G. A. Maximovich (UdSSR)

Development of Horizontal Karst Caves in Plains
Die Entwicklung von Horizonfalhohlen in Ebenen

The ascending karst massive of limes and gypsums shows the following morphological and hydrogeological stages during cave-development.

The initial *joint-opening* stage is characterised by a water flow along the joints, their expansion resulting in a *slit* stage. The latter is followed by a *channel* stage and then by a *voclues* stage. These stages develop with the karst water under head.

Further uplift and free discharge of the karst water removes the head. Next results a *running-water cave succeeded by a limnetic cave.*

The expansion of the cavities within the cave first involves a *sinter-talus* and later a *caving-cementation* stage.

Further uplift of the area may cause the formation of a two-storeyed cave and, if the occurence of the cave is not too deep, roof-caving and opening-up of grottoes.

The stages of karst-development are clearly defined by morphological and hydrological features. During each stage new peculiarities appear which may by retained in the stages that follow. These newly-arisen features are fundamental in distinguishing between the stages.

These stages characterise the ascending karst area only, the caves being refilled while descending.

Inclined caves with waterfalls contain euorsive kettleholes of smaller running-water Combet-type lakes as well as corrosive kettlehole lakes.

Horizontal caves are likely to develop danned Davetash-type lakes, underground running-water Kungur-type lakes, calcite-dammed Domitsky-type (gours), and – in the mudded depressions – Kizel-type lakes.

In sinkholes, karst deep channels, vertical caves, either accumulative kettlehole lakes with a mudded bottom or underground running-water Matsokhi-type lakes occur.

Underground lakes feeding, as it were, on mineral waters are of Pyatigorsk, Bakharden, and Zbrashov types.

Various types of underground lakes are distributed over the following hydrodynamic zones: zone of vertical descending circulation, of suspended (relic of horizontal) running-water, intermediate and horizontal, vertical ascending circulation.

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A. A. Ogilvie (UdSSR)

The Study of Karst Phenomena by Geophysical Methods
Das Studium des Karstphänomens mit geophysikalischen Methoden

1. In the Soviet Union geophysical methods have been employed for studying karst phenomena since 1935. Since then these methods have been used for carring out hundreds of investigations in the karst regions of the Urals, the Caucasus, the Crimea, Siberia and other parts of the country. The investigations carried out provided the necessary data, on which projects of hydro-electric stations, railways, highways and other engineering works were based. Their aim also was the draining of mineral deposits and the solving of the water supply question. Geoelectrical methods were chiefly used.