolids, Textulariids, *Sabaudia minuta* (HOFKER), primitive Cuneolines (among which *C. laurentii* SARTONI & CRESCENTI), *Glomospira urgoniana* ARNAUD-VANNEAU, *Trochamminoides* cf. *coronus* LOEBLICH & TAPPAN. ?*Giraliarella prismatica* ARNAUD-VANNEAU, *Haplophragmoides* sp., *Praechrysalidina infracretacea* LUPERTO-SINNI, *Moesiloculina* sp. are also present, but rarer.

The calcareous algae are essentially represented by *Salpingoporella dinarica* RADOICIC and *Thaumatoporella* sp. (with small and primitive forms). *Salpingoporella dinarica* is very abundant in the higher portion of the plattenkalk, while it is strongly reduced in the

immediately overhanging strata. So the last layers of the plattenkalk represent the acme zone of this alga, that is typical of the upper Aptian. The foraminifer association, dominated by *Sabaudia minuta*, results also typical of this period. On the grounds of the above observations, the Mt. Cigno plattenkalk is ascribed to the higher part of the *Salpingoporella dinarica* biozone (De Castro, 1991).

The depositional environment was a lagoon with a strongly restricted circulation, though it probably had a better water exchange with the open sea than the Pietraroja lagoon, as this last crops out in the classical site of "Le Cavere" (Bravi & Garassino, 1998). This is witnessed by the greater abundance, at Mount Cigno, of packstones and grainstones containing algae and foraminifers; by the scarcity and bad preservation of the macrofossils and by the scarcity (in front of Pietraroja) of marly-limestone laminae sets that are an expression of prolonged starvation periods of the basin.

In previous papers (Bravi, 1995; Bravi, 1996) was stressed a good correlation between the age of the Mesozoic plattenkalks in the Southern Apennine and the more marked sea level falls described by the III° order eustatic curve by Haq *et alii* (1987). The Mount Cigno plattenkalk, by its age, perfectly fits in a well marked peak of eustatic fall of the sea level (fig. 2).

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