

Rotation and paleotectonic evolution of Corsica

by

WOLFGANG ZACHER

Geologische Institut, München (R.F.A.)

A cross section through Corsica has been studied by a group of the Technical University Munich with financial support of the Deutsche Forschungsgemeinschaft.

Our roughly E-W running profile cuts from W to E the hercynian massif, the complex structures of Ponte Leccia and Cima Pedani, and the Schistes lustrés zone. The study comprised microtectonic, lithostratigraphic and paleogeographic analyses.

The eastern edge of the hercynian basement has been influenced to different extent by the alpine orogeny. Whereas in the S only about 200 m show evidence of alpine strain, a distinct increase can be observed to the N. At Asco village the alpine movements resulted in an overturn of the sandy Upper Carboniferous and the Permian rhyolites to the W.

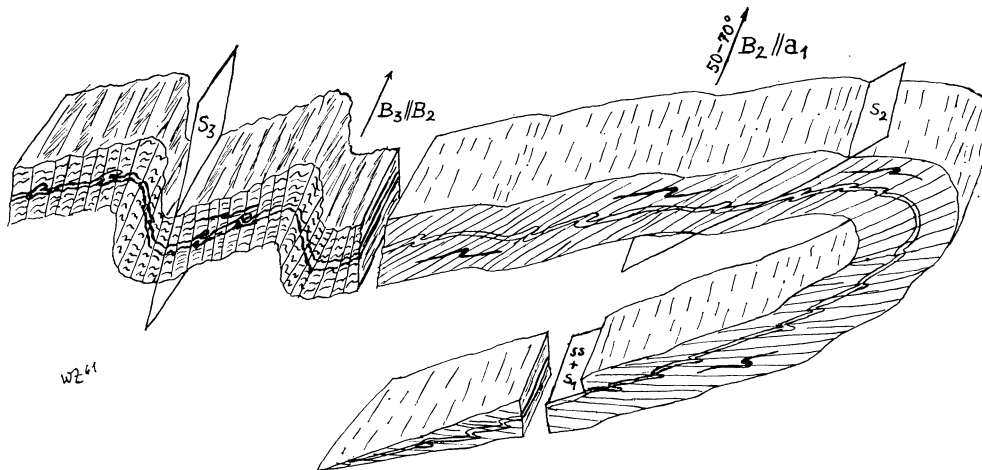


Fig. 1.: The three foldings in the Schistes lustrés near Oletta, Corsica.

The parautochthonous and allochthonous units in the mid-corsican furrow — bordered by the hercynian basement and the Schistes lustrés zone — consisting mainly of non-metamorphic sediments have been overthrust as well about 20 km to the W (Balagne) as to the E (Patrimonio; Macinaggio).

East of Ponte Leccia two different units can be distinguished. The lower unit of Padule is made up of carboniferous greywackes, granites, permian rhyolites and volcano-sedimentary rocks, which are overlain by a conglomerat with green matrix and sandy limestones of the eocene. The Cima Pedani series, which earlier was falsely interpreted as a sedimentary cover of the Padule basement, is made up of basal sandstones overlain by triassic and jurassic dolomites, limestones and breccias.

Rapp. Comm. int. Mer Médit., 23, 4a, pp. 71-72, 1 fig., (1975).

The Schistes lustrés zone can be considered as the southern continuation of the Pennine geosyncline of the Western Alps. In the study of these fossil-free rock series progress could only be achieved through the combination of microtectonic analyses and detailed mapping.

The intensity of metamorphism and tectonics of the Schistes lustrés increases from the S to the N. In the S, where no sedimentological hints indicate the southern end of the Pennine geosyncline, one encounters only one folding with foliation. In the northern part of the Schistes lustrés three phases of folding and foliation are recognized; the second folding is characterized by a distinct rodding and stretching of the rocks, thus determining, together with large folds, the distribution of the series in the field (Oletta, fig. 1).

A special position within the Schistes lustrés belt is taken in by a sequence of serpentinites, spilites pillows and radiolarites indicating eugeosynclinal conditions during the Jurassic. A new lithostratigraphic division of the Schistes lustrés show that this zone is built up of only a few large synforms and antiforms.

The Schistes lustrés eugeosyncline in Corsica was opened by continental drift since the Jurassic, north of a large triassic carbonate platform along the northern edge of the African continent. During the eastward movement and rotation of Corsica between the end of the eocene and the burdigalian the glaucophane metamorphism, folding and overthrusting of the Schistes lustrés zone took place with a change of the direction of movement.

The post alpidic uplifting of Corsica was studied by quantitative geomorphological methods which proved the former existence of erosional levels in the Golo valley, today 400 and 600 meters (and probably 800 and 1 000 m) above sea level and show that uplifting took place in several stages.

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Intervention

G. Flores — I wish to point out that this paper is a good example of how paleomagnetic data are integrated with field observations concerning overthrusts and crustal shortening.