

## **TWO GENETIC TYPES OF EXPLOSIVE RING STRUCTURES AND THEIR ENERGY SOURCES**

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There are two genetically different types of explosive ring structures on platforms: simple meteorite craters (1) and complex multistage ring structures (2). 1. Large meteorites are exploded usually in atmosphere and fall out on the Earth in the form of a meteorite shower. Explosions of chondrites have been occasionally observed near 10km altitude above the ground (Suizhou, Allende). Iron meteorites penetrate deeper and explode at lesser height (Tunguska, Sikhote-Aline). Occasionally they reach Earth's surface and produce explosive craters of this sort as Barringer (D=1.2km). 2. Quite different from those listed above are the multistage ring structures (so called astroblems): Puchezh-Katunski (D=80km), Popigai (D=100km), Ries (D=26km), generated by endogenic processes. They are enormous depressions at the surface of platforms complicated by central uplifts of their gneiss basement. The uplifts are intruded by high-energy explosive diatremes ejecting allogenic breccias and melts, filling depressions. A driving force for their formation was fluid flows emerging from liquid Earth's core. Owing to selective migration of hydrogen, fluid flows give rise to heavy hydrocarbons ( $\text{CH}_4=\text{CH}_2+\text{H}_2$ ) of high energetic capacity. According to estimates of J. Karpov et al. (Geol. Geophys., 1998, v.39, p.754-762) their accumulations produce powerful explosions with energy release of  $10^{18}$ - $10^{22}$  erg. They correspond in this respect to meteorite explosions. It provides an explanation for a vague similarity between ring structures of the both discussed types.