East to South Carpatian Mountains transition in Romania is connected with the sharp change in mountain range directions. The ranges here form the ring-like structure. North and East parts of which consist of the East Carpatian Mountains, South part consist of the South Carpatians, and West part consist of Apuseni Mountains (or the Western Romanian Mountains). In the central part of this ring Transylvanian Plateau is located. This structure (the plateau and its mountaineous surrounding) will be referred as Transylvanian Ring Structure (TRS). It is located between 45° and 48°N, 21° and 27°E. Diameter of TRS is 220 km within the rim crest, and 420 km between the 200 m topographic contours which outline the outer foothill of the mountains.

The circular outlines of TRS are well marked with the positions of large river valleys located around: Tisza River N and W from TRS, Danube River S and E from TRS, and Prut River E and N from TRS. This three valleys form the 650-km-diameter ring which is clearly recognisable on any map.

The typical altitudes of TRS mountain frame are 800-1200 m. The maximal ones are: 2300 m in the E. Carpatians, 2500 m in the S. Carpatians, and 1800 m on Bikhor Plateau in the W. Romanian Mountains. The E, W, and N segments of the ring are flat-topped, the S segment have steep sloped ridges with the sharp rims. NW part of TRS ring is the lowest and smooth in general slopes.

The altitudes of 500-800 m are typical for the Transylvanian Plateau in the central part of TRS. The surface here consist of hills and small cuesta-like ridges.

The Middle-Danube Plain surrounds TRS from N and W, the Lower-Danube Plain - from S, and Moldova Highlands - from E. Leveled or slightly hilled surfaces of the Middle- and Lower-Danule Plains are located at 100-200 m altitudes. The typical altitudes for Moldova Highlands (Byrlad Plateau) are 300-500 m.

This description shows TRS have a general view of circular highland with its central plateau located lower than surrounding mountains, but higher than the plains of lowlands located outside.

The main part of Carpatian arc consist of flysches of K-Pg (K-T) age. This rocks form the folded faults shifted in the direction of foreland Precarpatian basin, which surrounds TRS from the east. There are a large thrust faults with a horizontal shift of more than 40 km. The inner part of Carpatian ring is marked with a band of volcanic massifs of Neogenic (late T) age.

Transylvanian Plateau is located in the basin between the mountains in the rear of Carpatian arc. The plateau is outlined in some places with an active mud volcanoes. The Plateau is the area of salt tectonics, connected with salt-bearing layers of Oligocen-Miocenic age in Transylvanian Basin. Same take place in Transcarpatian Basin which surrounds TRS from the North.

The concentration of the earthquakes' epicenters took place within TRS, mainly in its SE part at Vranca Mountains. The focal plane is tilted to the TRS center resembling a cone surface.

The Alpian age geosyncline of the Carpatians began its evolution in K period, and finished it in Oligocen time. The basin was changed to form an asymmetric folded mountain country. The
frontal basin was formed outside of it, and the inner basin—
in the rear of the mountains. The extensions were the reason of
the intensive volcanism in rear of Carpathians on the border with
Transylvanian Basin.

There are signs that geosyncline existed at Carpathians loca-
tion even during Ripheus period, and it was closed during Bayka-
lian folding period. Geosyncline formed again in early Pz, and
Herzinian folding have formed the mountains here in late Pz. They
were destroyed and began to submerge during Triassic period (1).

The size and typical features of TRS topography (circular
plateau, framed with mountain ring, and located higher than the
surrounding plains) resemble very much coronae (large ovoid-like
structures) on Venus (2). The data on structure and evolution of
TRS could be applied for the models of Venus coronae.

References: (1) N.V. Koronovsky. The short course of the
[in Russian]. (2) G.A. Burba, V.P. Shashkina. — This volume.