mian–Carbomiferious molasse which includes the Stephan and the Oten series. These data can throw certain doubt on the validity of distinguishing of Carboniferous and Permian systems in Central Europe within their now assumed stratigraphic and paleontological boundaries.

7. Acidic volcanic formations in the Halle region are traditionally divided into what is known as the "Upper Halle" and the "Lower Halle" porphyries, the age relations of which are the subjects of discussion either. The authors hold to the idea that the "Upper Halle quartz porphyries" represent extrusive and effusive liparites, which form in the Halle–Delitch region several dome–type volcanic centers, and the "Lower Halle quartz porphyries" are subvolcanic intrusive bodies of the granite–porphyries which formed after the "Upper Halle" liparites.

The discovery through drilling of the "Lower Halle granite–porphyries" dikes among the "Upper Halle quartz porphyries" confirm this interpretation.

8. Paleovolcanic regions in the North–West Saxony and Halle, as well as, other regions with the orogenic subsequent volcanism in Saxony and Thuringia (Thuringia Forest, Tarandtov Forest, etc.) represent volcano–tectonic depressions, which developed on magmatic, metamorphic and sedimentary Paleozoic geosyncline rocks and on the Precambrian basement. Geological structure and the development history of all depressions have much in common, however each having individual features depending on geotectonic position of the depression and the structure of its basement.

THE EVOLUTION OF THE ALTAIDS OR WHY ARE THERE NO HERCYNIDES IN ASIA?

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Asia grew by about 5.3 km^2 during the evolution of the Altaid tectonic collage which includes mainly the Palaeozoic orogenic belts around the Angaran craton. In the Vendian, the Angaran and the E. European cratons were united along their present N margins and were in the S hemisphere. In the late Vendian to the late Cambrian a long ensialic island arc (the Kipchak Arc) rifted from the eastern margin of this megacraton as the two also parted, and Angara began rotating in a clockwise sense with respect to E. Europe. Subduction along the present Uralian margin of E. Europe formed the Mugodzhar arc. In the early Devonian, the S.end of the Kipchak arc collided with the Mugodzar arc and was sliced by subparallel strike slip faults forming the present W flank of the Kazakhstan orogene. Ongoing subduction to the N of the Kipchak arc formed the subduction–accretion complexes now found in N. Kazakhstan.In the late Carboniferous Angara and the European cratons had acquired roughly their present E–W distance apart but were shearing right – laterally.This tore apart the earliest West Siberian Basins.In the late Permian, the sense of the shear changed and the two cratons acquired roughly their present positions. The Altaid accretionary complexes grew mainly in front of the Kipchak arc but in Mongolia their development continued uniterruptedly into the Jurassic.In Kazakhstan some Altaid tectonics also continued into the Triassic. The Altaids resemble neither in their tectonic style nor in their temporal evolution to the European Hercynides with which they have no genetic connection either.

ICE DELIVERED DETRITUS IN THE CIRCUMPOLAR OCEAN NEAR THE TIP OF THE ANTARCTIC PENINSULA

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In the sediments off shore the Antarctic coast especially the coarse grain detritus has been delivered by swimming icebergs, which loose their endosed rubble freight by melting. Within 83 sediment sam–

ples gained in the surrounding sea of the northern part of the Antarctic Peninsula the fraction of more than 1 cm in diameter (SKERIES), the fraction of sand size (HOFSTETTER) and the fraction of silt and clay (MATTHIES) were investigated in regard to transport paths, origin and in addition to submarine streams.

The coarse rock fragments, here called "drop stones" or "ice rafted rocks", at first were classified into 68 rock groups. Some of these groups, due to some noticeable petrographic features, indicate obviously to their origin in outcrops on the Antarctic Continent. Furthermore these groups were collected into eight rock societies. The spatial distribution of their determined weight relations correspond to the paths of the iceberg drift and in nexus with already known iceberg routes this distribution point to possible source areas in the ice covered hinterland.

According to the heavy mineral assemblages in the sand fraction the following provinces are distinguished: minerals of mainly metamorphic origin culminate in the northwestern Weddellsea and nearby Elephant Island; a province dominated by volcanic material is evident north and south of the South Shetland Islands and minerals of typical intrusive origin are distributed along the western coast of the Antarctic Peninsula.

The grain size distribution in the finest fraction, in nexus with the input from melting icebergs, gives a hint for turbiditic processes. On the South Orkney Island Plateau, in the Powell Basin and in the Bransfield Strait such processes are common, due to distinct submarine slopes.

Comparing culminations within the distribution of rock groups and societies with those in the heavy mineral assemblages a good causal conformity in the following three areas is obvious :

- off shore the northwestern coast of the Antarctic Peninsula:
  acid volcanic rocks ⟺ tourmaline,rutile,zircon
- South Shetland Islands:
  pumice and pyroclastic rocks ⟺ leucoxene,sphene,olivine
- northwestern Weddellsea:
  granulitic gneisses ⟺ red spinel, garnet, kyanite, sillimanite

VARISCAN AND POST-VARISCAN FLUID FLOW IN THE RHENOHERCYNICUM OF THE ARDENNES (SOUTHERN BELGIUM) AND IN THE EASTERN PART OF THE BOHEMIAN MASSIF

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During the several stages of the evolution of a sedimentary basin, different groundwater flow systems may dominate. Large fluid flow systems were active in Variscan foreland basins and may have formed important mineral and hydrocarbon accumulation. In order to determine the fluid flow patterns during and after the Variscan deformation of the northernmost belt of the Variscan orogen, fracture systems in the Dinantian (Vesdre and Namur synclinorium, southern Belgium) and in the Famennian and Tournaisian limestones (Moravia, CR) have been investigated.

Several generations of calcite veins have been distinguished in the Dinantian of the Vesdre area and of the Namur synclinorium. Volumetrically the most important fracture system in the Namur synclinorium is characterized by non-ferroan calcites which formed during Variscan folding and thrusting. The stable isotopic composition of the veins is similar to the isotopic composition of the enclosing limestones, indicating precipitation of the calcite cement from a fluid whose composition was buffered by the surrounding rock. This implies a low water-rock ratio during the Variscan tectonic deformation stage and is in contrast with the model that large volumes of basinal waters are expelled during deformation.

Subsequent ferroan calcite generations are associated with MVT mineralizations which developed during the Permian and/or Mesozoic. A microthermometric study of the fluid inclusions indicates that ferroan calcites formed at a temperature around 50 °C in the Namur synclinoriurn and at decreasing temperatures (from 125 °C to < 50 °C) in the Vesdre area. The sphalerite occurs after the calcites which precipitated around 125 °C. These temperatures together with the stable isotopic com-