slickenslides. The breakage of the formation was accomapanied by the development of small-scale normal faults. The formation changes the dip and inclination of beds towards the NE. In this part of cross section the formation contains a coarse grained and boulder conglomerates, which form a channel infills. Structures observed in Krivá section are not indicative of tectonic melange. They resulted rather from the deformation of unlitified sediments, which were folded and broken due to gravitational instability. In this sense, the chaotic units in Krivá section are considered to be a tectonosedimentary formation, i.e. olistostroma (endoolistostroma *sensu* Okamura 1990).

To a problem on a structure of the buried Oparian Barrier reef in Carpathian Foredeep

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The Tithonian-Berriasian barrier reef is of great interest for oil and gas prospecting. It does not leave anywhere on a day time surface, is distinguished first of all by the geophysical data and stripped by numerous wells. The 100-km band of Oparian reef of 5 - 11 km width and up to 600 ě thickness extends along the Krakowetsky regional fault from the north - northwest to the south-southeast.

By genezis the Oparian barrier reef is closely connected with underlying sediments. They are usually the deposits of sponge-micrite domes, which served a basement for the barrier reef, or hidrozoan-sponge layers, which alternate with stromatolites and have tracks of periodic drainage.

In lithological relation it is possible to speak about inhomogeneous carbonate series (named the Oparian suite), composed by numerous varieties of limestones closely connected among themselves and chamged each other. They are mainly various biogenic limestones: biomorphic coral, algal, organogenous-detrital etc., largely recrystallized, with characteristic for reef formations shadow and incrustate structures, "reef-tufa", " by a dot image ", etc. Rocks are mainly pure, less often with a minor admixture of terrigenous material literally overfilled by fossils buried in situ.

The reef - framework was built successively by associations of sponges and bryozoans, corals and stromatoporoideas, corals and sponges, corals and bryozoans. In all succession enveloping structures of cyanophytes, remnants of red and green algae, reef-lovers, such as sea-urchins, attached crinoids, brachiopods, mollusks, foraminiferas are widespread.

The absence of precise vertical zonation in the reef testifies that the growth rate approximately corresponded to the speed of subsidense. Arising on the slope of the shelf, the reef grew in relativtly shallow and quiet waters, what the association of corals and bryozoans speaks about.

Other picture is given by a reef with the shallow basis, in section of which, the Tithonian transgression is marked by occurrence of coral calcirudites and frame association of corals with red algae. Probably, it is a facies of the algal barrier-breakwater. Up the section it passes to a facies of a back-reef clastical train, at the top of which the horizons of micrites are fixed. Biosparites contain much "flocks" of coral mucus - indication of an active reef. All this speaks about migration of the reef in conditions of the limited vertical growth towards the open sea at constant wave stress.

Lagoon micrites with the numerous remnants of echinodermates, mollusks, cyanophytes, foraminiferas is usually complete the section of the reef. Maybe, they correspond to stage "of a dying reef ". But in other cases it is possible to speak about algal reefs occurrence of frame Bacinella in association with sponges and Dasycladacea algae. Probably, such lagoon was rather deep. So zonation attests to different conditions of origin and growth of the reef and means stability of its position or migration towards the open sea. Hawewer the cases of return motion, and also occurrence of deep-water facies in the band of reef structures are fixed. It witnesees the difficult mechanism of formation of the Oparian reef and necessity of further researches of this very interesting object.

The top of a reef-core, by the geophysical data, was karstified on depth to 50 ě, what is of interest not only theoretical, but also practical.

Exploring the karst is associated with certain difficulties, since it is very hard and/or connected with significant expenses to extract the core from cavernous and fractured intervals of a borehole. So, we can get only fragmental information about this part of sequence. Because of that lithologic-petrographic studies of such carbonate rocks should be supplemented with the data of well-logging interpretation.

Thus, our studies of the Oparian suite are based also on the information that gives all complex of well-logging that is connected through petrophysical dependencies to the core-data.

In the sequence of the Oparian suite, by the data of complex well-logging studies, three types of limestone are found out. The first is homogeneous high resistive (ρ_{LL}≈1000 Ohmm), low radioactive (I_γ≤3 γ) and compact ($_\Delta\check{N}$≈150 μs/m) limestone. They are referred to such formations of reef core that have not experienced karstifying.

The second type is the karstified limestone. On the well-log charts they differ by the heightened curve differentiation of all kinds (except of $_\Delta\check{N}$ and I_γ) that is conditioned by a differential in formation composition. Values are observed of low, not exceeding 200 μs/m, interval-time ($_\Delta\check{N}$) and of high intensity of a sec gamma-ray ($I_{\eta\gamma}$). The curve of a microlateral logging (MLL) is strongly differentiated: electric resistance is varied from 5 to 30 Ohmm in a near (from a borehole wall) zone of the bed. The curve of a lateral logging (LL) demonstrates resistance from 5 up to 60 Ohmm in a distant zone of the bed. As the natural radioactivity of the formation remains almost constant (≈2γ), that is generally inherent to reefogenic limestone, the variations of other parameters characterize the composition of these limestone. Declined values of an electric resistance and a sec gamma-ray (i.e. Neutron Gamma Logging or NGL) point the best collectors – cavernous limestone; in the intervals of their occurrence the anomalies of SP – spontaneous polarization (relative declining) and interval time (increasing) are observed.

The third type of limestone that happens in the sequence of the Oparian suite is determined on well-logging complex as fragmental one. Limestone has a composition from pelitic to sandy (psammitic) and spacefill the karst cavitations. Its formation is connected with exposing of a reef core and its subsequent erosion. Even bigger differentiation of MLL, LL, and NGL curves is featured to such limestone.

The conditions of the forming the Upper Jurassic deposits in Ukrainian Precarpatian

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Upper Jurassic deposits in Ukrainian Precarpatian were formed on the periphery of Tethys North borderland. Biogerm building processes characterized their sedimentation from the Oxfordian until the forereef times. The development of reef constructions was bound with tectonic dislocations and their morphology conditioned by the tectonic activity on territory in considerable degree. During the Upper Jurassic time the evolution of nature and alteration of the location of the organogenous constructions, increase of thickness, narrowing of biogenic solids line and their displacement in time to the South–West in inner basin's district took place. The general paleogeographic environments in the Tethys basin were controlled by the transgression in Lower Oxfordian and the regression in Kimmerigian and Tithonian.

In Precarpation region Lower Oxfordian transgression reflected on the sedimentation of marine deposits – arenaceous limestones, sandstones, aleurolites. After that in the Middle Oxfordian the formation of biogerms in region began in Gorodok fault zone. Oxfordian biogermic building reflected on forming the line of separate spongea biostromes (approximately 100 m thicness) in shallow water marine regime. North–East of that line mainly colcarenite and oolitic transreef shoaly limestones (Rudky suite) were formed and replaced by near-shore lacustrine-marshy argillo-terrigenous deposits (Sokal suite) in the autlying districts. Toward the open basin biogermic limestones were replaced by interbedding clayey organic-detrital limestones and argillites, aleurolites that were formed in forereef zone of marine shelf. In the top of the all Oxfordian deposits the horisont of the clayey-terrigenous mainly variegated rocks was deposited in outward basin's zone as a result of the stopping the entrance of marine water and setting in hot aride climate in Upper Oxfordian time.

In Kimmerigian the shallow water marine regime was settled at the background of slowly submersion of the sea bottom. The spongea biogermic hills (~ 400 m thicness) were formed in Sudova-Vyshnja fault zone (Morantsy suite, I type). Beyond them toward the periphery of the basin shoaly dolomites and limestones were precipitated and replaced by succession of dolomites, anhydrites and gypsums – the deposits of lagoons, isolated on shoaliness as a result of arid climate (Rava-Russky suite). The forereef strata of interbedding organogenic-detrital and breccia limestones and argillites (Morantsy suite, II type) were settled in the inner zone in front of the biogerme line. Periodical tectonic destructions with downwarping the sea bottom took place. As a result of that Kimmerigian deposits include the limestone-clay breccia in sections in the peripheral parts of the basin.

The regression and intensive downwarping the sea bottom took place in Tithonian and Lower Berriassian, and the sedimentation area of Jurassic carbonates was diminished.

This rock masses (~ 800 m) of algae-coral barrier reef were formed in zone of Krakovetsky fault (Oparsky suite). Shallow oolitic and organic-calcarenite limestones were precipitated and single biogerms were formed in transreef zone (Nizhnevsky suite).