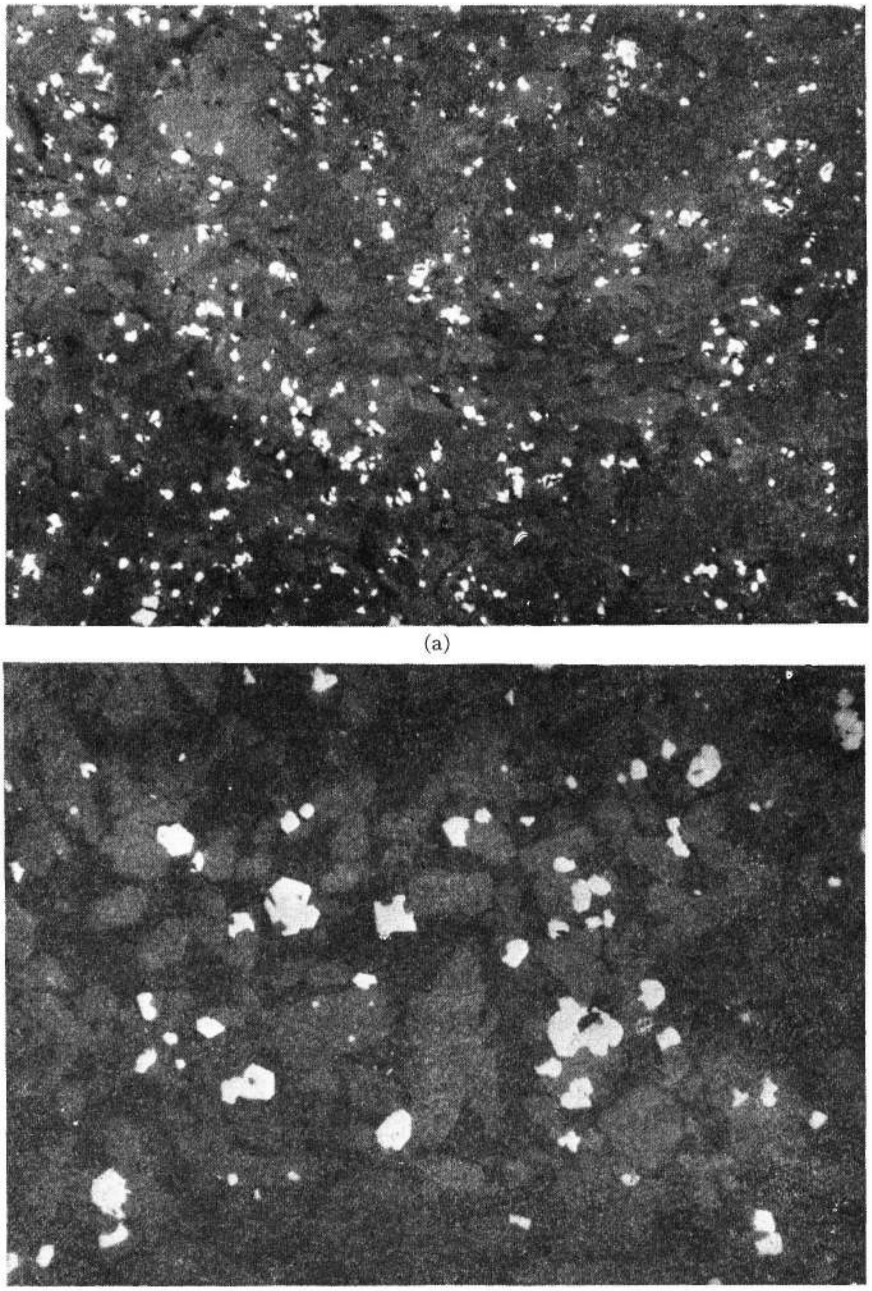
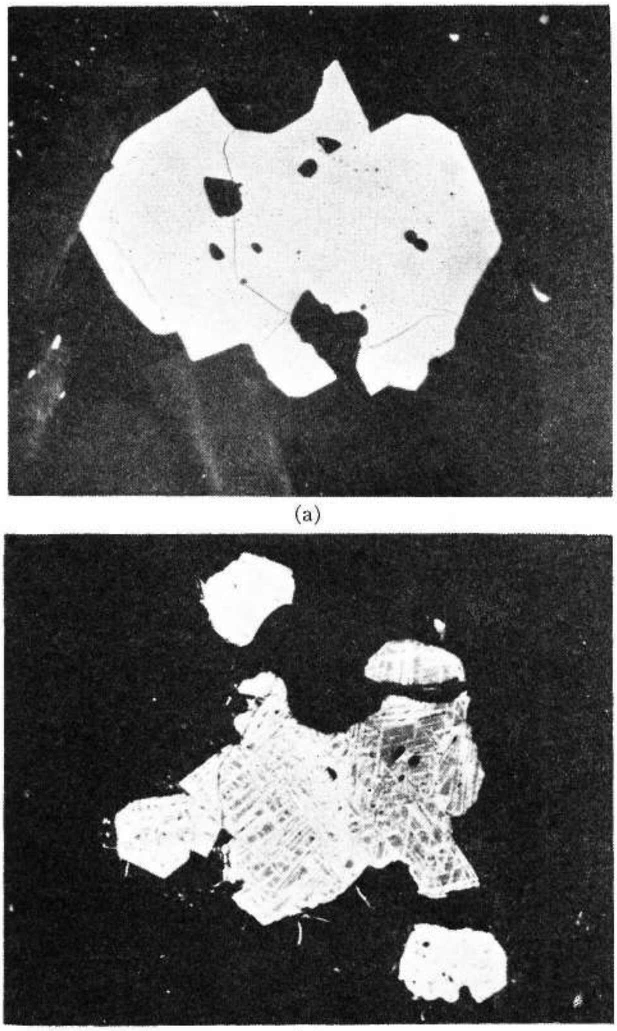


Fig. 1 Size and distribution of titanomagnetite grains (bright) in the basalt samples BaKr and BaRK. The titanomagnetite grains are embedded in a matrix of nonferrimagnetic silicates (grey).

(a) basalt sample from "Rauher Kulm" in the Oberpfalz (Upper-Palatinate), Bavaria (BaRK). Magnification: 170×
Average diameter of the titanomagnetite grains is 40 μ.

(b) basalt sample from "Kreuzberg" in the Rhön, Bavaria (BaKr). Magnification: 170×
Average diameter of the titanomagnetite grains is 15 μ.



(a)

(b)

Fig. 2 (a) Homogeneous titanomagnetite grain of the original sample BaRK.
Magnification: 1000× in oil immersion.
The actual diameter of the ore grain is about 40 μ.
(b) After a heat treatment of 30 h at 700°C in air the titanomagnetite grains of sample BaRK are inhomogeneous. Clearly developed lamellae of ilmenite (bright) are visible in a groundmass of exsolved titanomagnetite.
Magnification: 1000× in oil immersion.
The actual diameter of the ore grain is about 40 μ.

magnetite grains have been heated for 30 h at 700°C in the air, to produce exsolution lamellae. In Fig. 2 a, b an ore grain of the original sample (a) and of the tempered sample (b) is shown. The heat-treated ore grains exhibit well developed lamellae of limenite ($FeTiO_3$) in a groundmass of exsolved titanomagnetite (presumably with a defect structure,