

Hornblende with Pyroxene Core in the Rønne Granite, Bornholm

by

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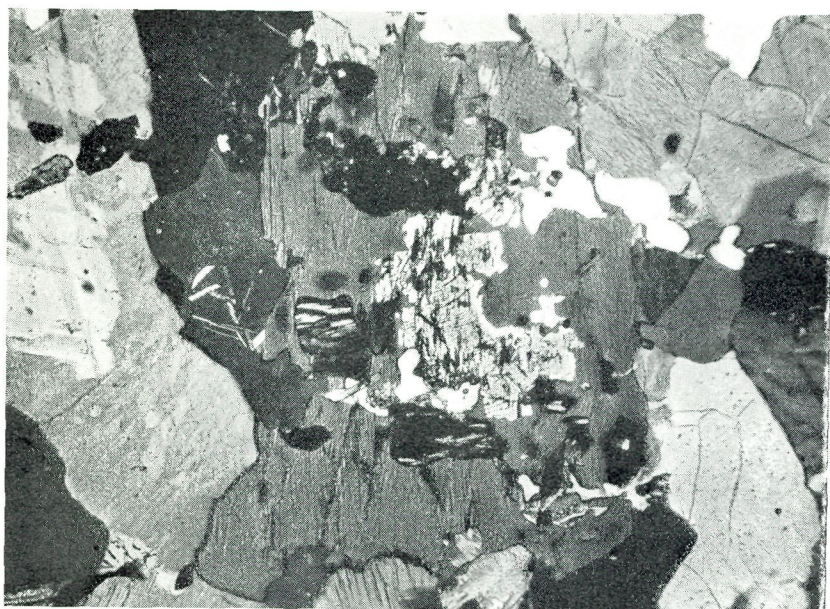
Abstract

A pyroxene core—long suspected—in the hornblende (E. COHEN and W. DEECKE) was found in 1951. The pyroxene is a diopside, lamellar twinned on (001).

It is a remarkable feature in the microscopical appearance of the Rønne granite hornblende that the central parts of the crystals sometimes contain a finegrained aggregate of carbonate, iron-ore, quartz, and a serpentineous alteration product. The earliest mention of these aggregates was made by E. COHEN and W. DEECKE; they write: "In compacteren Hornblendeindividuen trifft man häufig im centralen Teil ein Aggregat von Carbonaten und Eisenerzen, welches im Auftreten und nach der Begrenzung den Eindruck macht, als wäre dasselbe aus einem augitischen Kerne hervorgegangen, wie sich solche in Hornblendern der Granite nicht allzu selten finden. Indessen gelang es nirgends, sicher bestimmbarern Augit aufzufinden" (2).

No remains of such a pyroxene were seen until 1951 when the state geologist, Fil. dr. BROR ASKLUND (Stockholm) visiting Klippegaard quarry, amongst the scattered fragments collected a sample of Rønne granite and asked: "Is this granite pyroxene-bearing?"—The examination of thin-slices made of this specimen proved Dr. ASKLUND's supposition to be correct, some of the hornblende crystals had a core of fresh pyroxene (Fig. 1).

The pyroxene is a colourless diopsidic variety in parallel intergrowth with the hornblende. It has always a ragged form and none of the cores observed attain as much as one millimetre in length. The refraction is a little higher than that of hornblende, birefringence rather strong, pleochroism is hardly detectable. Lamellar twinning on (001) is common, while the usual twinning on (100) is not seen. The lamellae are lined with a dark substance owing to which they may even be recognized in the alteration products where no pyroxene is visible. The pyroxene is highly intersected by cleavage cracks, parting on (001), and irregular cracks; moreover it is mixed with carbonate and other alterations products and often partly covered with fibrous or foliaceous hornblende so that optical data are difficult to obtain; in a tolerably good β -section was measured



CHR. HALKIER fot.

Fig. 1. Ronne Granite. Hornblende with Pyroxene Core (Diopside). Nic. +. 46 \times .

$\gamma:c = \text{abt. } 42^\circ$; the angle between the twin-lamellae and c being $\text{abt. } 75^\circ$; the axial angle is, measured in two crystals, $2V_\gamma = 57^\circ \pm 3^\circ$ and $58^\circ \pm 3^\circ$. The surrounding hornblende has an axial angle $2V_\alpha = 63^\circ \pm 3^\circ$, while the granite hornblende as earlier stated usually has $2V_\alpha = 42^\circ$ (1). I am much indebted to M. Sc. HENNING SØRENSEN for determining the axial angles. — Further was found a single grain of a possibly rhombic pyroxene without hornblende rim. It shows an optic axis, a little eccentric, the bar slightly curved, the angle $2V$ is estimated at nearly 90° .

DANSK RESUMÉ

I tyndsnit af Ronne granit bemærkes af og til karakteristiske hobe af karbonat, kvarts og magnetit i det indre af hornblendekrystallerne. E. COHEN og W. DEECKE har først udtalt formodningen om at disse aggregater er opstået af en augitisk kerne i hornblenden. Rester af selve pyroxenen blev dog først funden i 1951; det er en diopsid med fremtrædende tvillinglameller parallel med basis (001).

LITERATURE

1. CALLISEN, K., 1934: Danmarks geol. Unders. II. R. Nr. 50, p. 30.
2. COHEN, E. and W. DEECKE, 1891: Ueber das krystalline Grundgebirge der Insel Bornholm p. 30. IV. Jahresber. der Geographischen Gesellschaft zu Greifswald 1889—1890. Greifswald.

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