

## RELATIONS BETWEEN OROGENE AND THE PLATFORM IN THE SOUTHWESTERN PART OF ALBANIA

I. Fili and V. Bare

### ABSTRACT

Due to its geographical position, Albania makes up not only an interesting geological setting but also a significant one by structuring a part of the Alpine segment which connects the Dinarides in the north with the Hellenides in the south.

The most interesting setting of this sector which remains as such even for the Hellenides, is the relation between Adria microplate, represented here by the Sazani zone (Apulia - Italia) and Orogene represented here by the Ionian zone (Ionian zone - Greece).

Precisely the highlighting of the relations between these two units will make the target of these paper, attempting to reveal briefly the main geological moments based on our most recent facts and studies.

### INTRODUCTION

Albania takes part in the Hellenide - Albanide - Dinaride belt and partly in the Adria microplate.

In its territory, starting from east to west, the following tectonic zones are evident:

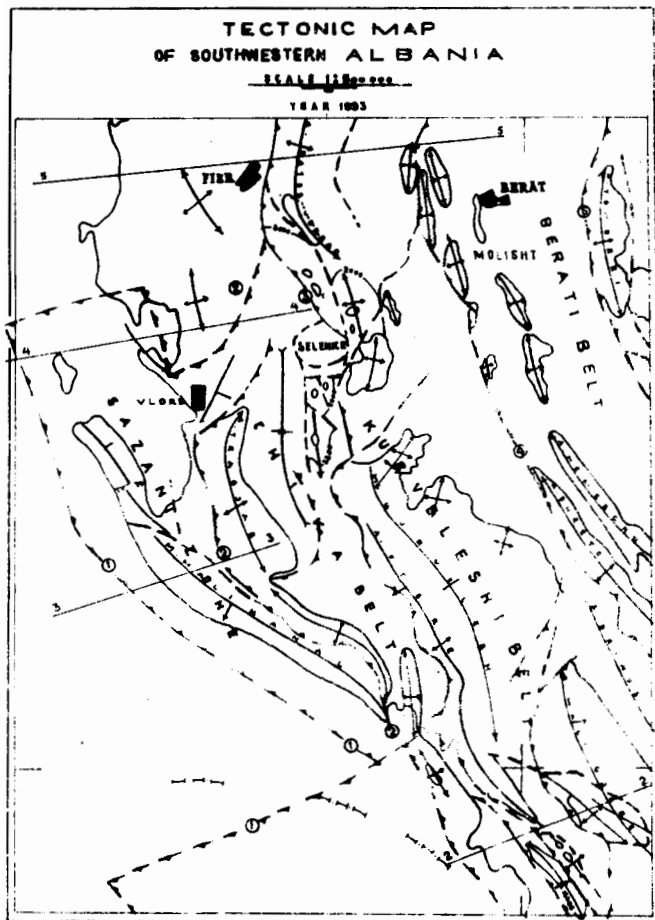
- 1 - The Korabi zone
- 2 - The Mirdita zone
- 3 - The Krasta-Cukali zone
- 4 - The Albanian Alps zone
- 5 - The Kruja zone
- 6 - The Ionian zone
- 7 - The Sazani zone

The Ionian and the Sazani zones occur in the southwestern part of Albania. They begin to be covered by the superimposed Periadriatic Depression from Vlora parallel northward.

As zones of great interest on the exploration of Oil and Gas, they are submitted to intensive geological-geophysical studies and well drillings.

The relations between these zones are different in various positions of a relatively small space constituting a very interesting moment not only from the geological viewpoint but also the practical one on Oil exploration.

So as to present these problems obviously, we are providing some characteristics on each zone in short and relying on graphics illustration, we shall treat of the relations between them afterwards.



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flysch one, based on numerous facts, has produced wrong conclusions.

- Berati belt is constructed by 2 - 3 structural chains in prolonged and relatively narrow structures with clear folded relations within the belt and with a developed tectonic which associates the whole belt extending in its western flank.

- Kurveleshi belt is constructed by structures of the most various forms and dimensions associated by developed tectonic up to micro-charriage of 5 - 10 km (Mali I Gjere, drawing 2) in the west of the structures as well as in the eastern flanks (Kurveleshi, Luca, etc.) associated by diapir eruption and by effusive rock outcrops.

The structures of this belt and those of Cika are associated by parts, (Freta, Griba, Kurveleshi, Cika, Tragjasi, etc.) or the sudden closure of the structure and its plunging (Mali I Gjere, Luca, Krongji, etc.).

Due to the overthrust, the complete coverage of some structures is realised (Delvina, Karbunara, Sevasteri, etc. drawing 1, 2).

- Cika belt is constructed mainly by prolonged structures in considerable dimensions associated by overthrusts in the west and in some cases they have a fen form, with thrusts in the east. These structures as well, are associated

### The Main Tectonic Characteristics

#### 1 - The Ionian zone

It lies throughout south and southwestern Albania having its general axis South East - North West (drawing 1).

We encounter rock propagation of carbonate facies in the diapason Upper Triassic - Eocen. (T3-Pg2) and of terrigene facies Oligocene - Tortonian (Pg3-N1).

The Ionian zone is constructed by three anticlinal belts (see drawing 1)

1 - Berati anticlinal belt which structures the most eastern belt of the zone,

2 - Kurveleshi anticlinal belt which structures its central part

3 - Cika anticlinal belt which represents the western flank of the Ionian zone

We shall provide the structural modeling and the other aspects related to it by referring mainly to carbonate formation as the

by evaporites outcrops as in Xara, Ftera, Cika, etc. (drawing 1, 3).

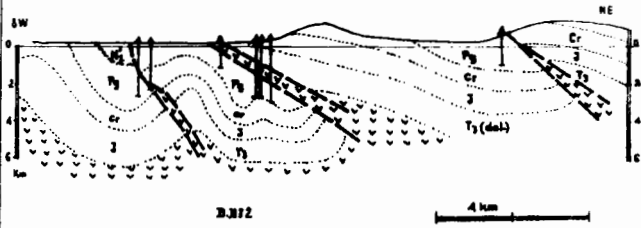
These are some of the main characteristics of Orogene zone: there are intensive foldings, much developed disjunctive tectonics, diapirism development, considerable overthrusts etc.

## 2 - The Sazani zone

It is represented by the outcrops of the Sazani island and Karaburuni peninsula (as representatives of Adria microplate). In the surface it is represented by clastic orogenic limestones.

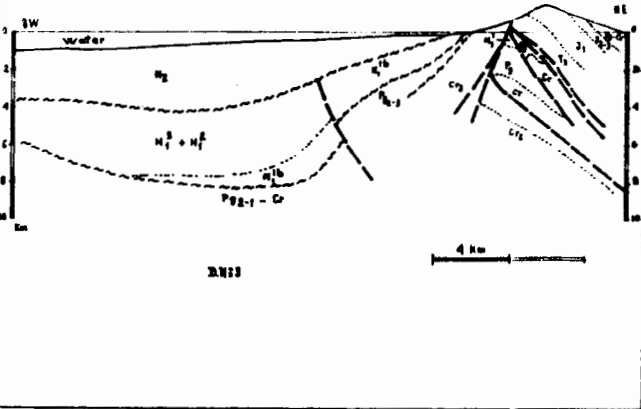
The sub-waters of the Ionian and the Adriatic offshore are covered thansgressively by terrigene deposits of Neogene constructing the platform slope which in general might have been intersected by fractures which together with the nonuniform erosion of the limestones have caused depressions in the surface

CROSS SECTION 2-2



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CROSS SECTION 3-3



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D.NR. 2+3

eroded by them (drawing 3, 4, 5).

The Sazan-Karaburuni sector is embraced by a very active orogeny forming a very developed lift of powerful horsts and grabens so as to create the Karaburuni anticline (drawing 1, 3).

The latter is intersected by a diagonal fault South East - North West displacing the northeastern flank northwestward (drawing 1).

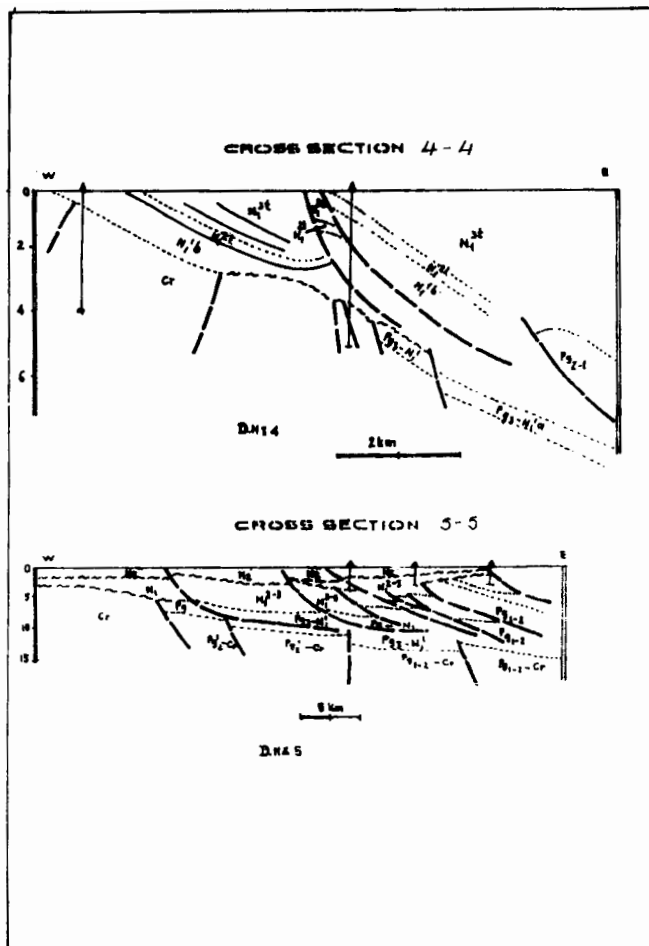
In the Logara zone, it is obviously seen a tectonic collision as a result of Cika belt overthrust towards west and the karaburuni block towards east (drawing 1, 3) and consequently the thorough coverage of the Dukati synclinal belt (drawing 1, 3, 4).

## The Relations Between Orogene and Platform

This relation is quite different in various sectors. Various opinions have prevailed on these relations when the study on the Adriatic and the Ionian offshore within the Albanian territory was not performed yet.

After the performance of geological-geophysical works, the situation is actually clear and is presented by specific features.

In order to clarify these phenomena, we are presenting and illustrating



D.NR. 4+5

because of its position, it might have been deeper and underlying Orogene.

The fact that Karaburuni limestones contain underneath Neogene deposits implies a high tectonic intensity of the post-Pleocene stage.

Undoubtedly under the structures overhust of the Cika belt, the platform slope with its respective variations must continue towards the basin.

More northward in the parallel Sazani-Vlora (drawing 4, photo 1), it is clearly observed the gauge of the two zones and the plunging of the platform slope eastward.

In the terrestrial space, it may transit a successive section of a transitive facies which underlies Orogene, represented by Vlora carbonate structures as its western extreme. The space of the platform slope is actually more extended and relatively less tectonised so as to pass to the more northern sector, in Fieri parallel (drawing 5, photo 2) as a calm, broad and actually deep slope. In this position it is observed that the foldforming intensity is observed to become vague. Thus if in the south Chika belt is represented by some structural chains, in the position of Vlora (drawing 4), it is represented by two anticlinal lines (Vlora and Tragjasi); more northward (drawing 5 photo 2) it is not recognised, but even Kurveleshi belt is reduced considerably.

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four geological sections which we are commenting as follows: (drawing 2).

In the south, at the section 2 - 2 which passes through and intersects transversally the three structural belts of the Ionian zone Orogene tectonic style is clearly observed.

As a result of a transverse that passes in the north of the Greek islands of Evikuoso and Othovil, the relations between the Ionian and the Sazani zones are unclear to us.

According to Corfu geological map (1), this transition may occur even in its west.

Due to this transverse in the Karaburuni zone, there is an inclination of the platform zone towards east. (drawing 1).

As it is observed even in section 3 - 3 (drawing 3) the eastern flank of the platform is tectonized by forming uplifted blocks which collide with the Orogene. Be-

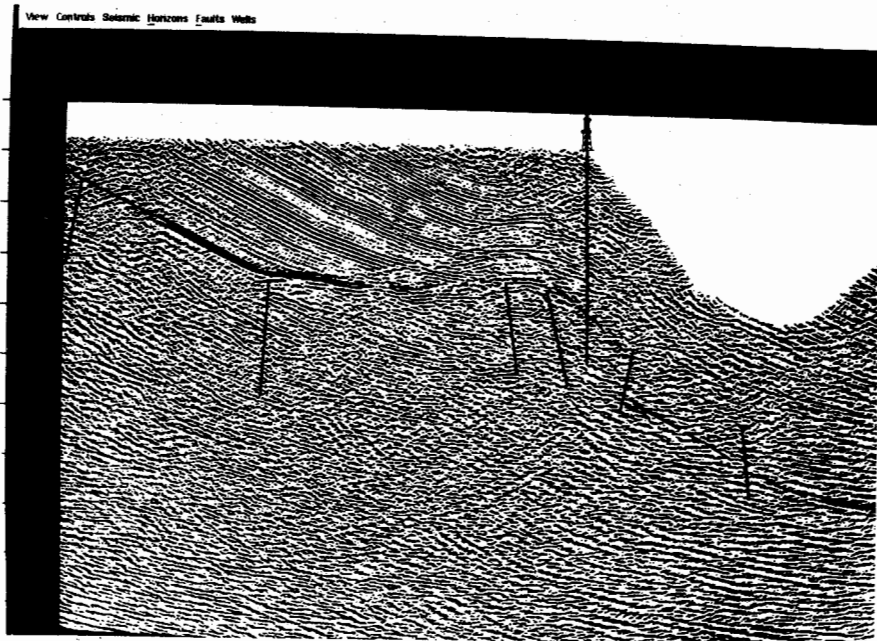


Photo No 1

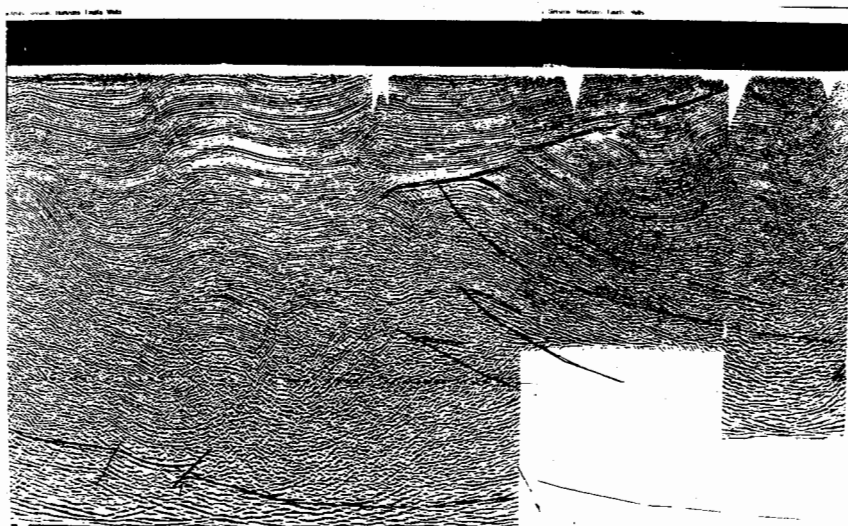


Photo No 2

The formation of free space and the plunging of the platform slope has created the deposit center of molassic deposits where the thicknesses exceed 5-6 km (drawing, photo 2), whereas in the south they have very small thicknesses..

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From what was anticipated above, the very high orogenic intensity in the southern sectors of Albania, an intensity that is evident and has embraced even the platform slope by presenting an interesting tableau in Karaburuni sectors which is characterized by abnormal phenomena where the platform slope overthrusts towards Orogene, meanwhile as it is shown in the northern section, it must underlie Orogene structures.

As regards development history viewpoint, this sector belongs to the platform slope and due to very active tectonics, it is actually submitted to Orogeny.

We come to the following conclusions from what we set forth:

- The Ionian zone is characterised by an intensive overthrust tectonic with diapir eruptions.

- The Sazani zone is represented by its eastern slope with development of disjunctive tectonics and erosional hummocks.

- In the southern part up to Vlora parallel the platform slope as well is submitted to the action of Orogeny, by forming tectonic blocks up to structures of considerable dimensions which overthrust eastward by colliding the Ionian zone structures.

- In the north of Vlora parallel, the platform slope plunges eastward and is submitted to the Orogene zone.

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