

A regular pattern of chert within Lower Carboniferous limestones at the Benbulbin Range, NW-Ireland

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Introduction

Limestones with a significant regular pattern of chert occur at the Benbulbin Range, NW-Ireland. Chert lenses with a calcareous core appear within undulating limestone beds (Fig. 1).

The outer margin of the chert is separated from the surrounding carbonate by a seam of pyrite crystals of up to 1 mm size. Towards the calcareous core the chert merges gradually into silicious carbonate (Fig. 2).

Microscopic structures

Thin sections reveal that sedimentary structures like lamination or bioturbation as well as fossils are cut by the margins of the chert. Silification did obviously not obliterate the primary sedimentary structures.

Discussion

The origin of the regular and symmetric pattern of the chert lenses is unclear. A diagenetic origin can be proposed by the following arguments: A

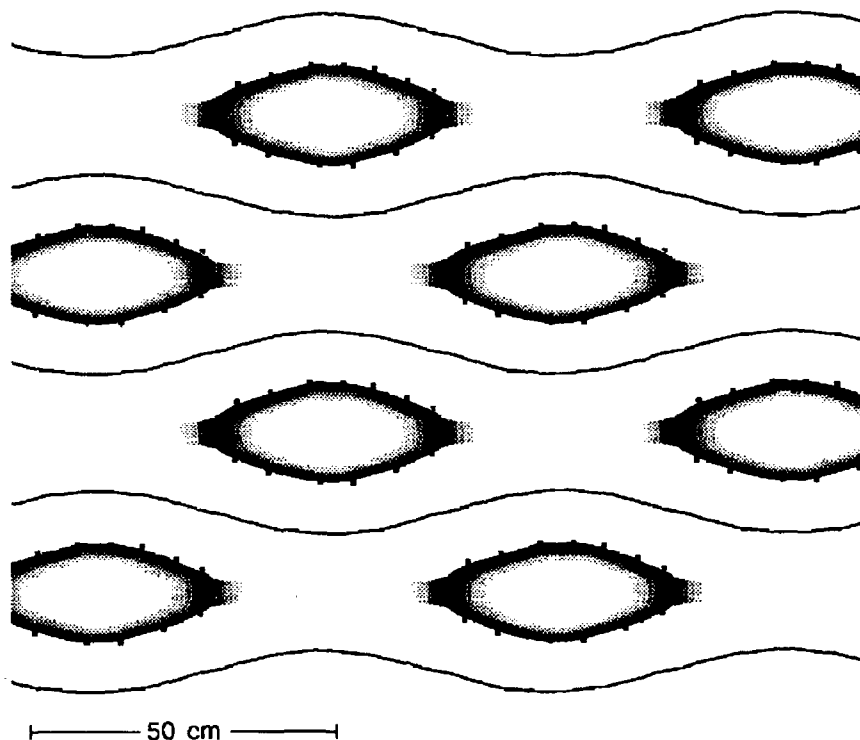
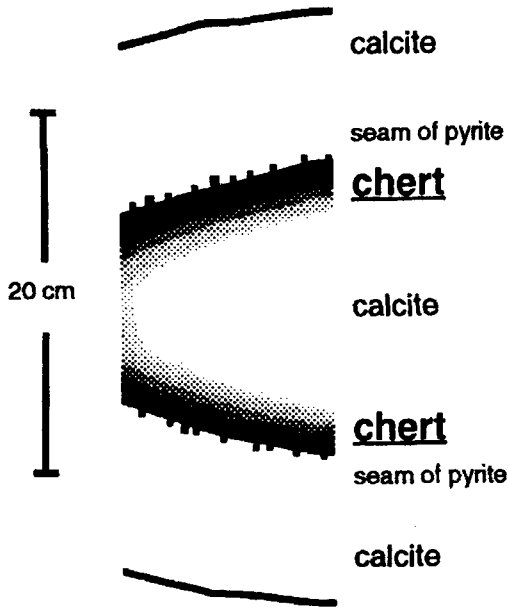


FIG. 1. Sketched pattern of chert lenses within undulating limestone beds



primary sediment distribution in this pattern is unlikely. The intact primary sedimentary structures indicate a low temperature and low pressure genesis. The pyrite seam on the outer margin of the chert lenses may result from a redox boundary. A brief geochemical analysis is needed to explain the distribution of minerals, elements and isotopes in detail.

Up to now the occurrence of this regular pattern of chert seems to be unique. Any similar occurrence should be brought to the author's attention for comparison.

FIG. 2. Typical cross section of a chert lense within a limestone bed