

SVERIGES GEOLOGISKA UNDERSÖKNING

SERIE C NR 782 AVHANDLINGAR OCH UPPSATSER ÅRSBOK 75 NR 3

SVEN HJELMQVIST

THE PORPHYRIES
OF DALARNA
CENTRAL SWEDEN



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ABSTRACT

Hjelmqvist, S., 1980-10-16: The porphyries of Dalarna, central Sweden. Sveriges geologiska undersökning, Ser. C, No. 782, pp. 1—106. Uppsala 1982.

The Precambrian bedrock of Dalarna in central Sweden is composed of different units among which porphyries and porphyrites make an outstanding portion. In spite of their age they are often very well preserved, and beautiful ignimbritic structures are conspicuous. The main part of the porphyries occurs in central Dalarna, but outside this area the porphyries form scattered fields round the central part. The Jotnian Dala sandstone is underlain by the porphyries, which in consequence of this are named Subjotnian. The porphyries have been intersected by various granites of late formation but are younger than the volcanic leptite complex of southeastern Dalarna. The porphyries seem to have ages between 1 600 and 1 700 m.y. Several different types of porphyries occur which in chemical respect are prevailingly rhyolitic, but also trachytic and latitic forms are represented. Owing to their characteristic appearance the porphyries have played an important rôle as indicator boulders in the Quaternary deposits of northern Europe.

INTRODUCTION

In "Description to map of the pre-Quaternary rocks of the Kopparberg county, central Sweden" (Hjelmqvist 1966) the author presents a general survey of the porphyries of Dalarna and gives a short account of their mutual behaviour and

geological occurrence and, as far as possible, their relative stratigraphy. The most significant result of this study was the establishment that a predominant part of the porphyries are ignimbrites. A more detailed petrographic description of the different porphyries was not admitted in this survey, and the present paper can be seen as a supplement of the above-named "Description".

The porphyries of Dalarna occupy a vast area in the central part of the province which can be followed to the adjacent province of Härjedalen. Outside this area isolated porphyry fields occur, forming an outer belt round the central area. Within the province of Dalarna the porphyries cover an area of about 5 000 sq. kms. To this figure can probably be added nearly 6 000 sq. kms, now covered by Jotnian sandstone. The thickness of the series can be estimated at several hundreds of meters.

The porphyries belong to the Subjotnian period of the upper Precambrian, and their age is considered to lie between 1 600 and 1 700 m.y. Unfortunately no reliable age figures are available from the central part of the porphyry area. The low values of Priem et al. (1968) cannot be correct, as Welin has shown (1970). From the outer zone of the porphyries outside Dalarna, Welin states the age of 1 635 m.y. (1970, 1979), but within the wide porphyry region eruptions have occurred during different times from different volcanic centra, and between the lowermost and uppermost parts of the porphyries with intercalated sediments there might be a considerable age difference.

Owing to their beauty many of the porphyries were renowned centuries ago and were used for urns and vases. The porphyries, also, occur as erratics in Denmark, northern Germany, the Netherlands and Poland and have had great importance as indicator boulders of the Pleistocene ice sheets.

Among the porphyries a great variety appears both in respect to chemical composition and to structural and textural features. Porphyries rich in large feldspar phenocrysts alternate with porphyries very poor in phenocrysts and between them there are intermediate types. Besides the real porphyries agglomerates and volcanic conglomerates constitute a great part of the bedrock, and clastic sediments are also met with especially in the outer parts of the area.

The porphyries can be divided into three main types, marked on the map (Fig. 1), viz. 1 — porphyries rich in large feldspar phenocrysts, with or without quartz phenocrysts, sometimes with a faint indication of an ignimbritic groundmass; 2 — ignimbritic porphyries, among which a great many varieties occur which frequently have got local names after their geographic occurrence; as a rule they lack quartz phenocrysts, but in the outer zone of the area quartz-porphyries are characteristic; 3 — Bredvad porphyry which alone occupies almost half of the central porphyry area. More basic forms are the Venjan porphyrite and the "red porphyrite", which owing to their importance as indicator boulders are in-

cluded here.

The supracrustal rocks have been divided into two series, the lower and the upper Dala series, which differ from each other both in regard to geological composition and to geographical position.

The lower series forms an outer, interrupted belt next to the older bedrock outside the porphyry area. The porphyries of this zone are quartz-porphyrines occurring together with porphyrites and sedimentary rocks. Among the porphyries both ignimbrites and porphyries rich in large feldspar phenocrysts occur. A rich variation of rocks is presented in the porphyry field farthest south, where also Venjan porphyrite occupies an important area.

The upper series forms the basement of the Jotnian sandstone. In general the age relation between the two series can not be established. West of Lake Siljan the contact between older quartz-porphry and younger porphyry without quartz phenocrysts has been observed, and the Venjan porphyrite of the lower series is cut by porphyries of the upper series. It also occurs as boulders in conglomerate belonging to the lower part of the upper series, which in addition contains frequent boulders of quartz-porphry. — The age of the two isolated fields of quartz-porphry in northwestern Dalarna in relation to the other porphyries is not known.

The large porphyry area NW of Lake Siljan is composed of varying types of porphyries and porphyrites belonging to the upper series. The porphyries, among which typical ignimbrites play a conspicuous rôle, are grouped round the village of Älvdalen, which has also given its name to the series: Älvdal (Elfdal) porphyries. A general feature of the porphyries of this series is their lack of macroscopically discernible quartz phenocrysts.

A stratigraphic succession is sometimes evident but is not identical over the whole area, which includes separate volcanic centra. Conglomeratic rocks occur on more than one level, even if they seem to be most abundant in the lower part of the series. NW of Orsa there are conglomerates and tuffitic sediments and agglomerates overlain by red porphyrites. Above these reappear thick conglomerates and more fine-grained sediments, which in their turn are overlain by grey porphyrites. A following stage is represented by ignimbritic porphyries of varying appearance (schlieric porphyries) and by more massive porphyries rich in large feldspar phenocrysts. Sometimes the former are older, sometimes they are younger than the latter. The youngest link of the porphyry sequence is the Bredvad porphyry, which has a wide distribution in the western part of the porphyry area. The Bredvad porphyry forms the bedrock next under the Jotnian sandstone at the eastern border of this rock. It also appears as dykes in other porphyries.

From the succession of the porphyries given above, there are, however, exceptions. Grey porphyrite sometimes occurs as fragments in red porphyrite, and porphyries of Bredvad type have been found as boulders in conglomerates of the

lower section of the series.

The effusive rocks have been cut by dykes of quartz-porphry derived from the Subjotnian granites.

VENJAN PORPHYRITE

Between Nås and Tyfors in southern Dalarna a triangular field is composed of porphyries and porphyrites. The former occupy the eastern part of the area and are quartz-porphryes, partly rather gneissic but sometimes with a recognizable ignimbritic structure. The western half of the area is built up by Venjan porphyrite, and between this and the quartz-porphry a more basic porphyrite (not marked on the map in Fig. 1) fills the gap. Together with the volcanites there are also conglomerates, quartzites, and schists.

Another area with Venjan porphyrite extends SW of Lake Siljan, separated from the former occurrence by a great massif of younger granite.

The Venjan porphyrite of the southern field is in its typical form light grey, less fine-grained than the acid porphyries, and has numerous 1—4 mm, seldom up to 10 mm large phenocrysts of grey-green or grey-white plagioclase and scattered phenocrysts of pale red alkali feldspar. Biotite flakes, 1—3 mm large, are conspicuous, as well as hornblende prisms. When weathered the rock has become reddish with white feldspar phenocrysts. Cracks intersecting the fresh porphyrite are frequently surrounded by a narrow, brick-red zone. The relatively coarse-grained groundmass of the Venjan porphyrite suggests an intrusive, hypabyssic formation.

Under the microscope the Venjan porphyrite shows a granulitic groundmass of quartz and feldspar. The grain size is 0,01—0,10 mm. The feldspar phenocrysts are slightly perthitic alkali feldspar, generally colourless, and dirty grey plagioclase, dotted with sericite and zoisite (Fig. 9). The composition of the plagioclase varies from basic oligoclase to albite. A microprobe analysis of a single crystal gave the result $Ab_{97}An_3$, but according to its refraction the plagioclase is as a rule more basic. A microprobe analysis of an alkali feldspar phenocryst of the same section as the plagioclase showed the composition $Or_{69}Ab_{30}An_1$ in the centre and $Or_{75}Ab_{24}An_1$ at the border.¹ The alkali feldspars and also some plagioclases are surrounded by a poikilitic mantle with very small quartz grains, indicating that the feldspar phenocrysts grew over the groundmass at an early stage of crystallization (Fig. 10).

¹ For the microprobe analyses the author is greatly indebted to Dr N. Charnley, University of Cambridge, Dr P. G. Andreasson, University of Lund, and Mr Claes Alinder, Geological survey of Sweden, Uppsala.

The plagioclase phenocrysts are in general rectangular, sometimes showing a weak zoning. Also the alkali feldspar phenocrysts are faintly idiomorphic but have usually a more uneven form. Hexagonal flakes of biotite have commonly altered to chlorite. The hornblende prisms are probably pseudomorphs after pyroxene, which has been observed as remnants in them. Sometimes the hornblende shows a sieve texture with numerous inclusions of quartz and feldspar. Together with biotite appears epidote as well as some larger grains of iron ore and titanite. The ore minerals are magnetite, hematite, and small grains of sphalerite with a core of pyrite. Other minor constituents are apatite, zircon, and prehnite.

A somewhat coarser porphyrite with larger feldspar phenocrysts occurs in the western part of the area (A42)¹. This rock seems to represent a later offshoot of the Venjan porphyrite magma and occurs also as dykes in the more fine-grained form.

The coarser Venjan porphyrite has a grey-red groundmass with a typical grain size over 0,1 mm (Fig. 11). Numerous grey-white to green-white plagioclase phenocrysts give the rock a somewhat spackled appearance. Pale reddish alkali feldspars are few in numbers and less conspicuous. They are generally 2—5 mm large, seldom as much as 10 mm. The plagioclase phenocrysts measure 3—10 mm but can sporadically be up to 20 mm. Besides there are 1—5 mm large crystals of biotite-chlorite and hornblende. The broad plagioclase laths are oligoclase or albite and are generally strongly saussuritized. A microprobe analysis of albite showed in the centre the composition $Or_7Ab_{90}An_3$ and at the margin $Or_1Ab_{97}An_2$. A rather homogeneous phenocryst of alkali feldspar had in its central part the composition $Or_{94}Ab_6$. The alkali feldspar sometimes forms a core in the plagioclase. The hornblende is partly altered into chlorite and epidote. Other minor constituents are apatite and prehnite.

The Venjan porphyrite of the northern area diverges from the occurrence further south by being more basic and more fine-grained. The porphyrite is fairly homogeneous over the whole area. Its colour is grey, when weathered reddish, with numerous 1—4 mm large phenocrysts of grey-white or grey-green plagioclase and smaller phenocrysts of biotite, hornblende, and diopsidic pyroxene. Alkali feldspar phenocrysts are very subordinate and do not always occur. The groundmass consists of quartz, plagioclase, alkali feldspar, and smaller amounts of epidote, chlorite, apatite, prehnite, zircon, and iron ore. It contains also numerous small feldspar phenocrysts less than 1 mm.

The feldspar phenocrysts are andesine or basic oligoclase, partly broadly rectangular, in general filled with sericite, zoisite, and epidote but sometimes

¹ 'A' refers to the Appendix.

quite clear and zonal. If phenocrysts of alkali feldspar are present these are xenomorphic, clear, and surrounded by a poikilitic mantle.

RED PORPHYRITE

Red porphyrite is the bedrock of a large, continuous area north of Lake Siljan (see the map in Fig. 1). Moreover there is a narrow belt of red porphyrite between Orsa and Lake Skattungen, and also two small fields farther to the west. In the whole area the porphyrite is rather uniform. The rock is intermediate between porphyries proper and more basic porphyrites. The type locality is that of Grönklitten NW of Orsa, and as an indicator boulder of Quaternary deposits the rock has been named porphyrite of Grönklitt type.

As a rule the porphyrite is brownish red to reddish brown, but also grey-brown and red forms occur. It is rich in small phenocrysts of plagioclase of grey-green, grey-yellow, or grey-white colour. Sometimes the plagioclase phenocrysts are brown-red or pale red. In some cases a few pale red phenocrysts of alkali feldspar occur. Dark green aggregates of amphibole, chlorite, and epidote are typical, and occasionally an amygdaloidal structure has been developed with vesicles filled with epidote or quartz, more seldom with calcite.

Under the microscope the porphyritic texture is conspicuous though not always as distinct as Fig. 20 shows. The groundmass is pigmented by ferric oxide, as indicated by a reddish colour and also a muddy appearance.

As a rule the plagioclase phenocrysts are rectangular with good idiomorphism. They are frequently strongly sericitized and appear therefore sometimes indistinctly in parallel light, but also quite clear crystals or parts of crystals occur. The composition varies from andesine to albite. A basic oligoclase seems to be most common. The alkali feldspar has a somewhat spotted appearance and is generally less idiomorphic than the plagioclase. A single microprobe analysis of an alkali feldspar which is probably not typical showed an almost pure potassium feldspar: $Or_{99}Ab_0An_1$. The amphibole forms light green prisms, which frequently are replaced, partially or entirely, by chlorite and epidote. In some forms prismatic crystals of colourless diopside have been observed. Irregular aggregates of chlorite, epidote, and ore are common, and occasionally small flakes of biotite have been found. The quartz, when occurring, appears as strongly corroded remainders or as granulated fields. Idiomorphic apatite and rounded grains of magnetite are further characteristic. The magnetite has partly altered into martite. Besides there are many small grains of hematite.

The grain size of the groundmass is as a rule 0,01—0,05 mm, in patches up to 0,2 mm. It is sometimes characterized by a micro-poikilitic texture with a net-

work of lath-shaped quartz crystals with a uniform optical orientation. Narrow quartz lamellae have also been observed as inclusions in a very fine-grained, dark mass of chiefly epidote (Fig. 21). Frequently the groundmass is spotted: darker red-brown with lighter patches or diffuse flames. A young generation of very small plagioclase phenocrysts sometimes almost fills the interspace between the larger phenocrysts. Occasionally a trachytoidal texture can be seen in the groundmass, accentuated by short rods of iron ore.

The red porphyrite seems to have extruded as several separate lava flows, and old vents surrounded by volcanic breccias are still recognizable. In some places the porphyrite passes into agglomeratic forms.

PORPHYRIES RICH IN LARGE FELDSPAR PHENOCRYSTS

In the porphyry area of central Dalarna scattered fields are occupied by porphyries rich in large feldspar phenocrysts (see the map in Fig. 1). Some of the porphyries show transitions to quartz-syenite. Sometimes these rocks contain fragments of ignimbrites, but they can also be older than the latter.

Four larger porphyry fields belonging to this category can be distinguished, namely round Oxåsen in the southern part of the area, west of Älvdalen, north of Älvdalen, and north of Loberget farthest north. They do not differ much from each other.

The porphyry of Oxåsen (Oxåsen type, A 145) is red, rather coarse-grained with numerous, up to 14 mm large phenocrysts of red alkali feldspar and fewer, up to 7 mm large phenocrysts of grey-green plagioclase.

The porphyry west of Älvdalen (Kåtilla or Månsta type, A 125) is red or red-brown with up to 10 mm large phenocrysts of pale red alkali feldspar and more numerous phenocrysts of grey-white and grey-green plagioclase of the same size as the alkali feldspar.

The porphyry north of Älvdalen (Käringberg type, A 124) is red with up to 15 mm large phenocrysts of red alkali feldspar and fewer, up to 8 mm large phenocrysts of grey-green and grey-yellow plagioclase.

The porphyry north of Loberget (Loberg type, A 142) is brown-red or grey-red with up to 16 mm large phenocrysts of red or pale red alkali feldspar and fewer, up to 20 mm large phenocrysts of grey-white, green-white, and grey-yellow plagioclase.

Under the microscope the alkali feldspar generally has a spotted appearance and is mostly strongly brown-pigmented. Microprobe analyses have given values ranging from $Or_{65}Ab_{31}An_4$ to $Or_{35}Ab_{60}An_5$. Both alkali feldspar and plagioclase phenocrysts are partly idiomorphic with a broadly rectangular form. The plagioclase also occurs as inclusions in the alkali feldspar. The plagioclase phenocrysts

are albite or oligoclase. They are partly or entirely sericitized and have frequently a rim of dark alkali feldspar. In porphyries west of the Ore river lilac-grey alkali feldspar phenocrysts have marked rims of stronger pigmented alkali feldspar. The same has been observed in a porphyry west of Oxåsen (Fig. 23).

The grain size of the subordinate groundmass lies between 0,01 and 0,20 mm. Small second order phenocrysts are common (Fig. 24). A granophyric texture is sometimes visible and by exception also a poikilitic texture. Otherwise the groundmass is micro-granitic, inequigranular, consisting of quartz, alkali feldspar, and plagioclase. Small, idiomorphic flakes of biotite or chlorite are common. In rare cases minute quartz phenocrysts have been observed (A 134 and 147). Chlorite, epidote, and iron ore sometimes form small aggregates together with fluorite and idiomorphic crystals of apatite. Other minor constituents are light green amphibole, biotite, titanite, and zircon. The ore minerals are partly martitized magnetite, ilmenite, and sphalerite, the latter with small drops of pyrite.

While the porphyries rich in large feldspar phenocrysts in general are characterized by a relatively coarse-grained groundmass there also occur more fine-grained forms which are very rich in feldspar phenocrysts, leading over to ignimbrites (A 135).

The marginal zones of the intrusive massifs of quartz-syenite and granite in the porphyries are sometimes porphyritic with a rather coarse-grained groundmass and a pronouncedly granophyric texture (Fig. 26).

Other porphyries with relatively coarse-grained groundmass but not particularly rich in phenocrysts are characterized by a spherulitic or granophyric texture (A 154 and 155) and rather small phenocrysts.

Two fields of porphyries rich in large feldspar phenocrysts occur in northwestern Dalarna (see the map in Fig. 1). A beautiful porphyry is exposed at the road west of Flickerbäcken (A 2). It is characterized by numerous 5—15 mm large, red feldspar phenocrysts in a fine-grained, grey-brown or lilac-grey groundmass, where also grey or greyish brown quartz phenocrysts, 1—5 mm large, are visible. A small number of greyish albite phenocrysts with a red mantle of alkali feldspar has been observed. Moreover a violet fluorite is comparatively common. Under the microscope the porphyry shows an inequigranular groundmass with very small grains between some fuzzy, poikilitic spots, where needle-formed quartz crystals are a conspicuous constituent. The perthitic alkali feldspar phenocrysts are unevenly spotted and corroded, the phenocrysts of quartz are strongly undulatory. Small quartz phenocrysts are idiomorphic and surrounded by a narrow growth zone. Among accessory minerals iron ore makes lumps or short rods. In addition apatite, zircon, and carbonate are met with. A faint indication of an original ignimbrite structure can be seen, and the porphyry passes into agglomerate with irregular porphyry fragments in a very subordinate intermediate mass.

Farther south a quartz-porphyry with ash-grey groundmass is exposed, which contains up to 15 mm large phenocrysts of flesh-red, spotted alkali feldspar. North of Drosbacken there is another porphyry with up to 10 mm large, pale red alkali feldspar phenocrysts and somewhat smaller, grey-white or grey-yellow albite phenocrysts in a lilac-brown groundmass, which under the microscope is poikilitic and dotted with fine ore dust (A 3).

At Byggingån NW of Särna a reddish porphyry rich in large phenocrysts is exposed (A 1), the fine-grained groundmass of which also contains small amounts of light green amphibole and chlorite with remnants of pyroxene. The ore minerals are magnetite and ilmenite, partly connected with each other. Small laths of hematite also occur. The phenocrysts are pale red alkali feldspar, grey-green albite, and smoke-coloured quartz. Minor constituents are idiomorphic titanite, zircon, and narrow prisms of apatite.

A special porphyry type is the so-called Heden porphyry, which occupies sporadic fields within the southwestern porphyry belt (see the map in Fig. 1). This porphyry is characterized by a rather coarse groundmass of red-brown or lilac-red colour and often rectangular feldspar phenocrysts 2—15 mm large. The latter consist of red or red-brown alkali feldspar and grey-white, grey-green, or grey-yellow plagioclase. On weathered surfaces the feldspar phenocrysts appear as white spots in a brownish red groundmass. Also sparse aggregates of dark minerals occur.

Under the microscope the Heden porphyry is characterized by large, spotted or finely watered alkali feldspars, the groundmass being quite subordinate (Fig. 6). The latter is partly granophyric. The alkali feldspar phenocrysts contain diffuse inclusions of albite, which according to microprobe analyses constitute the main part of the feldspar (A 25). Albite also appears as independent crystals. The grain size of the groundmass is 0,05—0,40 mm. It consists of feldspar, quartz, chlorite, and magnetite with smaller amounts of amphibole, epidote, apatite, titanite, and zircon. Besides magnetite narrow laths of ilmenite have been observed, containing very fine hematite lamellae. Other ore minerals are sphalerite with inclusions of pyrite.

To the west of Lake Rödssjön, in the southernmost porphyry area, occurs a small belt of porphyries which are rich in large phenocrysts of both feldspar and quartz (A 49). The groundmass is pale grey or grey-brown with 5—25 mm large, reddish alkali feldspar phenocrysts, 2—8 mm large phenocrysts of grey-green albite, and 2—7 mm large, greyish quartz crystals (Fig. 12). The alkali feldspar phenocrysts are under the microscope usually quite clear with perthite veins and are partly grid-twinned. The albite phenocrysts are strongly sericitized and sometimes antiperthitic. The quartz crystals are partly idiomorphic. Other minerals are brown or olive-green biotite, chlorite, epidote, orthite, apatite, fluorite, zircon,

and iron ore with a broad rim of titanite.

In the southern part of the same porphyry belt the rock is characterized by 2—10 mm large, reddish alkali feldspar phenocrysts and somewhat smaller phenocrysts of grey-yellow or grey-green albite and white or colourless quartz (A 48). Microprobe analyses of feldspar phenocrysts have given as result $Or_{97}Ab_3$ and $Or_2Ab_{97}An_1$ respectively.

A narrow belt of porphyry rich in large feldspar phenocrysts follows the boundary to older granite in the eastern part of the same area (A 55). The porphyry is dark greyish brown with 3—8 mm large phenocrysts of pale red and — to a lesser degree — greyish green or grey-white feldspar as well as 1—2 mm large, dark-coloured quartz grains. Under the microscope the groundmass shows a schlieric or poikilitic texture with net-works of needle-shaped quartz crystals with a uniform optical orientation. The groundmass is unevenly dotted with small grains of ore, epidote, and chlorite. The feldspar phenocrysts are colourless or light grey, spotted alkali feldspar, partly idiomorphic and sometimes grid-twinned, and, in addition, strongly sericitized albite. The quartz forms rounded, often strongly corroded grains. Other minerals are biotite, chlorite, magnetite, as well as smaller amounts of epidote, apatite, titanite and zircon.

IGNIMBRITES

QUARTZ-PORPHYRIES

Ignimbritic porphyries with quartz phenocrysts occur essentially in the marginal parts of the region. They are often well-preserved, but in the southernmost porphyry field they partly pass into more gneissic forms.

Well-preserved quartz-porphyries occur in the two isolated porphyry areas west of Idre and north of Särna in northwestern Dalarna. The porphyry area west of Idre extends to the Norwegian border in the west and makes in its eastern part the basement of the Jotnian sandstone. Several different types of porphyries are met with here. The colour of their groundmass is as a rule grey- or red-brown but also reddish or greyish. Most porphyries are very fine-grained, looking dense for the naked eye. The contents of phenocrysts is strongly varying. Porphyries rich in phenocrysts occur in the eastern part of the area at the border against the Jotnian sandstone. West of this field porphyries very low in phenocrysts occur. Otherwise the contents of phenocrysts is rich to moderate. The size of the feldspar phenocrysts is generally 1—3 mm, seldom as much as 5 mm. The quartz phenocrysts are usually smaller than the feldspar phenocrysts, sometimes only 0,5—1 mm. As a rule the feldspar phenocrysts consist of pale red or red, perthitic alkali feldspar with a spotted appearance, sometimes showing idiomorphism. Independent grains of greyish albite are most frequently subordinate but predominate in an

agglomeratic porphyry which occupies an isolated area SW of Fredriksbygget. The quartz phenocrysts are often corroded, seldom idiomorphic. They are occasionally missing but sometimes constitute as much as 1/3 or 1/2 of the alkali feldspar phenocrysts. In the groundmass of feldspar and quartz minor constituents are as a rule not very conspicuous. Besides lumps, rods, or thin stripes of iron ore very small amounts of epidote, chlorite, amphibole, apatite, fluorite, zircon, and carbonate have been noticed.

The grain size of the groundmass is ordinarily less than 0,020 mm, frequently only 0,005—0,010 mm or even 0,001 mm. Sometimes coarser streaks or spots appear in the fine-grained groundmass.

South of Drevdagen a lilac-red porphyry occurs with numerous small phenocrysts of reddish alkali feldspar and quartz and a few phenocrysts of grey-white albite in an extremely fine-grained, schlieric groundmass, which also contains narrow, winding stripes of ore and red Mn-epidote (Fig. 2). West of Brännåsen farther south a grey-red porphyry rich in small phenocrysts of alkali feldspar is exposed, which is very poor in independent albite phenocrysts. Numerous quartz phenocrysts are strongly corroded (Fig. 3).

NE of Härjehågna a grey-brown, schlieric quartz-porphyry contains cm-large patches of red, ferruginous quartz.

In its western part, nearer the Scandinavian mountain range, the porphyry gets more schistose with much sericite and sparse, indistinct phenocrysts of feldspar and quartz.

The porphyry area north of Särna is on all sides surrounded by Jotnian sandstone and is practically wholly made up of quartz-porphyries. These are in general rich in phenocrysts, but in the south-western part of the area also quartz-porphyries with fewer and smaller phenocrysts occur.

North and north-east of Särna lilac-red or greyish brown porphyries are predominant, containing numerous reddish and grey-white or grey-green phenocrysts of alkali feldspar and acid plagioclase together with colourless or grey-brown quartz. The feldspar phenocrysts are as a rule 1—5 mm, the quartz grains generally smaller. The groundmass is very fine-grained and schlieric (porphyry of Särna type). Also porphyries with large feldspar phenocrysts (4—12 mm) are met with here. Among minor constituents tabular phenocrysts of light mica + iron ore occur, and the alkali feldspar phenocrysts contain small grains of epidote, chlorite, calcite, and magnetite. Other minor constituents are apatite, zircon, and fluorite.

A special kind of quartz-porphyry occurs east of Kringelfjorden (Fig. 4). It is brown-grey with grey-red flames and pale red or grey-white phenocrysts of alkali feldspar. No independent phenocrysts of plagioclase are seen, but under the microscope the alkali feldspar shows large patches of albite. The quartz pheno-

crysts are partly idiomorphic and surrounded by a reaction rim. Numerous poikilitic sponges display a net-work of lath-shaped quartz crystals with uniform optical orientation. Narrow stripes and a few larger grains of ore are minor constituents, as well as apatite, epidote, and zircon.

Farthest SW a reddish brown to lilac-grey porphyry appears with few, 1—3 mm large phenocrysts of reddish alkali feldspar, grey or grey-white albite, and very small phenocrysts of quartz (A 23). The ignimbritic groundmass contains small spherulites of feldspar and fan-shaped aggregates of muscovite. Besides there occur lenses of granulated quartz with small laths of alkali feldspar. Farther north the porphyry is replaced by a light grey quartz-porphyry with larger reddish and white feldspar phenocrysts. Other porphyries are darker brownish grey.

In the small belt of porphyries which can be followed running about 70 km NW—SE near the south-western border of the province (see the map in Fig. 1) quartz-porphyries rich in small phenocrysts predominate. These porphyries frequently have a characteristic red- or lilac-brown colour. The groundmass is fine-grained to dense with 1—5 mm large phenocrysts of red to lilac-red alkali feldspar and fewer phenocrysts of grey-white plagioclase as well as small quartz grains only 1—2 mm in size.

In the north-western corner and also in other parts of the belt, porphyries with a recognizable ignimbrite structure are met with. They have frequently the same lilac-brown or lilac-red colour as the other porphyries. They are very fine-grained to dense and have feldspar phenocrysts of similar colour as the groundmass. In parallel light a false fluidal structure appears. The feldspar phenocrysts are as a rule small. They are unevenly spotted and show sometimes a good idiomorphism. Together with the reddish alkali feldspar phenocrysts a greyish white plagioclase most frequently occurs. The quartz phenocrysts measure about 1—2 mm and are partly strongly corroded. Among minor constituents biotite, muscovite, chlorite, carbonate, apatite, titanite, zircon, and ore can be named.

In the SW-belt the presence of another characteristic porphyry has to be reported. After one of its localities this rock has been called Kallberget porphyry. It is a fine-grained quartz-porphyry of brown-red or lilac-red colour and rather rich in reddish alkali feldspar phenocrysts, 1—5 mm large. A few greyish plagioclase phenocrysts, 1—2 mm in size, also occur. Under the microscope the groundmass shows a more or less distinct, schlieric development with alternating fine-grained and coarser streaks. With crossed nicols the alkali feldspar phenocrysts are characterized by perthitic patches and veins, or are finely watered. They are in part broadly rectangular but mostly uneven (Fig. 7). The plagioclase phenocrysts are albite or oligoclase. The quartz phenocrysts show generally a strongly undulatory extinction (Fig. 8). Minor constituents are light brown or green-brown mica, brown amphibole, epidote, zircon, apatite, fluorite, carbonate, and

iron ore. A characteristic component is idiomorphic titanite.

The quartz-porphyrines of the southernmost porphyry area of Dalarna are as a rule characterized by few and small quartz phenocrysts. In the neighbourhood of younger granites they pass into more gneissic forms.

The predominant rock is characterized by a rather uniform, light grey or brown-grey, fine-grained to dense groundmass with small phenocrysts of brown-grey or pale red alkali feldspar and grey-white plagioclase, as well as very small quartz phenocrysts. Also darker grey or grey-brown porphyries with grey- or green-white feldspar phenocrysts as well as reddish and red-brown porphyries will be found here.

A well preserved porphyry occurs at Knästen SW of Nås (A 61). In the very fine-grained, dark brown-grey groundmass appear 1—3 mm large, grey-white plagioclase phenocrysts and fewer, 1—2 mm large, pale red phenocrysts of alkali feldspar together with a few small quartz grains. Thin reddish streaks appear in various directions. On weathered surfaces the porphyry is light grey-red with white feldspars. Among the phenocrysts albite or oligoclase in part show a good idiomorphism and frequently contain small inclusions of epidote and fluorite. The alkali feldspar is perthitic, finely watered and partly grid-twinned. Also quite small, evenly distributed feldspar phenocrysts occur. The quartz forms small, rounded or angular grains. Further there are aggregates of olive-green biotite together with iron ore, titanite, and apatite. The groundmass of quartz and feldspar is dotted with biotite and ore.

Farther west ignimbritic porphyries with flow-structure are exposed (A 58 and 60). Their very fine-grained groundmass contains small phenocrysts of reddish or brownish alkali feldspar and somewhat larger phenocrysts of grey-white or grey-green albite together with quite small quartz phenocrysts. The albite is partly broadly rectangular, often cloudy and sericitized but also quite clear. The alkali feldspar has been developed as unevenly rounded crystals, partly grid-twinned. The quartz shows a sometimes pronounced, undulatory extinction; small grains are idiomorphic, larger grains are corroded and intersected by cracks filled with groundmass. Minor constituents are pale, partly chloritized biotite, muscovite, epidote, orthite, titanite, apatite, zircon, and iron ore. The latter comprises magnetite and hematite.

The quartz-porphyry west of Lake Siljan is in its main part greyish brown with a very fine-grained groundmass and rather numerous, usually 1—3 mm large, partly rectangular phenocrysts of pale red alkali feldspar and grey-white or grey-green plagioclase together with quartz phenocrysts measuring 1—2 mm. When weathered the porphyry has got a red or red-brown colour. Under the microscope the groundmass shows a slightly schlieric development. The plagioclase phenocrysts are dusty and sericitized, though in part clear. They are frequently idio-

morphic but otherwise corroded. A microprobe analysis showed the composition $Or_1Ab_{95}An_4$. The phenocrysts of alkali feldspar are mostly uneven, more seldom rectangular. They are finely brown-pigmented or clear. The quartz is seldom idiomorphic but as a rule strongly corroded. There are also small, tabular phenocrysts of muscovite or chlorite + iron ore. The ore minerals are magnetite, hematite, and tabular crystals of ilmenite with small hematite lamellae. Other minor constituents are apatite, epidote, orthite, titanite, fluorite, and zircon.

Quartz-porphyrries with a better preserved structure occur in the northern part of the area (Fig. 13). Their very fine-grained groundmass is brown-grey or grey-red with 1—3 mm large phenocrysts of reddish alkali feldspar and grey-white or grey-green plagioclase and small quartz grains. The plagioclase is an often strongly sericitized albite, partly idiomorphic and tabular. The perthitic alkali feldspar phenocrysts have as a rule uneven outlines. The quartz is seldom idiomorphic, usually corroded or broken. Some quartz phenocrysts show concentric shells of growth. Many porphyries contain numerous small, angular phenocrysts of quartz and feldspar less than 1 mm, exceptionally also small phenocrysts of light green amphibole and iron ore. The ore minerals are hematite and magnetite and tabular crystals of ilmenite with quite small hematite scales. Minor constituents are chlorite, muscovite, epidote, orthite, apatite, titanite, and zircon.

A very well preserved ignimbrite occurs on Stikoselsberget (A 78). In the schlieric groundmass fragments of pumice and Y-shaped or elliptical shards are visible (Figs. 14 and 15). There are also small, embayed and broken quartz phenocrysts together with larger, fractured quartz fields and tabular phenocrysts or aggregates of epidote, chlorite, muscovite, and iron ore. In addition to large grains of magnetite, partly transformed into martite, there are small grains of hematite. Other minor constituents are apatite, titanite, and zircon.

In the eastern part of the large porphyry area of central Dalarna quartz-porphyrries occur, in part similar to the quartz-porphyrries of southern Dalarna. These rocks might, however, belong to an older formation of volcanics (Lundqvist 1968). South of Noppikoski a reddish or red-brown porphyry is exposed with 1 mm large phenocrysts of blue-grey quartz and somewhat larger phenocrysts of yellow-white feldspar in a fine-grained groundmass. Farther south the porphyry is less fine-grained, its colour varies from lilac-gray to reddish; the contents of feldspar and quartz phenocrysts is moderate to low. The mineralogical composition is characterized by phenocrysts of quartz, albite, and alkali feldspar in a sometimes well-preserved pseudo-fluidal base indicating an ignimbritic origin. Some porphyries of this area have only phenocrysts of quartz. In a porphyry NW of Ormtjärn (A 98) large spherulites have been observed around idiomorphic quartz grains (Fig. 19).

Other quartz-porphyrries of the central area seem to be younger dykes. They

are found on rare places in the district and are characterized by partly large, idiomorphic phenocrysts of red or pale red alkali feldspar and grey-yellow or grey-green albite in a red or brown-red groundmass. The numerous quartz phenocrysts are idiomorphic or rounded, sometimes strongly corroded. Under the microscope the groundmass is partly granophyric or spherulitic.

IGNIMBRITES WITHOUT VISIBLE QUARTZ PHENOCRYSTS

South and NE of Älvdalen about 500 sq.kms are occupied by ignimbritic porphyries. Apart from that region porphyries with a more or less distinct, ignimbritic structure occur within the fields dominated by other porphyries. The appearance of the rocks varies considerably though it is frequently very characteristic. On the whole the variations within the group are greater than in any other group of Dala porphyries. Sometimes a transition into agglomerate or volcanic breccia can be observed (Fig. 27). Owing to their beauty these porphyries are used as ornamental stones especially in Älvdalen.

Most of the ignimbritic porphyries have moderate to small contents of feldspar phenocrysts, but there are also types very rich in phenocrysts as well as such with very few and small phenocrysts. A pale reddish alkali feldspar and a grey or green-white plagioclase sometimes occur in about equal amounts, but in most types the alkali feldspar dominates; in rare cases it is quite subordinate. The size of the feldspar phenocrysts is as a rule 1—3 mm, at times up to 5 mm and by exception still greater. Also forms with very small feldspar phenocrysts occur.

To the naked eye the groundmass is usually dense and compact. Its colour is reddish, brownish, lilac, or greyish. Fine, red streaks in a darker groundmass are sometimes characteristic. Many ignimbritic porphyries are distinguished by narrow, parallel quartz lenses.

Under the microscope the groundmass frequently shows an apparently fluidal structure (Figs. 28—33). This is generally not visible with crossed nicols but is then replaced by a spotted or poikilitic appearance (Figs. 34 and 35). The spots are exceptionally visible also in parallel light (Fig. 36), although they are more pronounced with crossed nicols. Sometimes angular patches appear in which the parallel structure can still be traced. Poikilitic sponges with a net-work of narrow quartz lamellae similar to those of certain "Östersjö quartz-porphyries" (Geijer 1913) have also been noticed. A decided ignimbritic structure, characterized by bent, or Y-shaped, or worm-like shards is sometimes visible (Fig. 37). Spherulitic and perlitic forms are occasionally associated with the schlieric types (Figs. 38 and 39). In many porphyries the schlieric structure is accentuated by more coarse-grained streaks or bands, appearing macroscopically as narrow lenses or stripes. Exceptionally the groundmass shows a trachytic texture (Fig. 42).

The grain-size of the groundmass is usually about 0,003—0,015 mm, seldom up to 0,05 mm. The phenocrysts are spotted alkali feldspar and albite, more

rarely acid oligoclase. The alkali feldspar phenocrysts are generally strongly pigmented, but clear forms are also seen. The albite is more or less sericitized. Both alkali feldspar and albite phenocrysts are often idiomorphic but sometimes irregularly corroded by the groundmass. According to microprobe analyses the Or contents of the alkali feldspar varies considerably, viz. from $Or_{14}Ab_{82}An_4$ to $Or_{89}Ab_9An_2$. The albite is more constant: $Or_2Ab_{95}An_3$, $Or_4Ab_{95}An_1$, and $Or_4Ab_{90}An_6$. Occasionally the plagioclase is more basic.

Quite small quartz phenocrysts have been observed locally. Late crystallized quartz lenses in which small crystals of feldspar have grown from the borders inwards are characteristic of several schlieric porphyries (Figs. 40 and 41).

Small tabular phenocrysts of biotite-chlorite are common, though sometimes almost replaced by magnetite. Irregular aggregates of chlorite, epidote, and iron ore also occur. The ore minerals are magnetite, hematite, and ilmenite. Other minor constituents are muscovite, idiomorphic apatite, and carbonate.

A renowned porphyry, known particularly for its use in the ornamental industry, is the Blyberg porphyry from Blyberget east of Älvdalen (A 167). The rock is grey-brown or lilac-brown, rather rich in pale red and green-white feldspar crystals and contains flat, light red lenses of quartz with small feldspar crystals at the borders, and sometimes also with epidote. The feldspar phenocrysts are alkali feldspar and albite-oligoclase. Microprobe analyses have given $Or_{97}Ab_3$ and $Or_8Ab_{80}An_{12}$ respectively. The dark minerals are chlorite and epidote. A few somewhat larger grains of magnetite with broad sections of hematite also occur together with lath-shaped ilmenite with very fine hematite lamellae. Moreover quite small grains of magnetite, hematite, and chalcopyrite are found.

Other ignimbric porphyries from the Älvdalen district used as ornamental stones have frequently got their names after localities where they were originally found as boulders. Then, however, they as a rule constitute the bedrock in the neighbourhood.

A characteristic porphyry worth of mentioning is exposed in a small quarry NE of Älvdalen (A 219). It is dark brown-grey to black-brown, compact, with thin, red stripes and pale red and grey-white feldspar phenocrysts 1–5 mm in size. Under the microscope this porphyry is pronouncedly schlieric, displaying coarser bands or lenses, sometimes with small spherulites and also containing quartz lenses with small feldspar crystals at the borders (Fig. 40).

Of quite another appearance is a porphyry from an outcrop SW of Älvdalen (A 204). It is lilac-brown, compact, with red flames or patches and grey-white and reddish feldspar phenocrysts 1–3 mm large or more. It passes into dark lilac-brown forms with sparse or no red flames and also into red forms with lilac-brown flames. Under the microscope the porphyry is distinguished by large spherulites (Fig. 38).

Ignimbritic porphyries without quartz phenocrysts are also met with in the porphyry areas outside the central field. At Fredriksbygget SSW of Drevdagen (A 21) a light brownish grey porphyry occurs which shows a beautiful perlitic texture (Fig. 5). It contains a few grey-white phenocrysts of microscopically colourless alkali feldspar in an inequigranular groundmass, consisting of comparatively coarse-grained spheroids, the grain-size of which is in the centre 0,02—0,20 mm, but outside only 0,005—0,040 mm. Around the circular spheroids fine streaks of sericite accentuate the boundaries.

Within a limited area SW of Drevdagen porphyries poor in phenocrysts occur with grey-white or red-grey alkali feldspar phenocrysts in a greyish red, sometimes flamy groundmass lacking both quartz and independent plagioclase phenocrysts (A 18, 20, and 22).

Ignimbritic porphyries without quartz phenocrysts are further met with in the south-western porphyry belt close to the Jotnian sandstone SE of Tandsjön, west of Tandö, and west of Malung. Like the quartz-porphyries of the same belt these porphyries have a fine-grained, lilac-red or lilac-brown groundmass; the phenocrysts are reddish alkali feldspar and subordinate grey-white plagioclase. Furthermore dark greyish green aggregates of femic minerals occur.

Together with the genuine porphyries layered, tuffitic porphyries and agglomerates of the same lilac-red colour are met with. NNE of Nålberget occurs a porphyry of deviating type which possibly presents an original lava flow (A 40). It is lilac-brown, grey-banded and shows under the microscope alternating very fine-grained and coarser bands rich in spherulites.

NE of Lake Venjan there is a belt of porphyries without quartz phenocrysts and characterized by a rather variable appearance. Their colour varies from red to red-brown and brown-grey with pale red or red-brown phenocrysts of alkali feldspar and grey-white or grey-yellow plagioclase phenocrysts. The latter are oligoclase or albite. Porphyries rich in phenocrysts occur, but most porphyries are fairly poor in phenocrysts, these in general being small. The grain-size of the groundmass is often relatively coarse. In the microscope some porphyries show a schlieric development and look spotted with crossed nicols. Poikilitic, spherulitic, and granophyric forms are common (Figs. 16—18). Part of the porphyries are rather basic and rich in biotite-chlorite, epidote, and iron ore. Minor constituents are apatite, titanite, muscovite, and zircon.

A porphyry of a different type occurs in a small, isolated field NW of Vakern in the southern porphyry area (A 63). It is grey-brown with few phenocrysts of pale red alkali feldspar and grey-white or grey-yellow albite and no quartz phenocrysts. Under the microscope it shows a trachyte-like texture with small, lath-shaped grains of albite together with potassium feldspar.

BREDVAD PORPHYRY

The western half of the porphyry area of central Dalarna and much of the bedrock of southern Härjedalen in the north consist of Bredvad porphyry, which in Dalarna occupies 1 150 sq.kms. Within the whole district the rock is as a rule rather homogeneous with small variations concerning grain size and contents of phenocrysts. At the Trängslet Power plant the Bredvad porphyry — according to vertical bore holes — has a thickness of more than 80 m.

The colour of the Bredvad porphyry is brick-red or red. In the fine-grained groundmass there is a scanty or moderate number of phenocrysts of pale red or red alkali feldspar and grey-green or grey-yellow plagioclase. The latter are often strongly altered and appear as characteristic greenish spots in the red groundmass. The size of the phenocrysts is as a rule 1—3 mm, sometimes up to 5 mm, seldom greater.

A conspicuous feature of the Bredvad porphyry is its equigranularity and larger grain size as compared to the ignimbrites. Sparse coarser streaks or lenses occur however, and locally a slightly schlieric development is visible, but commonly the rock is uniform and massive (Fig. 43). The grain size varies from 0,01—0,02 mm in the most fine-grained forms to 0,03—0,06 mm.

The feldspar phenocrysts are prevailingly perthitic alkali feldspar, spotted or rather homogeneous, generally strongly brown-pigmented and in part idiomorphic. The phenocrysts are often surrounded by a poikilitic mantle with the same optical orientation as the phenocryst and containing quite small quartz grains of the groundmass, indicating that they have grown as porphyroblasts in the latter at an early stage of crystallization (Figs. 44 and 45). Also the plagioclase phenocrysts are sometimes surrounded by a mantle of poikilitic alkali feldspar with small quartz grains. More rarely the feldspar phenocrysts are broken and corroded by the groundmass. The plagioclase phenocrysts are sericitized albite or acid oligoclase, partly idiomorphic. Sometimes the plagioclase occurs as inclusions in the alkali feldspar, or is surrounded by a dark rim of alkali feldspar. In a few cases minute quartz phenocrysts have been observed.

In order to determine the chemical composition of the alkali feldspar three phenocrysts from the same thin section were examined by microprobe analysis.¹ Of each phenocryst 25 points were analysed along a traverse straight across the grain. The measured points show a strongly varying composition from pure albite to pure potassium feldspar. The average composition was in the three cases $Or_{46}Ab_{53}An_1$, $Or_{42}Ab_{57}An_1$, and $Or_{28}Ab_{71}An_1$. The material is too small to draw any general conclusion about the state of the originally occurring anorthoclase.

¹ By Mr Claes Alinder, Geological survey of Sweden, Uppsala. — Other results of microprobe analyses are given in the Appendix.

Small tabular phenocrysts of chlorite or muscovite + iron ore sometimes occur, as well as small flakes of biotite. Other minor constituents are apatite, epidote, orthite, titanite, zircon, fluorite, and carbonate. The ore minerals are magnetite, hematite, pyrite, and sphalerite.

In some places the Bredvad porphyry passes into schlieric forms, indicating a transition to ignimbrite (Figs. 46 and 47). As a rule the grain size at the same time gets smaller and the groundmass becomes inequigranular with coarser stripes and bands, which not seldom are granophyric.

CHEMICAL COMPOSITION OF THE PORPHYRIES

The chemical composition of the ignimbrites including the quartz-porphyrines does not show any great divergences. The analyses fall in the field of rhyolites or alkali-rhyolites, two of them are soda-rhyolites (Rittmann 1952). The porphyries rich in large feldspar phenocrysts also, in part, fall within the same field, but a couple of them point into a more trachytic or alkali-trachytic direction. The Heden porphyry has an alkali-trachytic composition. The Venjan porphyrite is quartz-latitic, and the red porphyrite is latitic or quartz-latitic.

Fig. 48 is a triangle diagram, the corners of which are the CIPW-values of Q , $Or + Ab$, and An . Owing to the fine-grained nature of the porphyries it has not been possible to separate Ab , which is combined with An of the groundmass plagioclase, from the total Ab . The diagram nevertheless gives a clear picture of the mutual distribution of different porphyries.

In an Or - Ab - An -triangle ignimbrites and porphyries with large feldspar phenocrysts usually have an insignificant predominance of Or over Ab , which is also illustrated by the k -values according to Niggli.

In a c - fm - alk -diagram the red porphyrite and the Venjan porphyrite occur together in the centre of the diagram, with some displacement against the fm -corner. The porphyries rich in large feldspar phenocrysts are concentrated in a small field nearer to the alk -corner, whereas the ignimbrites have more scattered positions. The Bredvad porphyry lies rather near the alk -corner.

The Heden porphyry and also, generally, the porphyries rich in large feldspar phenocrysts are characterized by lower si and qz than the ignimbritic porphyries. Between the quartz-porphyrines and the ignimbrites without quartz phenocrysts there is no obvious difference.

List of analysed rocks

1. Red porphyrite, Granvasslan (von Eckermann 1936, analysis No. 85).
2. Red porphyrite, Ämän (von Eckermann 1936, analysis N. 84).
3. Red porphyrite, E of Dyverklitten (Hjelmqvist 1966, Table 15).
4. Red porphyrite, A 104.
5. Venjan porphyrite, A 66.
6. Venjan porphyrite, W of Johannesholm (SGU Ba 6, p. 20).
7. Venjan porphyrite, A 42 (Hjelmqvist 1966, Table 6).
8. Venjan porphyrite, A 43 (Hjelmqvist 1966, Table 5).
9. Hedén porphyry, A 28.
10. Loberg porphyry, SW of Älvho.
11. Porphyry with large feldspar phenocrysts, A 134.
12. Porphyry with large feldspar phenocrysts, A 131 (analyst A.Aaremäe).
13. Porphyry with large feldspar phenocrysts, A 1 (Hjelmqvist 1966, Table 12).
14. Ignimbritic porphyry, A 160.
15. Ignimbritic porphyry, A 167.
16. Ignimbritic porphyry, A 223 (Hjelmqvist 1966, Table 17).
17. Ignimbritic porphyry, A 63 (analyst A.Aaremäe).
18. Ignimbritic porphyry, A 61 (Hjelmqvist 1966, Table 7).
19. Ignimbritic porphyry, A 59 (analyst A.Aaremäe).
20. Ignimbritic porphyry, A 181 (Hjelmqvist 1966, Table 18).
21. Ignimbritic porphyry, A 204.
22. Ignimbritic porphyry, A 75 (Hjelmqvist 1966, Table 11).
23. Ignimbritic porphyry, A 213.
24. Ignimbritic porphyry, S of Lusbo (von Eckermann 1936, analysis No. 75).
25. Ignimbritic porphyry, A 214.
26. Ignimbritic porphyry, A 219.
27. Ignimbritic porphyry, A 4.
28. Kallberget porphyry, A 33.
29. Granophyric porphyry, A 87.
30. Bredvad porphyry, Bredvad (SGU Ba 6, p. 20).
31. Bredvad porphyry, A 248.
32. Bredvad porphyry, transition form, A 260.

A refers to the appendix. Nos. 9, 11 and 15 are new analyses made by Dr. Zoltan Solyom, University of Lund. Nos. 4, 5, 10, 14, 21, 23, 25-29, 31, 32 are new analyses made at the laboratory of the Geological Survey, Uppsala.

Chemical analyses of porphyries from Dalarna

	1	2	3	4	5	6	7	8
SiO ₂	60,64	61,72	61,98	63,0	63,6	63,90	66,03	68,25
TiO ₂	0,90	0,66	0,55	0,62	0,60	0,54	0,51	0,45
Al ₂ O ₃	15,39	15,25	16,73	15,9	16,0	16,00	16,09	16,01
Fe ₂ O ₃	4,14	3,74	2,57	3,8	1,8	3,18	1,62	0,71
FeO	1,30	2,26	2,79	1,2	3,1	2,46	2,15	1,77
MnO	0,08	0,09	0,11	0,09	0,09	n.d.	0,10	0,06
MgO	2,52	2,53	2,32	2,4	2,0	2,10	1,46	0,57
CaO	4,06	3,84	4,72	3,5	4,0	3,90	3,10	2,43
BaO	n.d.	n.d.	0,03	0,14	0,10	n.d.	0,04	0,04
Na ₂ O	3,54	3,17	3,12	3,5	3,4	3,16	3,08	3,66
K ₂ O	4,79	4,48	3,46	4,4	3,9	3,68	4,29	4,97
P ₂ O ₅	0,39	0,17	0,18	n.d.	n.d.	n.d.	0,17	0,10
F	n.d.	n.d.	0,26	n.d.	n.d.	n.d.	0,07	0,05
H ₂ O ⁺	2,05	1,57	1,06	1,2	1,1	0,83	1,42	0,95
H ₂ O ⁻	0,25	0,43	0,09	0,3	0,2	n.d.	0,08	0,14
	99,99	99,91	99,97	100,05	99,89	99,75	100,21	100,16
Q	11,51	15,42	17,26	15,25	16,38	19,65	22,62	21,33
Or	28,28	26,50	20,43	26,00	23,04	21,77	25,33	29,39
Ab	29,95	26,80	26,38	29,63	28,79	26,75	26,07	31,00
An	11,96	14,16	20,56	14,66	16,86	18,59	13,94	11,13
C	-	-	0,33	-	-	-	1,27	0,52
Sal	81,70	82,88	84,96	85,54	85,07	86,76	89,23	93,37
Di	4,72	2,95	-	2,29	2,58	0,59	-	-
Hy	4,09	4,96	8,01	4,91	7,13	5,94	5,58	3,45
Mt	1,83	5,42	3,84	2,36	2,62	4,61	2,34	1,02
Hm	2,87	-	-	2,17	-	-	-	-
Il	1,71	1,26	1,05	1,18	1,09	1,03	0,97	0,85
Ap	0,77	0,40	0,44	-	-	-	0,40	0,24
Fr	-	-	0,50	-	-	-	0,12	0,09
Fem	15,99	14,99	13,94	12,91	13,42	12,17	9,41	5,65
	97,69	97,87	98,90	98,45	98,49	98,93	98,64	99,02
<i>al</i>	32	33	35	35	36	35	40	44
<i>fm</i>	29	31	28	28	26	29	22	13
<i>c</i>	16	15	18	14	16	16	14	12
<i>alk</i>	23	21	19	23	22	20	24	31
<i>si</i>	217	224	222	234	240	240	277	315
<i>qz</i>	24	38	47	42	52	59	81	91
<i>k</i>	0,47	0,48	0,42	0,45	0,43	0,43	0,48	0,47
<i>mg</i>	0,47	0,44	0,44	0,48	0,43	0,41	0,41	0,29

Chemical analyses of porphyries from Dalarna

	9	10	11	12	13	14	15	16
SiO ₂	65,33	64,7	64,94	65,76	69,13	65,8	69,71	69,86
TiO ₂	0,93	0,74	0,63	0,52	0,56	0,57	0,47	0,30
Al ₂ O ₃	15,89	17,5	17,43	16,98	14,22	17,0	15,26	14,37
Fe ₂ O ₃	2,12	1,7	1,36	0,91	1,57	1,3	1,76	1,46
FeO	1,25	1,4	1,36	2,20	2,08	1,3	0,36	2,54
MnO	0,17	0,09	0,08	0,10	0,10	0,08	0,08	0,07
MgO	0,73	0,80	0,55	0,60	0,66	0,63	0,43	0,49
CaO	1,73	1,9	1,68	1,04	1,28	1,4	1,52	0,54
BaO	n.d.	0,35	n.d.	0,04	0,03	0,18	n.d.	0,04
Na ₂ O	4,74	4,2	4,46	3,89	3,94	4,4	3,53	2,54
K ₂ O	6,12	6,7	6,22	6,52	5,53	6,8	6,07	6,44
P ₂ O ₅	0,24	n.d.	0,11	0,07	0,15	n.d.	0,06	0,05
F	n.d.	n.d.	n.d.	0,38	0,36	n.d.	n.d.	0,12
H ₂ O ⁺	0,36	0,6	0,90	0,96	0,65	0,5	0,67	0,70
H ₂ O ⁻	0,11	0,2	0,12	0,15	0,03	0,2	0,09	0,12
	99,72	100,88	99,84	100,12	100,29	100,16	100,01	99,74
Q	10,83	9,25	10,86	15,19	21,99	10,02	22,20	27,64
Or	36,19	39,58	36,74	38,52	32,68	40,19	35,85	38,08
Ab	40,12	35,56	37,76	32,94	33,36	37,23	29,90	21,50
An	3,98	9,10	7,62	2,00	2,89	6,54	7,18	1,47
C	-	-	0,56	2,78	0,69	-	0,25	2,67
Sal	91,12	93,49	93,54	91,43	91,61	93,98	95,38	91,36
Di	2,46	0,77	-	-	-	0,60	-	-
Hy	0,67	1,75	1,84	4,11	3,44	1,81	1,07	4,33
Mt	1,90	2,45	1,97	1,32	2,27	1,88	0,05	2,11
Hm	0,81	-	-	-	-	-	1,72	-
Il	1,76	1,41	1,20	0,99	1,06	1,08	0,90	0,58
Ap	0,57	-	0,27	0,17	0,37	-	0,13	0,13
Fr	-	-	-	0,77	0,71	-	-	0,24
Fem	8,17	6,38	5,28	7,36	7,85	5,37	3,87	7,39
	99,29	99,87	98,82	98,79	99,46	99,35	99,25	98,75
al	40	42	44	44	40	43	44	43
fm	16	15	13	16	19	13	12	20
e	8	9	8	5	6	7	8	3
alk	36	34	35	35	35	37	36	34
si	277	264	277	292	328	283	344	356
qz	33	28	36	51	88	35	100	122
k	0,46	0,51	0,48	0,52	0,48	0,50	0,53	0,63
mg	0,28	0,32	0,27	0,26	0,25	0,31	0,27	0,18

Chemical analyses of porphyries from Dalarna

	17	18	19	20	21	22	23	24
SiO ₂	71,69	72,15	72,28	72,52	73,8	73,92	74,1	75,22
TiO ₂	0,41	0,31	0,33	0,34	0,26	0,26	0,31	0,42
Al ₂ O ₃	15,01	14,02	14,10	13,75	13,8	13,28	14,1	12,16
Fe ₂ O ₃	1,26	0,65	0,73	0,78	0,9	0,72	0,7	0,67
FeO	0,80	1,88	1,13	1,86	0,6	1,60	0,7	0,55
MnO	0,04	0,05	0,06	0,06	0,05	0,08	0,05	0,02
MgO	0,29	0,36	0,47	0,29	0,15	0,26	0,26	0,06
CaO	0,98	1,50	1,43	0,80	0,6	0,72	1,1	1,28
BaO	0,08	0,09	0,03	0,03	0,03	0,01	0,05	n.d.
Na ₂ O	4,18	3,50	3,45	2,58	3,8	3,00	3,1	2,85
K ₂ O	4,62	4,74	4,80	6,14	6,1	5,61	6,3	6,07
P ₂ O ₅	0,05	0,04	0,06	0,06	n.d.	0,04	-	n.d.
F	0,05	0,05	0,03	0,04	n.d.	0,18	-	n.d.
H ₂ O ⁺	0,69	0,55	0,94	0,47	0,1	0,46	0,3	0,96
H ₂ O ⁻	0,07	0,06	0,11	0,07	0,1	0,08	0,1	0,10
	100,22	99,95	99,95	99,79	100,29	100,22	101,17	100,36
Q	27,48	29,02	29,81	31,08	26,90	32,79	29,05	33,36
Or	27,28	28,00	28,39	36,30	36,07	33,18	37,24	35,85
Ab	35,35	29,63	29,21	21,82	32,15	25,38	26,22	24,13
An	4,20	6,84	6,57	3,37	2,56	2,03	5,54	2,48
C	1,60	0,62	0,82	1,63	-	1,52	0,15	-
Sal	95,91	94,11	94,80	94,20	97,68	94,90	98,20	95,82
Di	-	-	-	-	0,37	-	-	0,32
Hy	0,72	3,38	2,20	3,03	0,22	2,70	0,93	Wo 1,44
Mt	1,53	0,95	1,07	1,13	1,30	1,04	1,02	0,63
Hm	0,21	-	-	-	-	-	-	0,24
Il	0,77	0,59	0,62	0,65	0,50	0,50	0,59	0,80
Ap	0,13	0,10	0,13	0,13	-	0,10	-	-
Fr	0,09	0,09	0,05	0,08	-	0,36	-	-
Fem	3,45	5,11	4,07	5,02	2,39	4,70	2,54	3,43
	99,36	99,22	98,87	99,22	100,07	99,60	100,74	99,25
<i>al</i>	47	44	45	45	46	45	46	44
<i>fm</i>	11	14	12	14	8	13	8	7
<i>c</i>	5	8	8	5	4	5	7	8
<i>alk</i>	37	34	35	36	42	37	39	41
<i>si</i>	378	381	391	403	415	424	410	463
<i>qs</i>	130	146	152	160	147	175	154	200
<i>k</i>	0,42	0,47	0,48	0,61	0,51	0,55	0,57	0,58
<i>mg</i>	0,21	0,20	0,31	0,16	0,15	0,17	0,25	0,08

Chemical analyses of porphyries from Dalarna

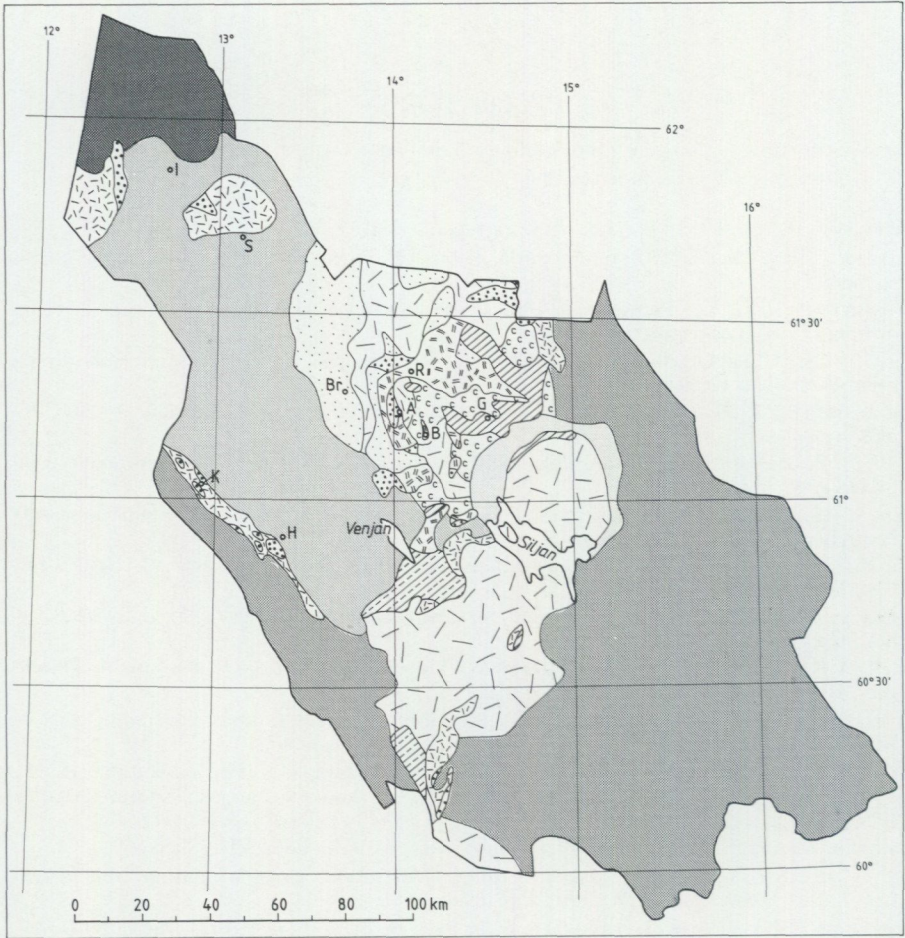
	25	26	27	28	29	30	31	32
SiO ₂	76,2	77,0	77,0	77,0	77,1	75,07	76,1	77,0
TiO ₂	0,23	0,23	0,25	0,21	0,11	0,47	0,23	0,21
Al ₂ O ₃	12,9	13,0	13,3	12,4	12,4	13,75	13,0	12,6
Fe ₂ O ₃	0,9	0,7	0,7	1,1	1,0	1,43	0,4	0,6
FeO	0,3	0,4	0,3	0,2	0,8	0,96	0,6	0,4
MnO	0,02	0,03	0,09	0,02	0,06	0,09	0,04	0,05
MgO	0,11	0,12	0,14	0,04	0,05	0,25	0,14	0,09
CaO	0,5	0,5	0,1	0,2	0,2	0,68	0,6	0,4
BaO	-	0,01	0,02	0,01	0,01	n.d.	0,01	-
Na ₂ O	3,3	3,5	2,7	3,8	2,9	2,49	3,7	3,4
K ₂ O	5,6	5,1	5,6	5,1	5,6	4,15	5,3	5,5
P ₂ O ₅	-	-	-	-	-	n.d.	-	-
F	-	-	-	-	-	n.d.	-	-
H ₂ O ⁺	0,2	0,3	0,6	0,2	0,5	0,40	0,2	0,2
H ₂ O ⁻	0,1	0,1	0,2	0,1	0,2	n.d.	0,1	0,1
	100,36	100,99	101,00	100,38	100,93	99,74	100,42	100,55
Q	34,38	35,88	39,43	34,91	38,06	42,86	32,57	35,17
Or	33,06	30,11	33,06	30,11	33,06	24,55	31,34	32,51
Ab	27,90	29,63	22,86	32,15	24,54	21,08	31,31	28,79
An	2,48	2,48	0,53	1,00	1,00	3,37	2,98	1,98
C	0,51	0,82	2,60	0,27	1,20	3,93	0,08	0,33
Sal	98,33	98,92	98,48	98,44	97,86	95,79	98,28	98,78
Hy	0,27	0,30	0,35	0,10	0,67	0,62	0,82	0,22
Mt	0,37	0,72	0,56	0,12	1,46	2,04	0,58	0,86
Hm	0,64	0,21	0,32	1,02	-	0,03	-	0,02
Il	0,44	0,44	0,47	0,39	0,21	0,90	0,44	0,39
Ap	-	-	-	-	-	-	-	-
Fr	-	-	-	-	-	-	-	-
Fem	1,72	1,67	1,70	1,63	2,34	3,59	1,84	1,49
	100,05	100,59	100,17	100,07	100,20	99,38	100,12	100,27
<i>al</i>	48	48	52	47	47	50	47	47
<i>fm</i>	7	7	7	7	10	14	6	6
<i>e</i>	3	3	1	1	2	5	4	3
<i>alk</i>	42	42	40	45	41	31	43	44
<i>si</i>	476	484	506	496	499	463	466	493
<i>qz</i>	208	216	246	216	235	238	194	217
<i>k</i>	0,53	0,49	0,58	0,47	0,51	0,52	0,49	0,52
<i>mg</i>	0,15	0,17	0,24	0,06	0,05	0,16	0,20	0,14

LITERATURE

GFF = Geologiska föreningens i Stockholm förhandlingar

SGU = Sveriges geologiska undersökning

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|--|------------------------------------|--|------------------------------------|
| | Dala and Järna granite | | Tuffs and sediments |
| | Bredvad porphyry | | Red porphyrite |
| | Porphyry rich in large phenocrysts | | Quartz-porphry, mostly ignimbritic |
| | Ignimbritic porphyry | | Venjan porphyrite |
| | Paleozoic of the Siljan ring | | Older Precambrian |
| | Jotnian sandstone incl. Öjebasalt | | Caledonides |

B=Blyberg Br=Bredvad G=Grönklitt H=Heden I=Idre K=Kallberget R=Rännås S=Särna Ä=Älvdalen

Fig. 1. Map of the porphyry areas of Dalarna.

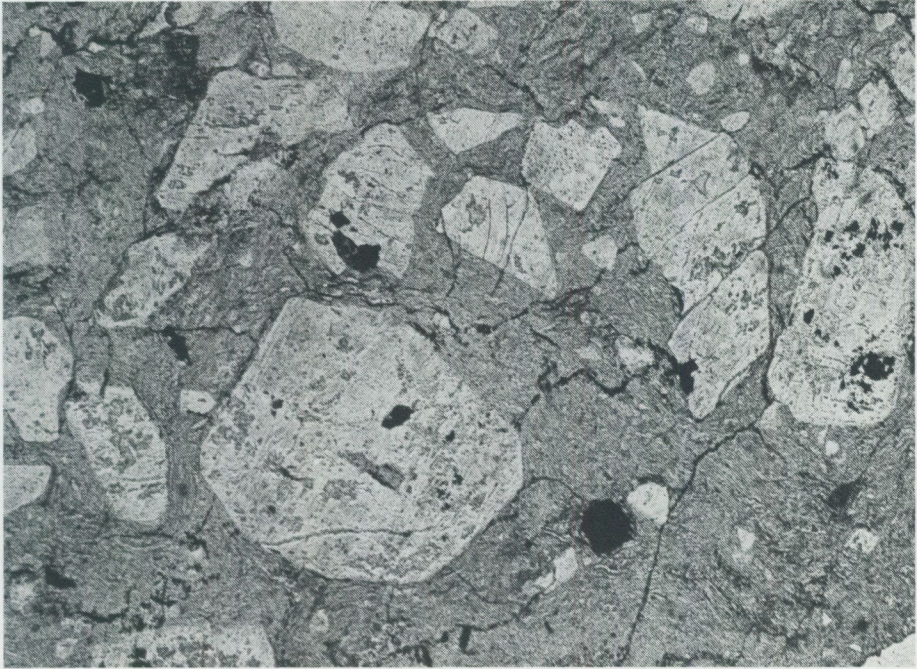


Fig. 2. Quartz-porphyry, S of Drevdagen (A 6). 24 \times , 1 nic.

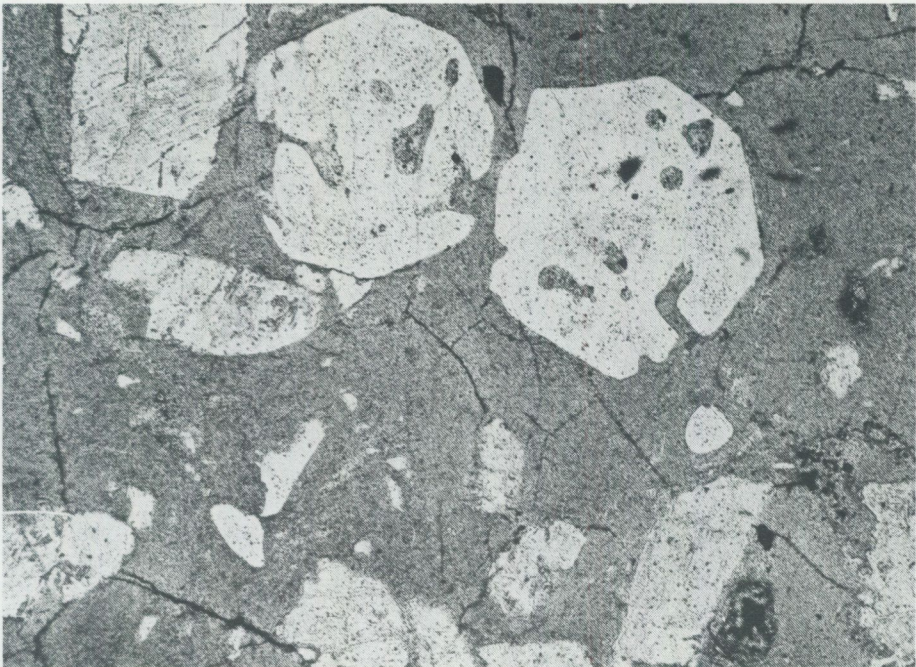


Fig. 3. Quartz-porphyry, W of Brännåsen (A 8). 24 \times , 1 nic.

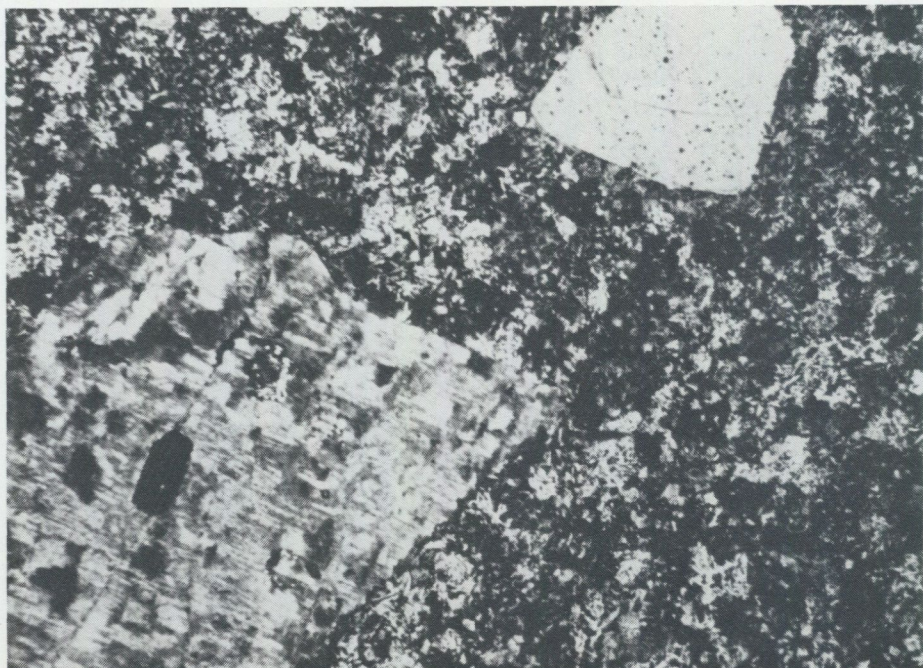


Fig. 4. Quartz-porphry, E of Kringelfjorden (A 17). 48 \times , + nic.



Fig. 5. Perlite, NE of Fredriksbygget (A 21). 24 \times , 1 nic.



Fig. 6. Heden porphyry, SW of Heden (A 25). 24 \times , 1 nic.

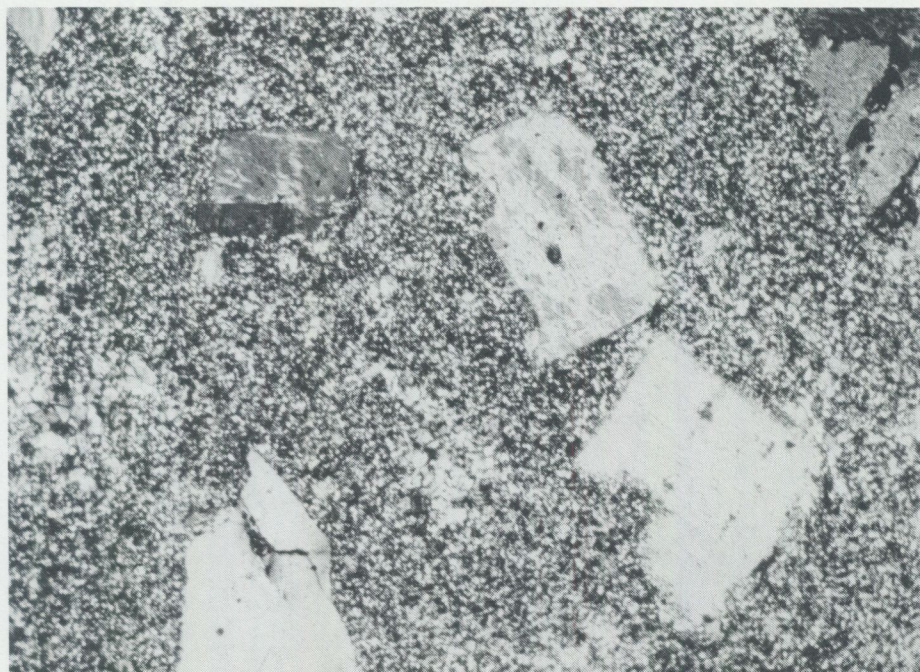


Fig. 7. Kallberget porphyry, Kallberget (A 30). 36 \times , + nic.



Fig. 8. Kallberget porphyry, Kallberget (A 30). 36 \times , + nic.

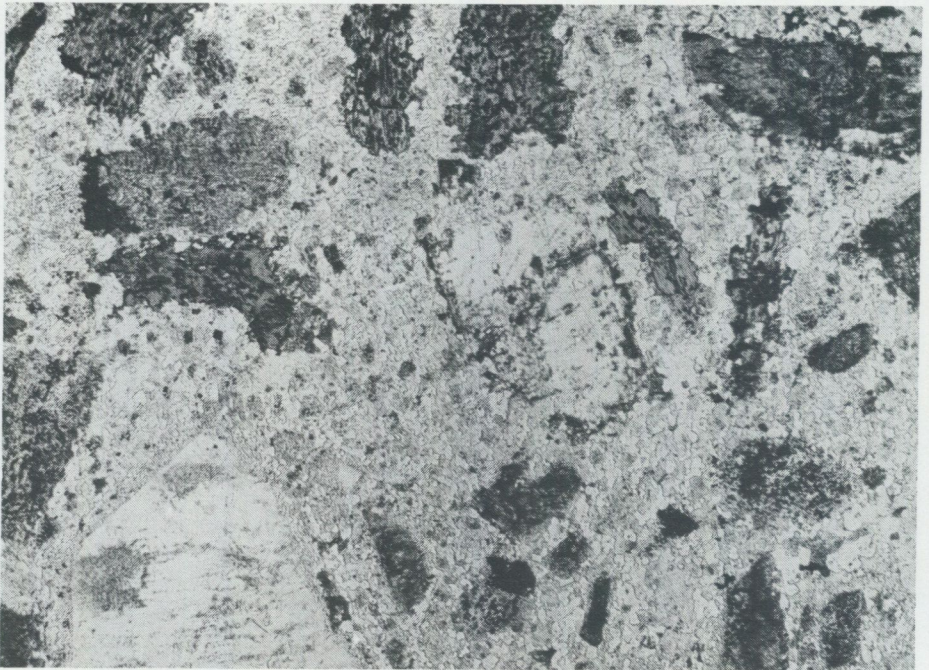


Fig. 9. Venjan porphyrite, E of Kullberget (A 43). 24 \times , 1 nic.

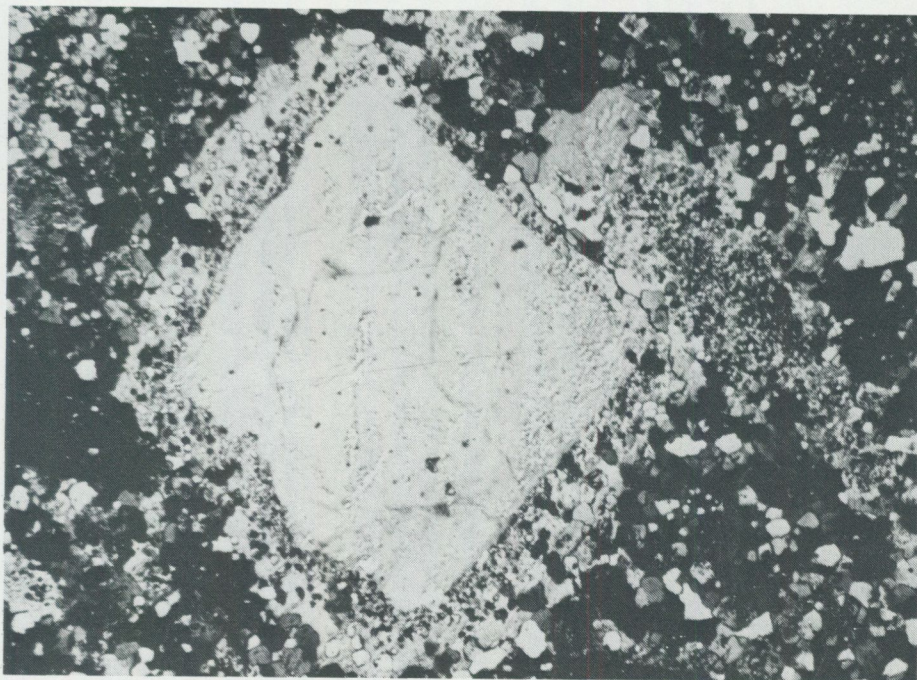


Fig. 10. Venjan porphyrite, E of Kullsberget (A 43). $48 \times$, 1 nic.

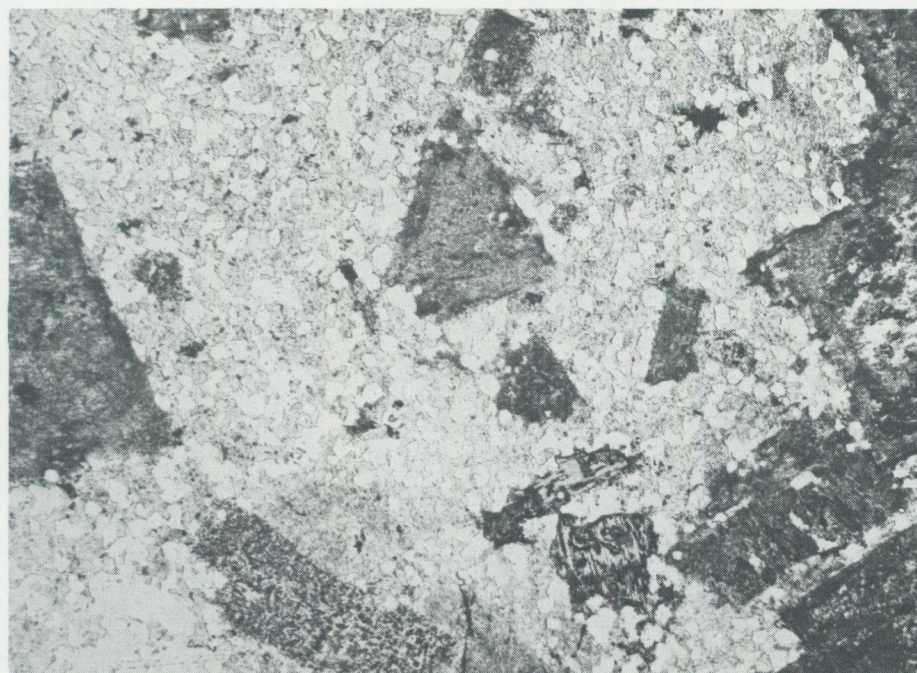


Fig. 11. Venjan porphyrite, Gruvåsen (A 42). $24 \times$, 1 nic.

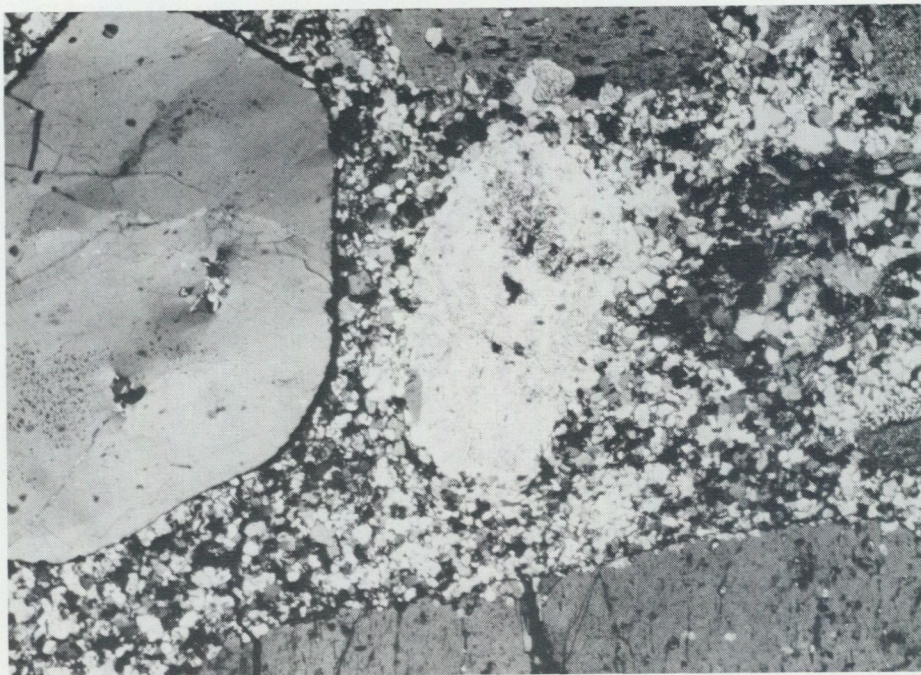


Fig. 12. Quartz-porphyry, Rödberget (A 49). 36 \times , + nic.



Fig. 13. Quartz-porphyry, SE of Vimo (A 73). 24 \times , 1 nic.

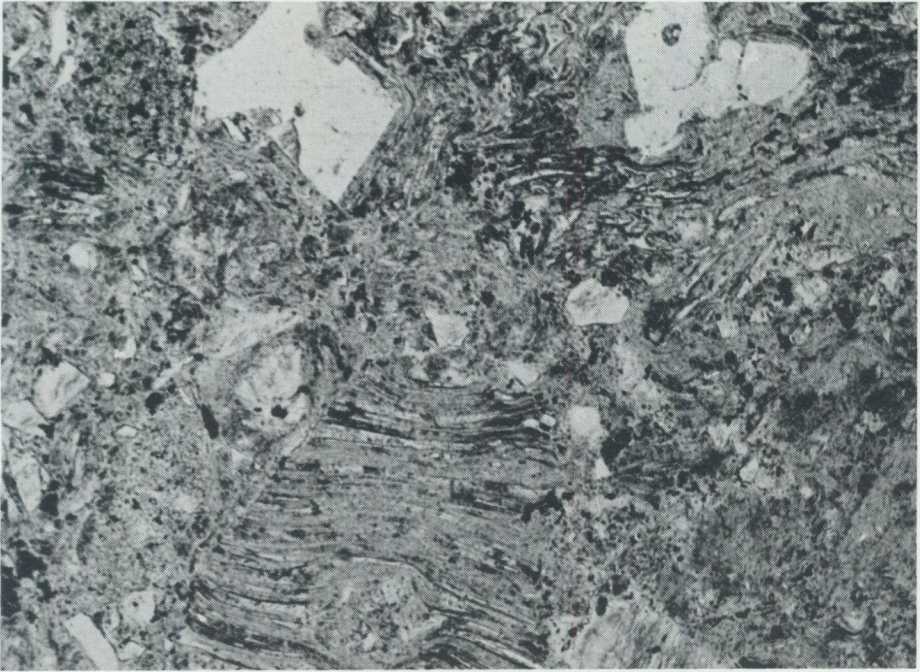


Fig. 14. Ignimbrite, Stikoselsberget (A 78). 48 \times , 1 nic.

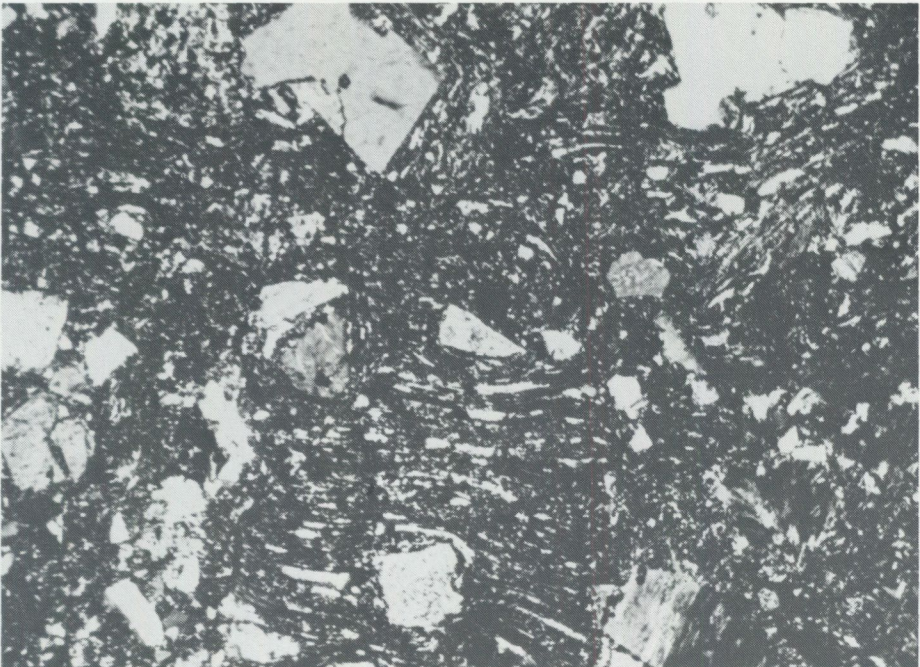


Fig. 15. Ignimbrite, Stikoselsberget (A 78). 48 \times , + nic.

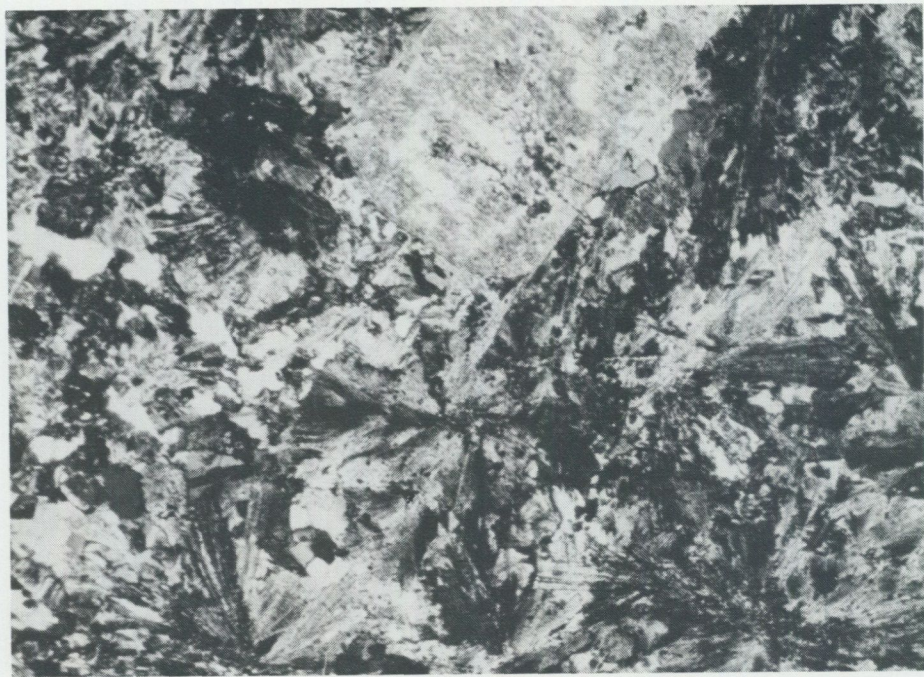


Fig. 16. Spherulitic porphyry, W of St. Knölen (local boulder). 48 \times , + nic.



Fig. 17. Granophytic porphyry, NW of N. Kättbo (A 87). 48 \times , + nic.

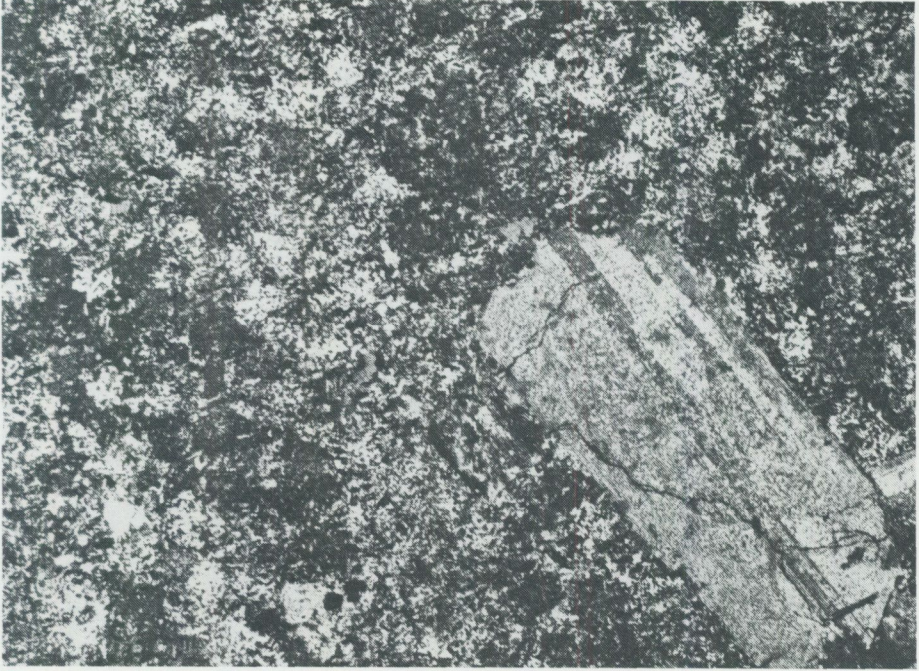


Fig. 18. Poikilitic ignimbrite, NE of Långsisdammen (A 84). 24 \times , + nic.



Fig. 19. Quartz-porphry, NW of Ormtjärn (A 98). 24 \times , 1 nic.



Fig. 20. Red porphyrite, E of Åskaken (A 106). 24 \times , 1 nic.

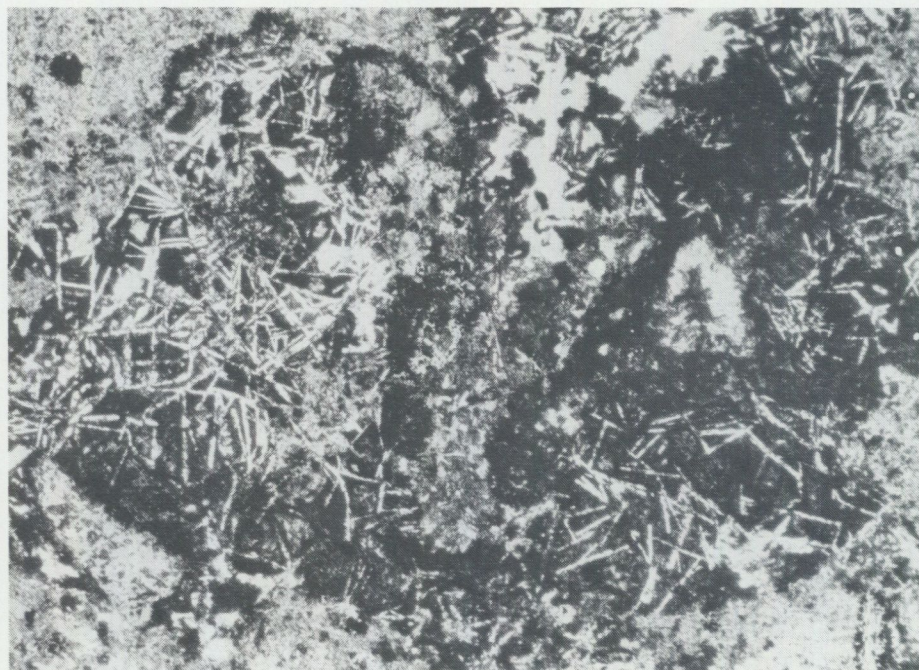


Fig. 21. Red porphyrite with narrow quartz lamellae, Näsberg (A 112). 36 \times , 1 nic.

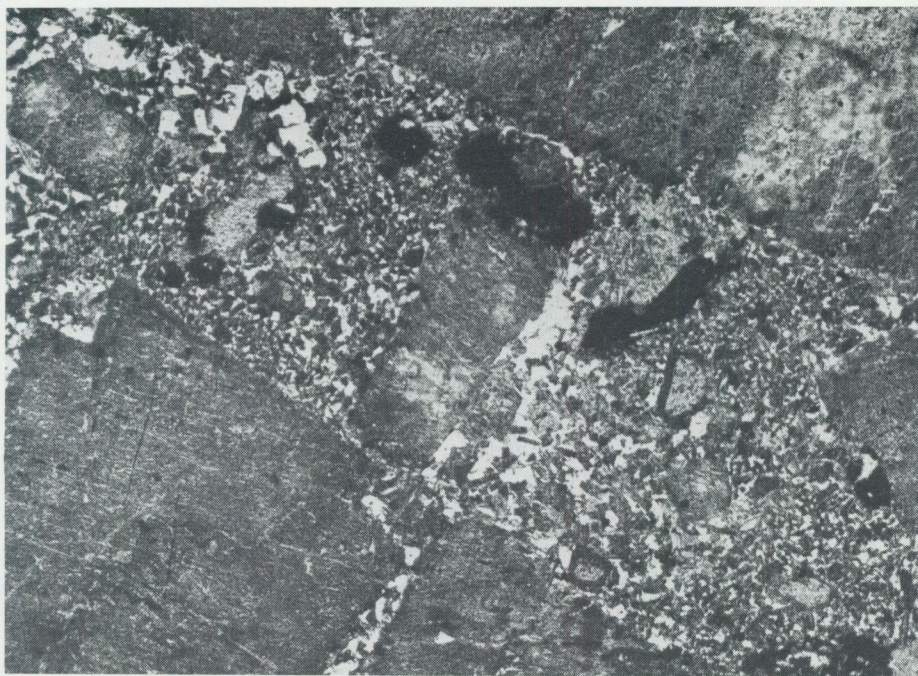


Fig. 22. Porphyry with large feldspar phenocrysts, N of Brindberg (A 124). 24 \times , 1 nic.

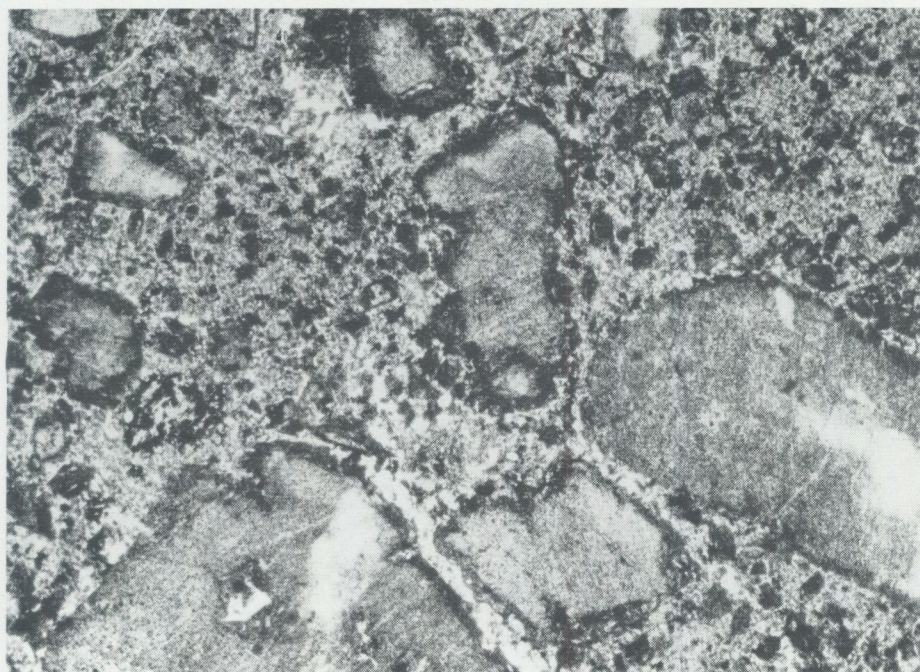


Fig. 23. Porphyry rich in large feldspar phenocrysts, W of Oxåsen (A 143). 36 \times , 1 nic.

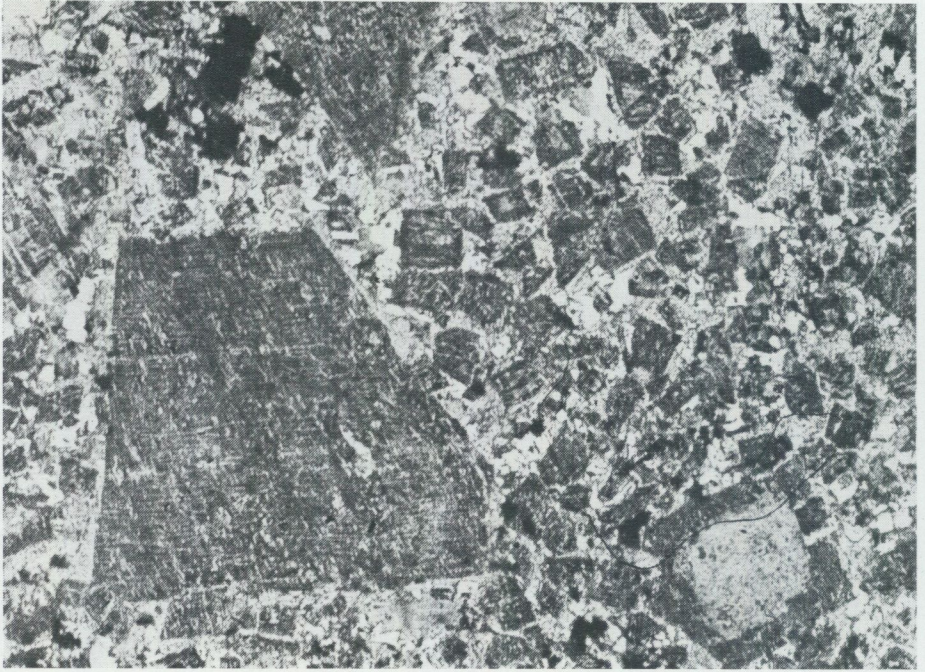


Fig. 24. Porphyry with large feldspar phenocrysts, NW of Oxåsen (A 136). 24 \times , 1 nic.



Fig. 25. Porphyry rich in large feldspar phenocrysts, Jöllen (A 135). 24 \times , 1 nic.



Fig. 26. Quartz-syenite porphyry with granophyric texture, Trängslet (A 151). 24 \times , 1 nic.

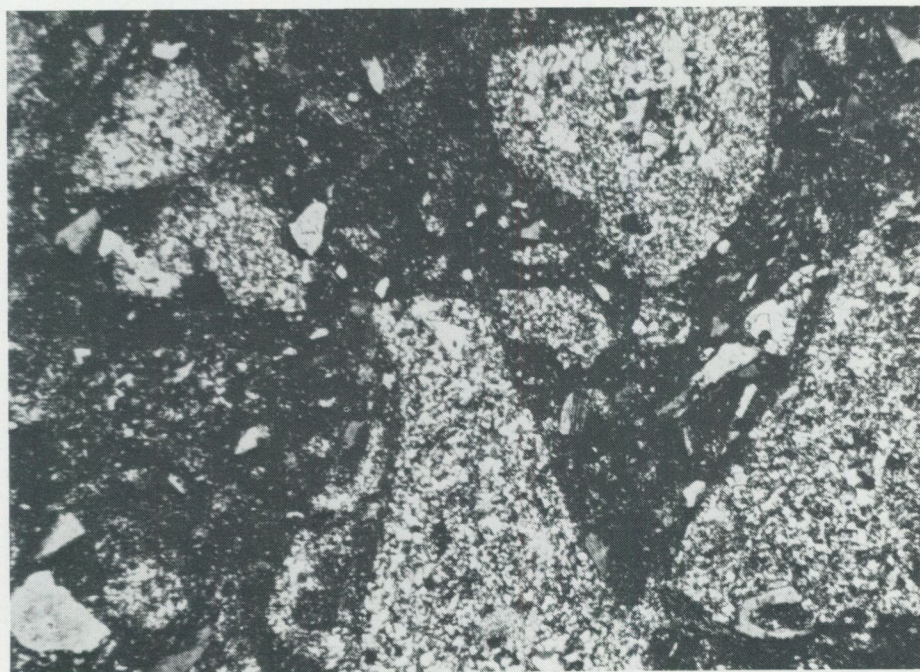


Fig. 27. Ignimbrite breccia, W of Karlsarvet (A 220). 48 \times , + nic.

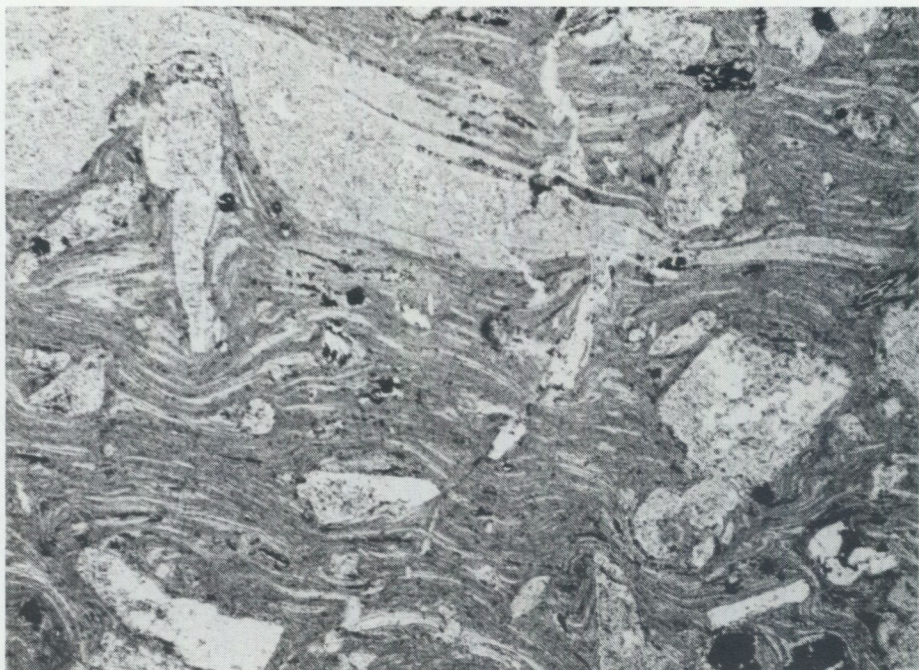


Fig. 28. Ignimbrite, SE of Torrlid (A 177). 24 \times , 1 nic.

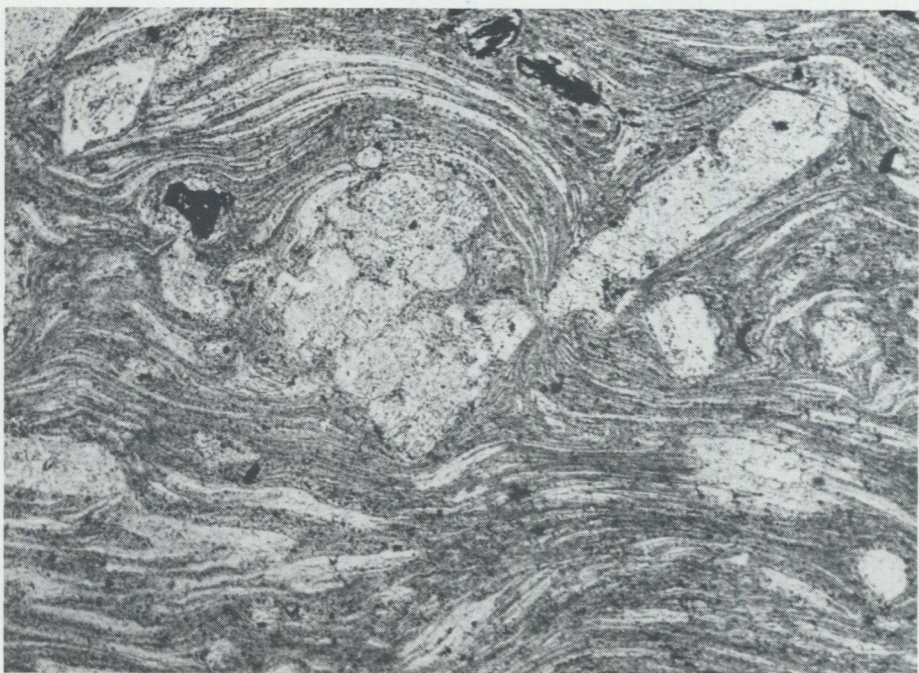


Fig. 29. Ignimbrite, SE of Torrlid (A 177). 48 \times , 1 nic.

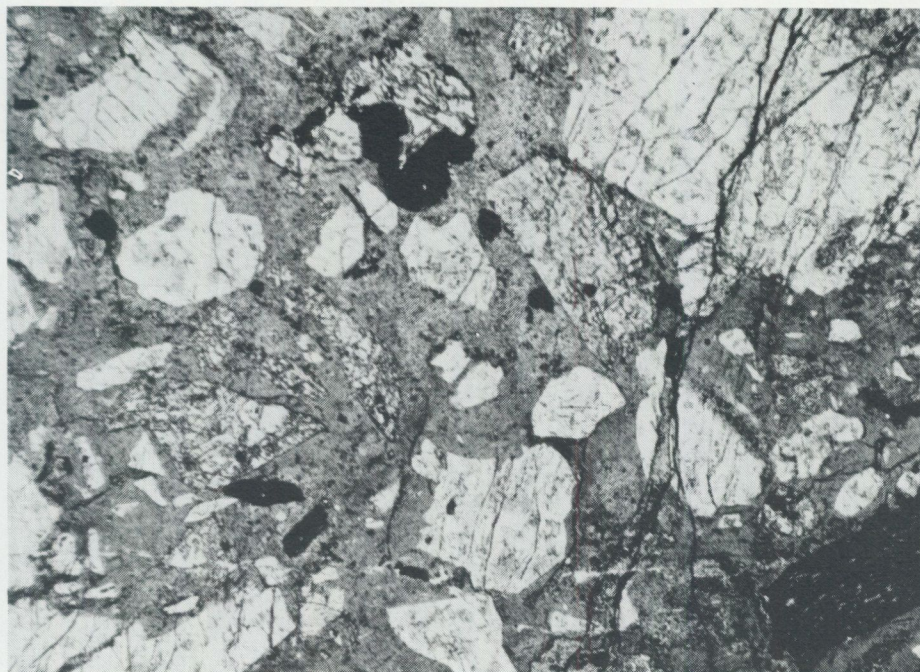


Fig. 30. Ignimbrite rich in phenocrysts, Månstaberget (A 158). 24 \times , 1 nic.

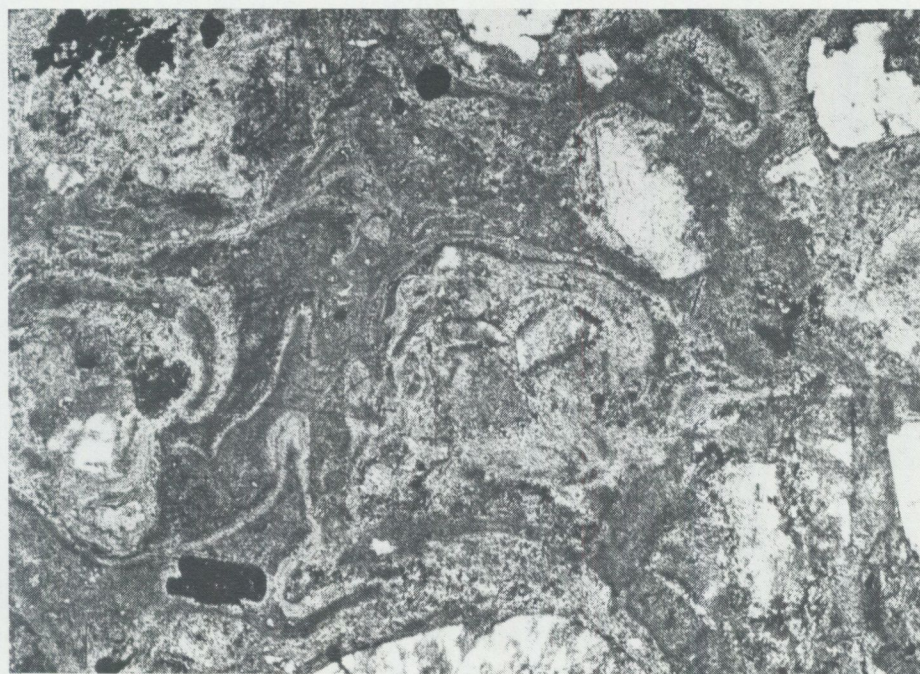


Fig. 31. Ignimbrite rich in phenocrysts, N of Göransbodarna (A 160). 24 \times , 1 nic.



Fig. 32. Blyberg porphyry, Blyberget (A 167). 24 \times , 1 nic.



Fig. 33. Ignimbrite, S of Unntorp (A 181). 60 \times , 1 nic.

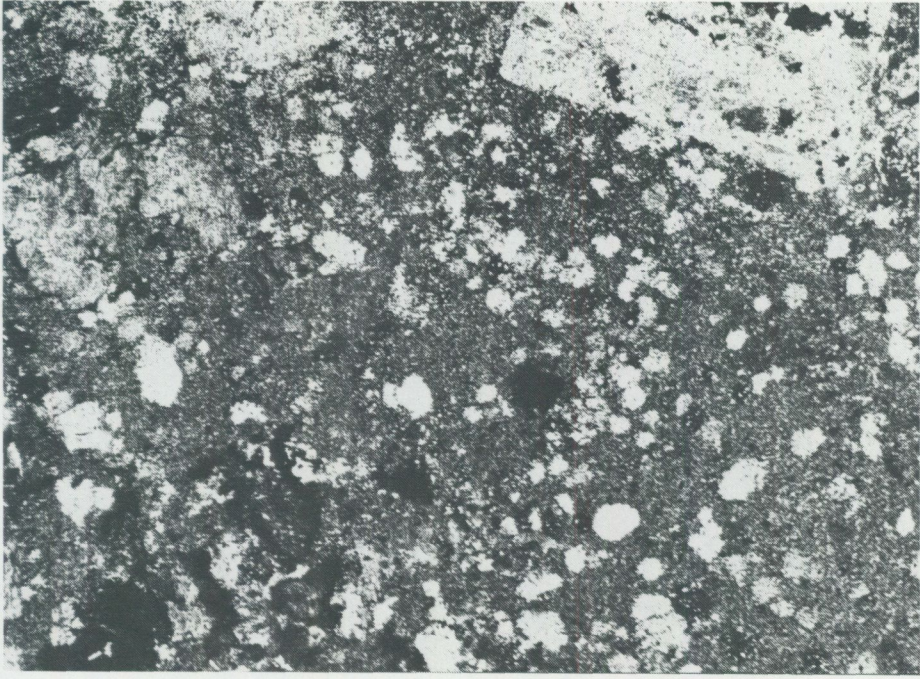


Fig. 34. Ignimbrite with sparse spots, SSW of Gopshus (A 171). 24 \times , + nic.

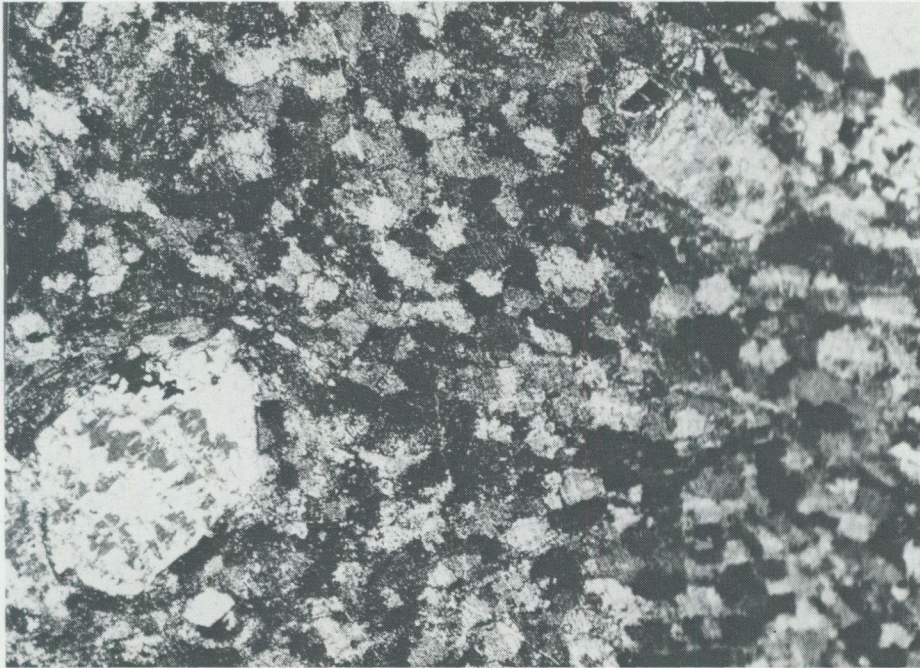


Fig. 35. Spotted ignimbrite, Månstaberget (A 178). 36 \times , + nic.

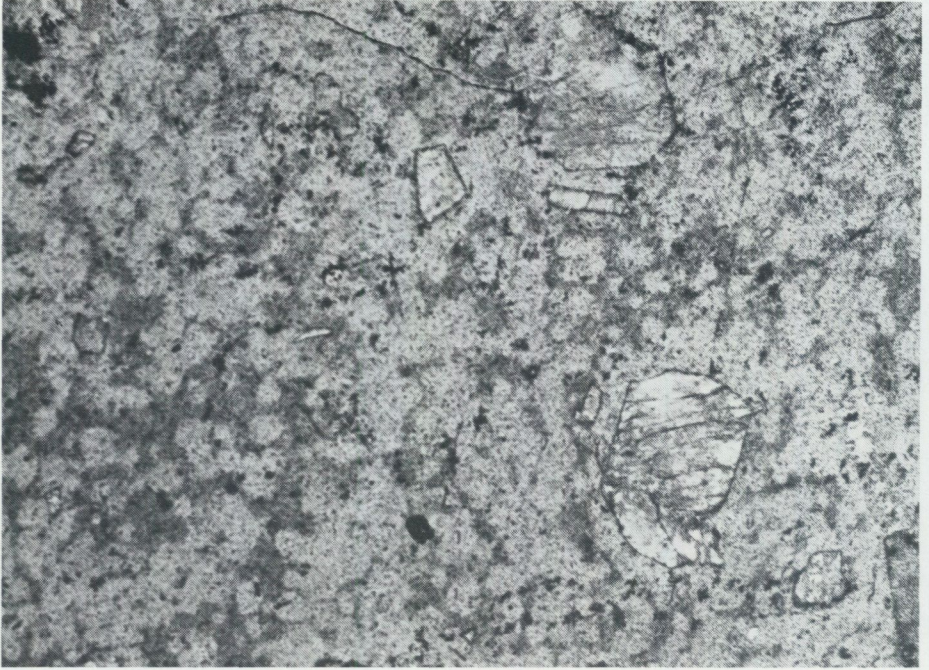


Fig. 36. Spotted ignimbrite, SW of Gopshus (A 180). 24 \times , 1 nic.

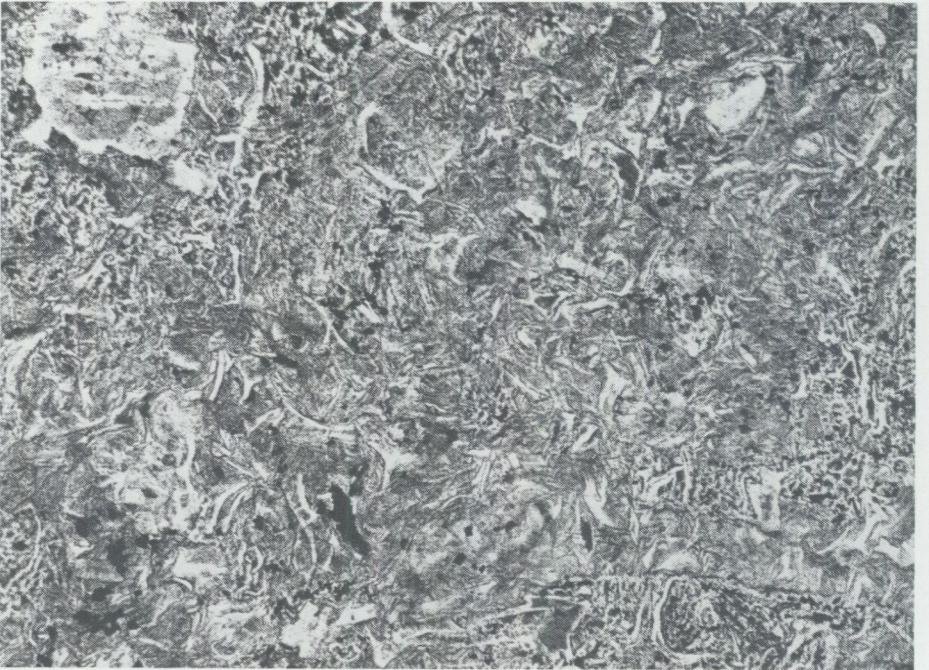


Fig. 37. Ignimbrite, Orrklitten (A 213). 24 \times , 1 nic.

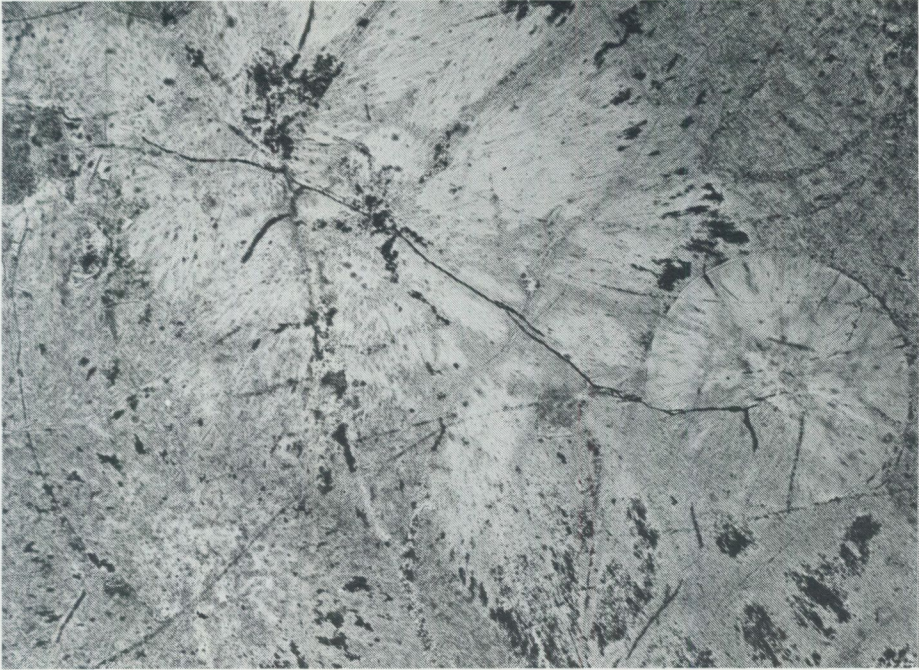


Fig. 38. Ignimbrite with spherulites, NE of Dysberg (A 204). $24\times$, 1 nic.



Fig. 39. Spherulitic ignimbrite, W of Harpsjöklacken (A 224). $48\times$, + nic.

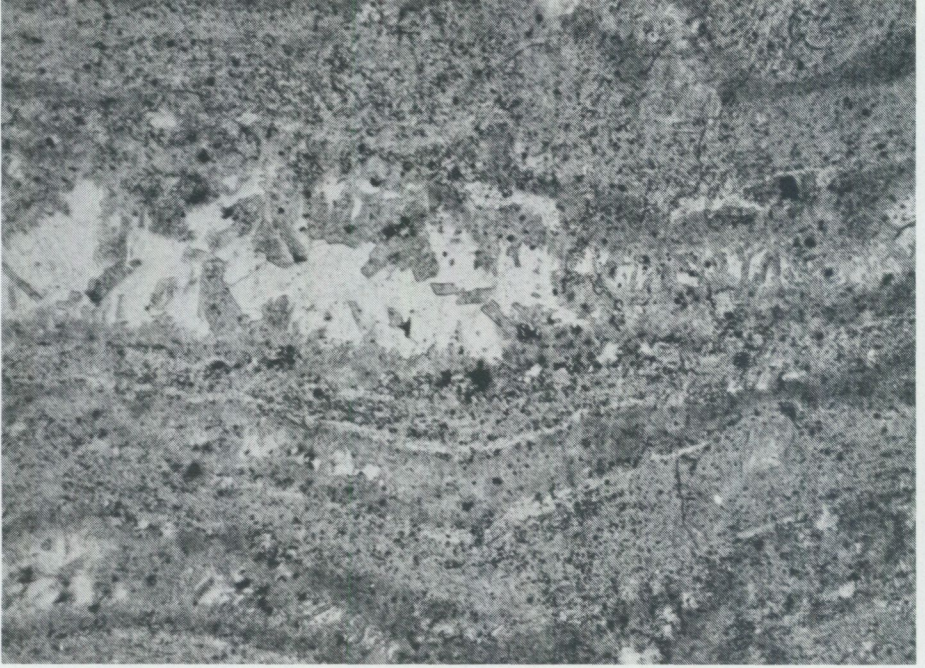


Fig. 40. Quartz lens with feldspar crystals in ignimbrite, N of Bössjön (A 202). 24 \times , 1 nic.

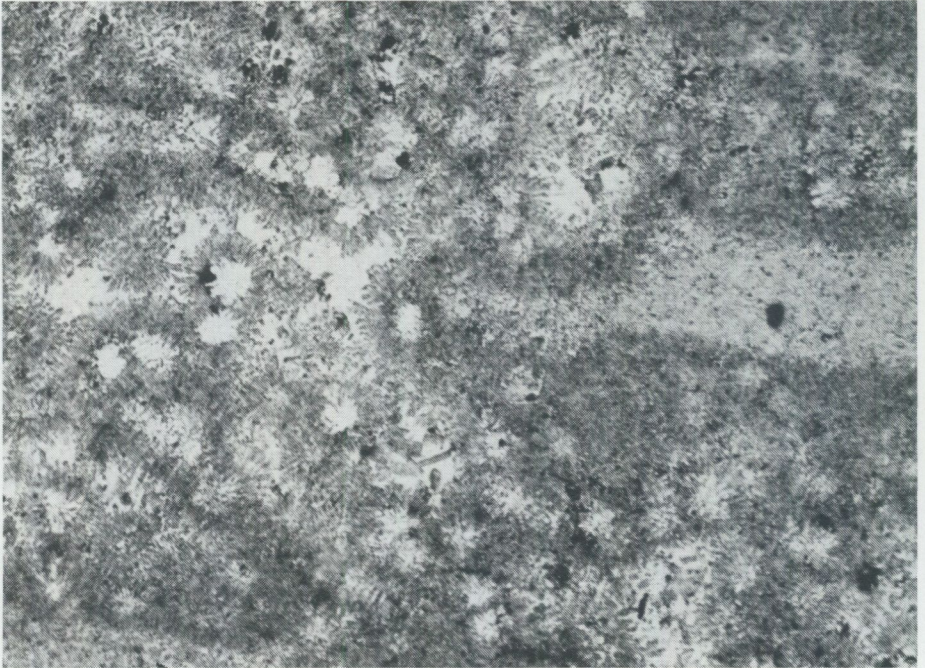


Fig. 41. Circular quartz blebs with small, marginal feldspar laths, N of Bössjön (A 202). 48 \times , 1 nic.

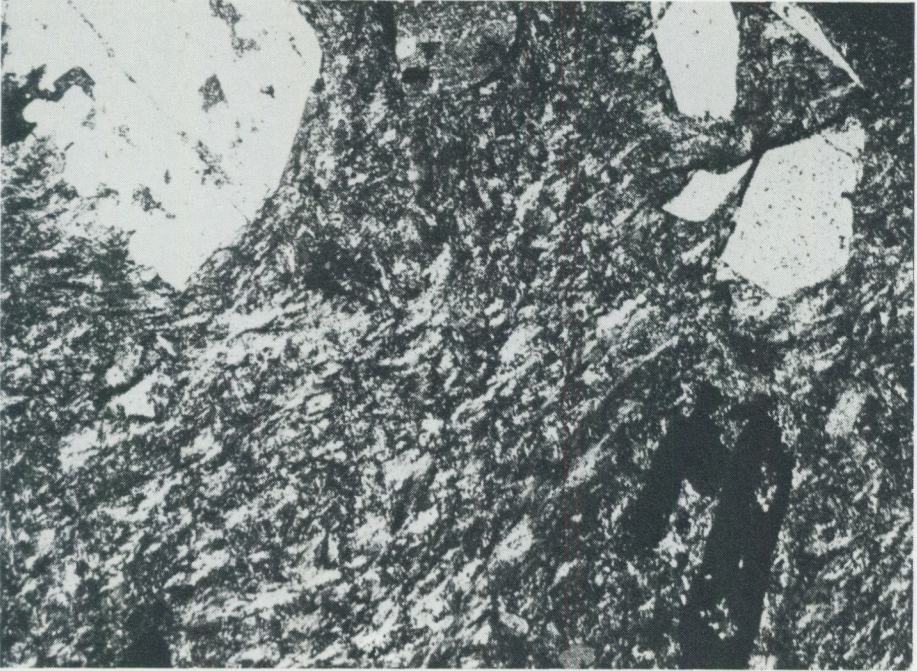


Fig. 42. Ignimbrite with trachytic texture, Svarttjärnsberget (A 163). 24 \times , + nic.

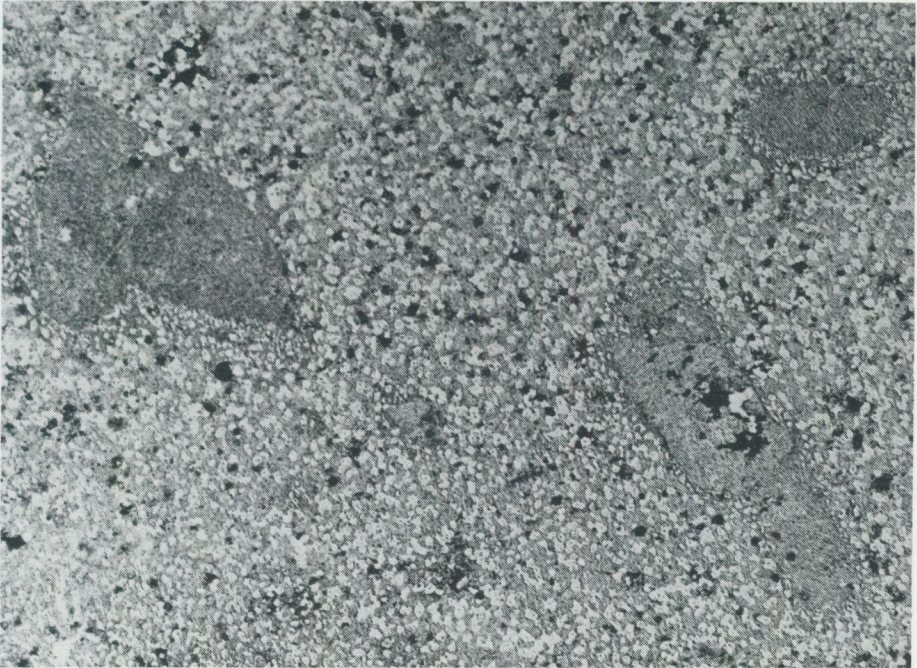


Fig. 43. Bredvad porphyry, N of St. Ugsi (A 239). 24 \times , 1 nic.

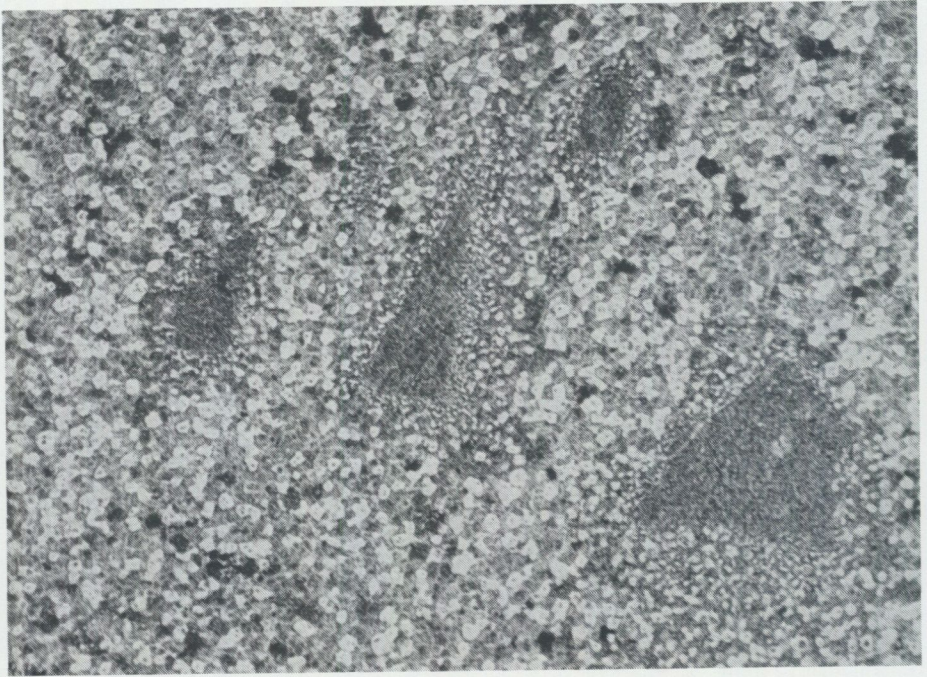


Fig. 44. Bredvad porphyry, NE of Bredvad (A 248). 48 \times , 1 nic.

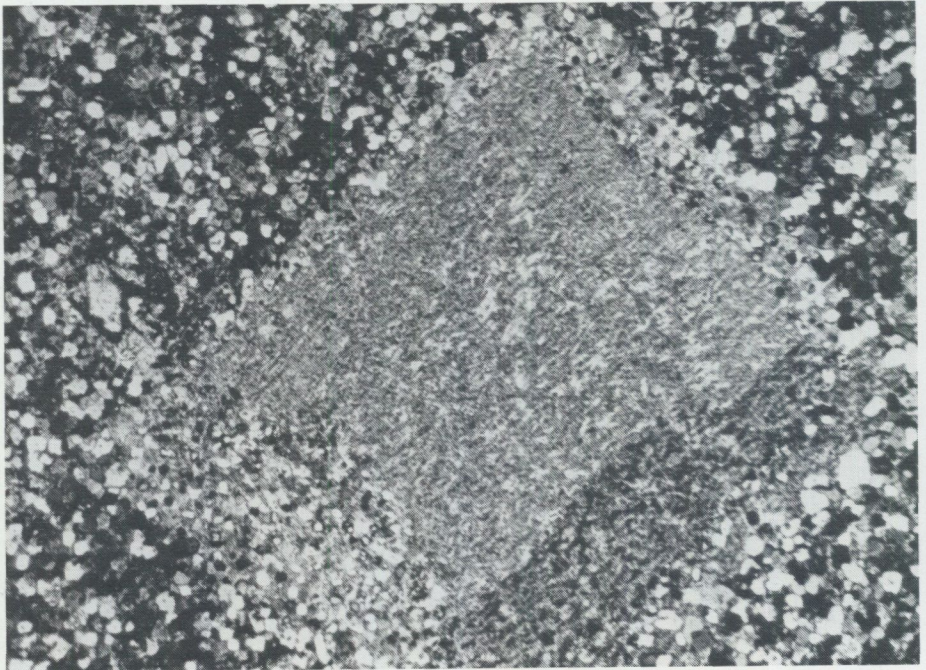


Fig. 45. Bredvad porphyry, NE of Bredvad (A 248). 48 \times , + nic.

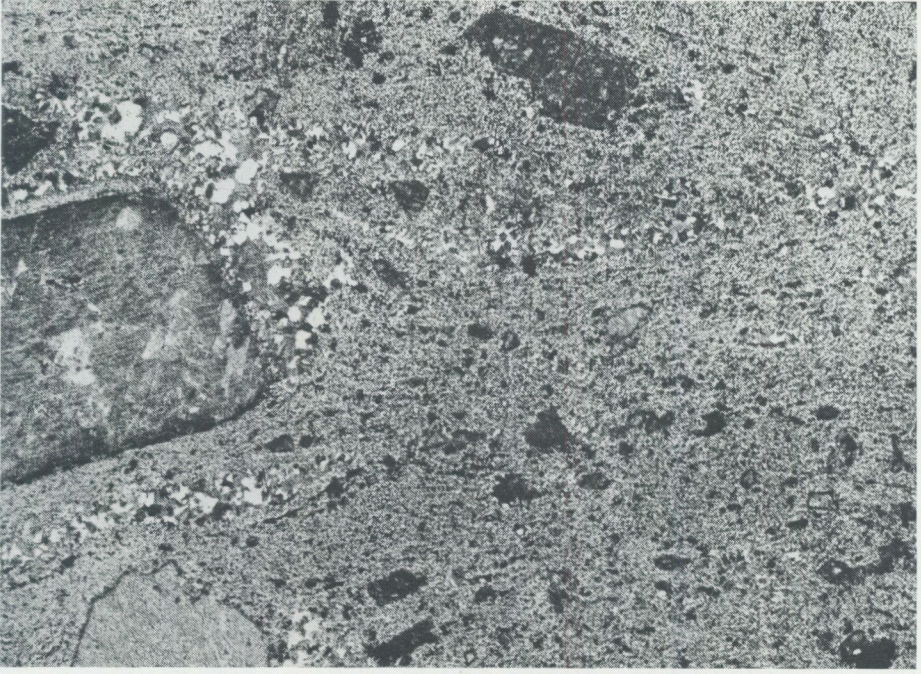


Fig. 46. Striped Bredvad porphyry, S of Vasselbodarna (A 256). $24\times$, 1 nic.

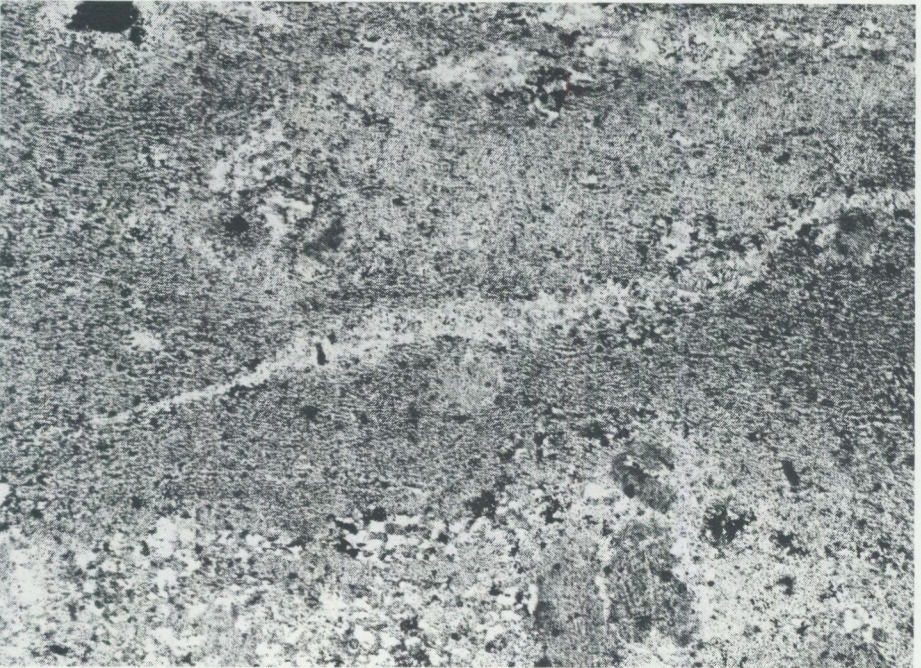


Fig. 47. Striped Bredvad porphyry, N of Brindberg (A 260). $24\times$, 1 nic.

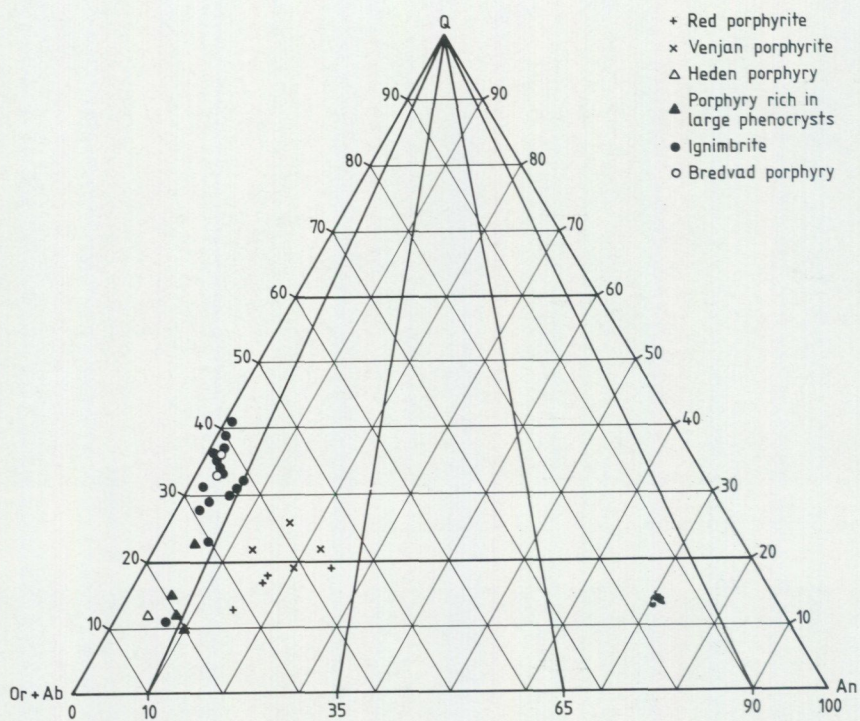


Fig. 48. Q-(Or + Ab)-An diagram of the Dala porphyries.

APPENDIX

The reason for presenting a detailed catalogue of the porphyries of Dalarna is at first hand the importance which these rocks have had as erratics and still have according to questions coming from Denmark, Germany, and the Netherlands. It therefore seems convenient to take charge of existing data when they are still available.

The porphyries of the different groups below are arranged after their contents of phenocrysts, those richest in phenocrysts coming first.

The volumetric percentages given in the tables were obtained with point counter; about 500 points of each section were reckoned. The plagioclase was classified owing to its relative refraction.

Explanation of the tables:

1. Locality (and sometimes addendum to the macroscopical rock colour definition).
2. Latitude and longitude (from Greenwich).
3. Percentage of the groundmass (excluding phenocrysts, dark minerals and accessories).
4. Colour of the groundmass. B = brown, Bl = black, G = grey, Gr = green, L = lilac, P = pale, R = red, W = white, Y = yellow, BR = brown-red, RB = red-brown etc.
5. Percentage of alkali feldspar phenocrysts.
6. Colour of alkali feldspar phenocrysts (see above).
7. Grain size of alkali feldspar phenocrysts in mm.
8. Percentage of plagioclase phenocrysts.
9. Colour of plagioclase phenocrysts (see above).
10. Grain size of plagioclase phenocrysts in mm.
11. Percentage of quartz phenocrysts.
12. Grain size of quartz phenocrysts in mm.
13. Grain size of the groundmass in mm. Sp = spots appearing with crossed nicols. In this column also percentages of dark minerals (often somewhat too high in consequence of the rounding of the figures). Amph = amphibole, Bi = biotite, Carb = carbonate, Chl = chlorite, Ep = epidote, Ho = hornblende, Musc = muscovite, Pyr = pyroxene.
14. Microscopical features. Colour in transmitted light. Grm = groundmass, eq = equigranular, ineq = inequigranular, porph = porphyritic, inhom = inhomogeneous, sp = spotted, cr = crossed, nic = nicols, und = undulatory extinction, p = partly, mod = moderately, str = strongly, seric = sericitized, idiom = idiomorphic, irr = irregular, aggr = aggregate, dist = distinct, indist = indistinct, const = constituents, alkf = alkali feldspar, grmf = groundmass feldspar, mpr = microprobe analysis. Q, Alkf, Pl, Ab, Ol, And = phenocrysts of quartz, alkali feldspar, plagioclase, albite, oligoclase, and andesine.

NORTHWESTERN DALARNA. PORPHYRIES RICH IN LARGE PHENOCRYSTS

No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	Byggningsån	61°46,5 12°52,1	38	R- RG	40	PR	1-9	12	GGr	3-8	4	1-3	0,005-0,015 Amph 2 Chl 1 Ore 3	Grm grey-brown, ineq, microporph. Alkf brown. Ab grey, mostly str. seric, p.clear, often enclosed in Alkf or with rim of alkf. Q rounded or irr. Large grains of iron ore. Pyroxene = rest in chlorite. Besides amphibole, idiom. titanite, and apatite prisms.
2	Flickerbäcken	61°48,5 12°24,4	53	GB	40	R	5-15	-	-	-	7	1-2	0,005-0,030 Sp 0,1-0,3	Grm light brown-grey or grey, ineq, micro-poikilitic, with network of quartz laths. Alkf light brown, p.clear, oval, with large perthite patches. Q str. und. Small dots and strings of iron ore.
3	Drosbacken, N of	61°50,8 12°27,5	72	LB	20	PR	3-10	1	GW GY	3-8	6	1-2 (-5)	0,01-0,03 Sp 0,05-0,2	Grm rather dark grey, micropoikilitic, dotted with fine ore dust. Alkf light brown or clear, rounded, coarsely perthitic. Ab light grey, str. seric. Also inclusion in Alkf. Q rounded. Large grains of iron ore.
NORTHWESTERN DALARNA. IGNIMBRITES														
4	Drevdagen	61°45,7 12°25,7	58	GR	22	GR	1-2	-	-	-	19	1-2	0,005-0,020	Grm light brown-grey or grey, schlieric. Less fine-grained stripes with spherulites. Alkf light brown, spotted, p.clear, coarsely perthitic with albite lamellae, also chess-board pattern. Q corrod.
5	Yxningån, W of	61°51,6 13°06,0	54	RL	22	PR	1-4	13	GW	1-3	6	1-3	0,001-0,005	Grm rather dark grey, extremely fine-grained, schlieric. Alkf light brown, p. clear, with large perthite patches. Ab-01 clear. Tabular phenocrysts of light mica and iron ore.
6	Drevdagen, S of Fig. 2	61°44,7 12°23,3	60	RL	28	PR	1-2 (-5)	1	GW	1-2	11	1-3	0,001-0,005	Grm brown-grey or grey, extremely fine-grained, p. brecciated by fine ore streaks. Alkf very light brown or clear with large perthite patches and albite lamellae. Ab clear. Q str. corrod. Large ore grains. Some amphibole and red Mn-epidote.

NORTHWESTERN DALARNA. IGIMBRITES

No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14
7	Nordomsjön, NE of	61°43,0 13°9,5	61	GB	15	PR	1-3 (-4)	10	GGr	1-3 (-4)	11	1-2	0,005-0,015	Grm dark grey or brown-grey, very fine-grained, schlieric with coarser streaks. Alkf dark brown, spotted, p. clear. Ab light grey or grey-brown. Q p. idiom. Lumps of iron ore and tabular phenocrysts of epidote + light mica + ore.
8	Brännåsen, W of Fig. 3	61°43,3 12°22,1	64	GR	23	GR	1-2 (-4)		GW	1-2	12	1-3	0,005-0,015	Grm brown-grey, very fine-grained, schlieric, eq. Alkf very light brown or clear. Q corrod, with inclusions of grm. Aggr. and narrow stripes of sericite. Lumps and strings of ore.
9	Dyvelblästan Brown-flamy	61°45,2 13°17,9	67	G	11	PR GW	1-5 (-7)	7	GW GrW	1-4	9	1-2	0,005-0,030	Grm light brown-grey, very fine-grained with coarser parts, indist. schlieric, reticulately brecciated. Alkf dark brown or brown, p. clear. Ab light grey, p. attached to Alkf. Ab and Q hardly visible in parallel light.
10	Skönsberget	61°44,0 13°9,5	72	G	13	PR	2-4 (-6)	4	GW	1-3	9	1-4	0,005-0,030	Grm light grey, ineq, fine-grained with coarser streaks and patches, schlieric, altered, with traces of perlite. Alkf very light brown or clear. Ab light grey, p. clear, hardly visible in parallel light. Q corrod. Rather richly epidote.
11	Fredriksbyg- get Indist. feld- spar pheno- crysts	61°43,1 12°18,0	73	GB	24	PR	1-2	2	GW	1-2	-	-	0,005-0,010	Grm light grey, p. extremely fine-grained, schlieric with sparse sericite stripes. Microporph. with many small phenocrysts 0,1-0,5 mm. Alkf very light brown, mostly clear, p. idiom. With cr. nic. large perthite patches. Ab very light grey or clear. Strings and large grains of iron ore. Some epidote.

NORTHWESTERN DALARNA. IGIMBRITES

No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14
12	Rödfjället, N of Light red flames	61°41,2 12°19,0	77	PG	5	GR	1-2	8	GW	1-2 (-3)			0,005-0,020	Grm grey or grey-brown, schlieric, altered, with winding sericite bands. Alkf very light brown or clear. Ab light grey, p. clear, mostly str. seric. Fragments of pumice. Accessory minerals chlorite-biotite, epidote, fluorite, apatite, ore.
13	Brännholen, S of	61°48,1 12°22,1	78	GB	15	PR R	2-5		GW	1-2	7	1-3	0,005-0,070	Grm light brown-grey, ineq, indist. poikilitic, dotted with small ore grains. Alkf light brown or clear, p. idiom. With cr. nic. large perthite patches. Ab clear. Q rounded, p. corrod. Minor const. chlorite, green mica, fluorite, zircon, and ore.
14	Busjön, SE of Red patches	61°45,1 12°13,5	82	PG	15	PG	1-2	2	G	<1			0,01-0,02	Grm grey or grey-brown, schlieric, with fragments of pumice. Many small feldspar phenocrysts. Alkf clear, p. idiom. Ab clear associated with Alkf. Iron ore lumps and aggr. together with light mica. Other minor const. chlorite, epidote, amphibole, apatite, titanite, zircon, and carbonate.
15	Härjehågna, E of	61°43,9 12°12,1	82	G	10	PR	1-2	7	GW	1-2			0,005-0,020	Grm grey-brown or light grey, very fine-grained with coarser patches, schlieric, microporph. with small, angular grains. Alkf light brown or clear, p. idiom. Ab light grey or grey-brown, p. clear. A few Q 0,2-0,5 mm. Narrow stripes of iron ore and epidote and short streaks of sericite. Fan-shaped aggr. of small biotite scales.
16	Busjön	61°45,7 12°11,0	86	G BG	10	PR GW	1-3	1	GW GrW	1-4	2	0,5- 1,5	0,005-0,010	Grm grey, very fine-grained, schlieric, with coarser bands rich in quartz, indist. poikilitic, rather altered, with narrow, winding sericite streaks. Alkf light brown or brown, also clear, p. idiom. Ab grey. Q with reaction rim. Narrow ore aggr. and stripes. Also light mica, fluorite, zircon.

NORTHWESTERN DALARNA. IGNIMBRITES

No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14
17	Kringelfjorden, E of Grey-red flames Fig. 4	61°46,8 12°57,9	88	BG	9	GW PR	2-6	-	-	-	3	0,5- 1	0,01-0,02 Sp 0,07-0,2	Grm light grey, closely poikilitic, altered. Alkf brown to clear, spotted, p. idiom. With cr. nic. large perthite patches. Q with reaction rim, idiom. - Net-work of lath-shaped quartz with uniform orientation
18	Hammarsättern Indist. feldspar phenocrysts	61°42,7 12°21,9	90	GR P	9	GW	1-2	-	-	-	-	-	0,005-0,050 Sp 0,1-0,3	Grm grey-brown with lighter patches, ineq. with coarser parts, schlieric. With cr.nic. spotted. Slightly winding, parallel sericite streaks. P. breccia-like. Alkf light brown or clear, with patches of str. seric. albite. Mn-epidote, apatite, ore.
19	Drevdagen, W of	61°46,0 12°23,3	91	RB	7	PR	1-3		GW	1-2	2	1-2 (-3)	0,005-0,020	Grm grey-brown, very fine-grained, with few coarser quartz bands. Alkf very light brown or clear. Ab str. seric. patches in Alkf. Lumps and narrow stripes of iron ore.
20	Hammarsättern, W of Flamy	61°42,6 12°20,4	92	RG	7	PG	1-2	-	-	-	-	-	0,005-0,025 Sp/ 0,03-0,06	Grm grey, fine-grained, with light grey, coarser, slightly winding bands and sparse sericite streaks. With cr. nic. small-spotted. Alkf very light brown or clear, with seric. patches of albite. Irr. grains of iron ore.
21	Fredriksbygget Fig. 5	61°43,3 12°19,4	93	BG P	6	GW	1-2	-	-	-	-	-	0,005-0,040	Grm grey or clear, ineq, perlitic, with comparatively coarse-grained, clear spheroids, surrounded by a grey, fine-grained net-work of the grm and narrow sericite streaks. Also dark grey parts, richer in phenocrysts. Alkf clear.
22	Hammarsättern	61°42,7 12°21,9	94	RG	6	RG	1-2	-	-	-	-	-	0,005-0,15	Grm light grey, very ineq, p. perlitic. Small patches and streaks of extremely fine-grained sericite. Alkf clear. Irr. occurring aggn. of ore. Titanite, zircon.

NORTHWESTERN DALARNA. IGNIMBRITES

No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14
23	Grönstedts- åsen Indist. feld- spar pheno- crysts	61°41,9 12°49,8	94	RB	5	PR	1-3		G	1-2	1	0,5- 1	0,01-0,05	Grm light brown-grey, schlieric, closely striped, with small spherulites. Alkf light brown or clear, rich in albite. Ab clear. Q with reaction rim. Bands and lenses of quartz with small, idiom. feldspar crystals at the margins. Small fan-shaped aggr. of muscovite. Other minor const. zircon, ore.
SOUTHWESTERN PORPHYRY BELT. HEDEN PORPHYRY														
24	Kallberget, SW of	61°1,7 12°55,0	44	RL RB	45	PR RB	5-15	7	GY GGr	5-20			0,05-0,30	Grm microporph. Locally indist. granophyric. Grmf grey. Feldspar phenocrysts rounded or more irr. Small feldspar phenocrysts 0,4-0,8 mm. Alkf light brown or grey. Ab grey or grey-brown, often diffuse core in Alkf. Minor minerals iron ore, chlorite, amphibole, and apatite.
25	Heden, SW of Fig. 6	60°52,6 13°21,5	47	BR RL	43	BR	3-12	3	GY	3-6			0,1-0,4	Grm coarse-grained, granophyric. Grmf light grey or grey. Alkf light brown or grey, p. clear, often broadly rectangular. Ab light grey, str. to mod. seric, p. idiom. Also diffuse core in Alkf. Dark minerals chlorite amphibole, titanite, and iron ore. Other minor const. apatite, fluorite, carbonate. Mpr $Or_{19}Ab_{80}An_1$, $Or_1Ab_{98}An_1$.
26	Häckåberget, E of	60°53,6 13°18,9	50	BR	39	PR GY	3-15	3	GGr	3-15			0,06-0,40	Grm microporph. Small feldspar phenocrysts 0,7-1,5 mm. P. granophyric. Grmf grey or grey-brown with irr. grain boundaries. Alkf light grey or clear, broadly rectangular. Ab grey or grey-brown, zonal, str. seric. Also inclusion in Alkf. Other minerals epidote, amphibole, biotite-chlorite, titanite, apatite, and iron ore.

SOUTHWESTERN PORPHYRY BELT. HEDEN PORPHYRY

No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14
27	Almsjöberget Brick-red alkali feld- spar pheno- crysts	60°55,2 13°8,3	55	GR	27	R	2-12	10	GW GrW	2-7	-	-	0,1-0,4	Grm microporph. Small phenocrysts 0,6-1,5 mm. Grmf grey with irr. grain boundaries. Alkf light grey or brown, p. clear, broadly rectangular with growth zone. Ab light grey or grey, str. seric, zoned, mostly inclusion in Alkf. Among dark minerals rather much amphibole and iron ore.
28	Örsjön, SSE of	60°53,2 13°14,1	55	BR	35	PR	2-7	8	GW	2-10	-	-	0,02-0,10	Grm microporph. Small phenocrysts 0,5-0,8 mm. Grmf brown. Alkf light grey or grey-brown or clear, p. broadly rectangular. Ab grey or brown, str. seric. Among dark minerals amphibole, epidote, and iron ore.
SOUTHWESTERN PORPHYRY BELT. KALLBERGET PORPHYRY														
29	Rönklevén	60°58,2 13°5,7	62	RL	33	LR	1-3 (-5)		GW RY	1-3	4	1-2	0,01-0,02	Grm brown-grey, eq, fine-grained, alternating with somewhat coarser, light brown streaks and patches with incomplete spherulites. Alkf grey or light grey, brown-spotted, p. clear, broadly rectangular or with vague outlines, und. Very fine-grained scaly aggr. of green-brown mica. Idiom. titanite. Brown amphibole, iron ore.
30	Kallberget Fig. 7,8	61°2,0 12°55,3	67	BR BL	21	BR	1-3 (-5)	1	G	1-3	9	1-2	0,01-0,02	Grm light grey-brown, eq, fine-grained with coarser patches, slightly schlieric. Alkf light grey or grey-brown or clear, p. broadly rectangular. Pl grey-brown, str. seric, inclusion in Alkf. Q str. und. Idiom. titanite. Light brown biotite, iron ore.

SOUTHWESTERN PORPHYRY BELT. KALLBERGET PORPHYRY

No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14
31	Storhögen	61°4,8 12°50,2	67	RL	28	RL	1-3 (-5)		GGr	1-2	5	1-2	0,005-0,015	Grm dark grey-brown or brown, fine-grained, eq. with coarser light brown streaks and patches, indist. schlieric. Alkf light grey or brown, p. idiom, mostly uneven outlines, flamy. Ab grey, patches in Alkf. Q rounded, seldom idiom, str. und. Idiom. titanite.
32	Midskogshögen	61°7,4 12°48,5	70	RL	19	RL BR	1-2 (-5)	2	PG	1-2	9	1-2	0,005-0,015	Grm light brown-grey, finely striped, also visibly in parallel light, fine-grained, eq. with narrow, somewhat coarser stripes. Alkf clear with growth zone. Ab-Ol light grey or clear, str. seric, also inclusion in Alkf. Q p.idiom, mostly rounded, corrod.
33	Kallberget, SSW of	61°1,6 12°55,2	71	BR BL	18	R	1-2 (-4)	-	-	-	9	1-2	0,005-0,020	Grm grey-brown, fine-grained, eq. with coarser lenses or streaks, slightly schlieric. Alkf light grey or grey-brown, seldom rectangular. Q str. und. Also very small quartz phenocrysts. Idiom. titanite.
34	Gissjön, SE of	60°52,4 13°20,0	73	BR	19	BR PR	1-2 (-4)	1	PG	1-2	7	1-2	0,010-0,025	Grm very light grey, eq. with subordinate coarser streaks with granophyre. Alkf clear p. idiom. Ol light grey-brown. Q str. und. Idiom. titanite.

SOUTHWESTERN PORPHYRY BELT. OTHER PORPHYRIES

No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14
35	Skamrisberget	60°39,9 14°2,0	64	GR	21	PR	1-2	4	GW	1-2	8	1-2	0,01-0,04	Grm almost clear, ineq, slightly gneissic. Alkf clear, uneven outlines, also grid-twinned. Ab clear. Q str. und, p.granulated.
36	Markkviståsen	61°4,3 12°48,5	65	BL	30	R	2-5	-	-	-	3	1-2	0,005-0,010	Grm brown-grey, very fine-grained, schlieric eq. Alkf light brown or brown-grey or clear, p.idiom. Ab light grey, attached to Alkf. Q str. und. Narrow stripes of sericite.
37	Vallarberget, N of	60°52,3 13°20,6	68	BL	27	R	1-6		GGr	1-2	2	1-2	0,005-0,010	Grm light grey-brown, very fine-grained, eq. with somewhat coarser patches and winding sericite stripes, schlieric. Alkf light brown or brown, irr. zoned, outer parts light grey with albite lamellae. Q str.und.
38	Ingvaldshögen, S of	61°8,2 12°44,0	70	GB P	11	PR	1-2 (-5)	10	GW	1-2 (-5)	6	1-2	0,005-0,10	Grm light grey-brown, str.ineq, dotted with small grains of ore, epidote and chlorite, slightly schlieric with sericite rich patches. Also some spherulites, Alkf light brown or clear, p.idiom. Ab light grey or grey-brown, p.clear, idiom. Q rounded, str. und. Alkf and Ab hardly visible in parall.light.
39	Gällvallsberget	61°1,4 12°59,1	89	BL	10	R G	1-5	-	-	-	-	-	0,005-0,040	Grm grey-brown, ineq. with uneven grain boundaries, dotted with small ore grains. Alkf light grey or clear. Str. altered.
40	Nålberget, NNE of Grey-banded (Lava)	60°52,3 13°21,2	95	BL	3	PR	1-3	1	GW	1-2 (-5)	-	-	0,005-0,010	Grm brown-grey, very fine-grained, with light grey, coarser bands with spherulites. Also narrow, winding streaks rich in sericite. Alkf light brown or clear, brown-spotted. Ab light grey or clear. Small lenses of coarse-grained quartz.

SOUTHERN DALARNA. VENJAN PORPHYRITE

No.	1	2	3	4	5	6	7	8	9	10	13	14
41	Ärten, N of	60°19,2 14°3,5	49	GW R	1	PR	1-2 (-10)	33	GrW	2-10	0,05-0,10 Bi-Chl 5 Ho 6 Ore 4	Grm clear, rather coarse-grained, eq. Alkf clear, with cr. nic. finely watered. Ab-Ol str. altered, dirty grey with small clear fields, p. idiom. Mostly uneven outlines. Some grains dotted with sericite and zoisite. Phenocrysts of biotite-chlorite and hornblende 1-2 mm, usually rugged, uneven. Minor const. epidote, titanite, apatite.
42	Gruvåsen Fig. 11	60°20,1 14°3,9	50	GR	2	PR	2-5 (-10)	33	GrW	3-7 (-10)	0,05-0,15 Chl 7 Ho 5 Ore 2	Grm rather coarse-grained, eq. Grmf light grey. Alkf light grey-brown or clear with narrow reaction rim, p. idiom. Ab-Ol dirty grey, dotted with sericite and zoisite, small clear fields, zonal. Broad flakes of chlorite and irr. grains of hornblende 1-5 mm. Minor const. epidote, apatite, prehnite. Mpr $Or_{94}Ab_5An_1$ and $Or_1Ab_{97}An_2$.
43	Kullsberget, E of Fig. 9,10	60°21,6 14°5,1	59	RG P	12	PR	1-3	21	GrW	1-5	0,01-0,10 Bi-Chl 5 Ho 1 Ore 2	Grm very light brown-grey, ineq, microporph. Alkf clear, p. idiom, with poikilitic border, also grid-twinning. Ol dirty grey, dotted with sericite and zoisite, with very subordinate clear fields, p. idiom. Mostly uneven outlines. Broad, rugged flakes of biotite, p. altered to chlorite, 1-2 mm. Also large ore and titanite grains and aggr. of hornblende and ore. The ore minerals are magnetite and hematite and small grains of sphalerite with core of pyrite. Minor const. epidote, titanite, apatite, prehnite. Mpr $Or_{69}Ab_{30}An_1$, $Or_1Ab_{97}An_2$.
44	Brindåsberget	60°18,2 14°6,9	60	PG	11	GR P	1-3 (-4)	19	GW	1-3 (-4)	0,02-0,10 Bi-Chl 5 Ho 3 Ore 2	Grm clear, ineq, microporph. Alkf clear, p. idiom, with poikilitic border, also grid-twinning. Ol dirty grey, dotted with sericite and zoisite, mostly clear with weak zoning, p. idiom. Tabular biotite-chlorite 1-3 mm. Hornblende, p. poikilitic, with rugged outlines, also with rest of pyroxene, 1-3 mm. Other minor const. epidote, titanite, apatite.

SOUTHERN DALARNA. VENJAN PORPHYRITE

No	1	2	3	4	5	6	7	8	9	10	13	14
45	Gruvåsen	60°20,1 14°3,9	64	GR	10	PR	1-3	17	GGr	1-2 (-4)	0,01-0,03 Chl 5 Ep 1 Ore 2	Grm very light grey-brown, fine-grained, eq, microporph. Alkf clear, more seldom brown-spotted, p. idiom, with poikilitic border, weakly grid-twinning. Ab dirty grey, dotted with sericite and zoisite. p. clear, also inclusion in Alkf. p. broadly tabular, mostly uneven. Idiom. or irr. flakes of chlorite (after biotite) 1-2 mm. Aggr of epidote and chlorite
46	Yngtjärns- berget	60°18,9 14°5,0	65	GR P	9	GR P	1-4	15	GGr GW	1-4	0,01-0,10 Bi-Chl 6 Ep 2 Ho 1 Ore 1	Grm very light grey-brown, ineq, microporph. Alkf clear or light grey-brown-spotted, poorly idiom, with poikilitic border. Ab-Ol dirty grey, with sericite and zoisite, p. clear, tabular or more irr. grains. Idiom. biotite, p. altered to chlorite, 1-2 mm.
47	Sågen, NE of	60°16,0 14°9,3	66	GR P	10	GR	1-4	18	GW	1-4	0,02-0,15 Bi-Chl 4 Ho 2 Ore 1	Grm less fine-grained, ineq, microporph. Grmf brown or grey-brown. Alkf clear, grey-brown-spotted with poikilitic border. Ab-Ol dirty grey, dotted with sericite and zoisite, p. clear, broadly tabular or, mostly, irr. grains. Uneven flakes of biotite, p. altered to chlorite, 1-2 mm. Poikilitic hornblende. Aggr. of hornblende, chlorite, and epidote. Other minor const. titanite, apatite, zircon.

SOUTHERN DALARNA. PORPHYRIES RICH IN LARGE PHENOCRYSTS

No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14
48	Sågen, E of	60°15,1 14°11,7	42	GB	22	PR	2-10	22	GY GGr	2-5	8	2-4	0,01-0,05 Chl 4 Ore 2	Grm light grey-brown, ineq, with small dots of ore and biotite. Many small phenocrysts. Alkf light grey-brown or clear, p. grid-twinned. Ab grey, str. seric. Feldspar phenocrysts with very uneven outlines. Q p. idiom, und. Ore grains with border of titanite. Mpr Or ₉₇ Ab ₃ , Or ₂ Ab ₉₇ An ₁ .
49	Rödberget Fig. 12	60°16,8 14°13,9	43	PG	24	PR	5-25	16	GGr	2-8	10	2-7	0,02-0,20 Bi 3 Chl 2 Ep 1	Grm clear, gneissic, ineq. Alkf clear, p. grid-twinned, also dotted with small albite grains. Ab grey, p. str. seric. Q rounded or idiom, str. und. Ore grains with titanite border. Also orthite.
50	Rödsjön, S of	60°14,3 14°15,3	49	GR	19	GR	2-3	14	GW GY	2-5	13	1-5	0,01-0,04 Bi-Chl 3 Ore 2	Grm light grey-brown, slightly schlieric, eq. with somewhat coarser streaks, dotted with small grains of chlorite, mica, and ore. Feldspar phenocrysts with uneven outlines. Many small phenocrysts. Alkf clear, und, p. grid-twinned. Ol grey-brown, p. str. seric, also clear. Q str. und, p. granulated. Narrow flakes of biotite-chlorite.
51	Laxtjärn	60°15,8 14°10,8	58	GB	1	PR	2-4	26	GGr GY	2-10	4	1-3	0,01-0,10 Bi-Chl 6 Ore 4	Grm very light grey-brown, ineq, micropoikilitic, dotted with small grains of ore and chlorite. Many small feldspar phenocrysts. Alkf clear. Ol dirty grey, str. seric. or clear, p. idiom. Q str. und. Aggr. of olive-green biotite, chlorite, epidote, apatite, and ore. Iron ore with border of titanite.
52	Kökaråsen, SW of	60°17,0 14°19,7	64	G- RG	19	PR	2-6	9	GW	2-10	2	1-3	0,01-0,07 Bi 1 Musc 1 Ep 1 Ore 3	Grm very light grey-brown, granular, indist. schlieric, dotted with ore, epidote, and chlorite. Alkf light grey or clear, p. grid-twinned. Ab grey with brown epidote, also large muscovite scales. Q str. und. Aggr. of olive-green biotite, epidote, and ore.

SOUTHERN DALARNA. PORPHYRIES RICH IN LARGE PHENOCRYSTS

No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14
53	Milborgs- berget	60°26,0 14°08,6	67	GR	16	GR	2-8	4	PG	2-3	11	1-2	0,01-0,15	Grm clear, gneissic, ineq. Alkf light grey-brown or clear, with uneven outlines, p. grid-twinned. Ab-01 grey, with sericite and zoisite, p. clear, also indist. inclusion in Alkf. Q str. und. Small scales of olive-brown biotite. Idiom. titanite.
54	Örsen, E of	60°20,2 14°13,6	70	RG P	14	PR	2-5	7	PRY	2-10	5	1-2	0,02-0,06 Bi 2	Grm clear, eq. dotted with small grains of ore and biotite. Alkf clear, grid-twinned, also Carlsbad twins. Ab light grey or clear, p. brown-spotted, dotted with epidote and muscovite. Q p. idiom. Phenocrysts of olive-green biotite 1-2 mm.
55	Simonsberget Dark	60°10,9 14°15,6	71	GB	17	PR	3-8	7	GGr	2-4	2	1-2	0,01-0,06 Chl 1 Ore 1	Grm brown-grey, fine-grained, dotted with small ore grains, poikilitic, with network of narrow quartz laths. Alkf light grey or clear, p. rectangular, also grid-twinned. Ab brown-grey, str. seric, p. idiom. Q oval, und. Poikilitic sponges 0,15-0,20 mm.
SOUTHERN DALARNA. OTHER PORPHYRIES (QUARTZ-PORPHYRIES)														
56	W.Vakern, N of Altered	60°24,3 14°06,2	56	GB	12	PR	1-4	8	GW	1-3	10	1-3	0,005-0,020 Musc 6 Chl 3 Ore 4	Grm very light grey-brown, fine-grained, with dark grey-brown, winding streaks or patches, rich in sericite, schlieric, unevenly dotted with mica, epidote, and ore. Microporph. with small, angular phenocrysts 0,1-0,5 mm. Alkf clear, p. grid-twinned. Ab grey str. seric, also with large muscovite scales p. clear. Q str. und. Aggr. of muscovite, chlorite, epidote, and ore.

SOUTHERN DALARNA. OTHER PORPHYRIES (QUARTZ-PORPHYRIES)

No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14
57	Rödsjön, W of	60°15,6 14°12,6	68	RG P	9	GR	1-4	3	RY	1-2	15	1-4	0,02-0,05 Musc 5 Ore 1	Grm light grey-brown or clear, eq, dotted with small ore grains. Indist. and uneven feldspar phenocrysts. Alkf light grey-brown or clear, p. grid-twinned, also stippled with muscovite. Ab grey, p. clear, with sericite and large muscovite scales. Q rounded, p. idiom, weakly und.
58	Björnberget	60°22,8 14°17,4	73	G	9	PR	1-3	10	GW	1-4	6	0,5-1,5	0,002-0,030	Grm brown-grey, ineq, schlieric, with uneven phenocrysts of much varying size. Alkf light grey or clear, spotted, p. grid-twinned. Ab light grey or clear, p. idiom. Q rounded, str. und. Narrow stripes of ore and epidote. Tabular phenocrysts or aggr. of light mica, epidote, and ore 1-2 mm.
59	Örsen, W of	60°20,2 14°11,1	74	BG P	3	PR	1-3	14	GW	1-3	3	0,5-1	0,003-0,010 Bi 2 Musc 1 Ore 2 Chl 1	Grm very light grey-brown or clear, very fine-grained, slightly schlieric, p. poikilitic. Uneven, indist. feldspar phenocrysts. Alkf clear or light grey-brown, dotted with epidote and muscovite. Ab light grey or clear, p. str. seric, also larger muscovite scales. Q weakly und. Winding ore streaks and aggr. of olive-green biotite, muscovite, epidote, and ore. Poikilitic spots 0,1-0,2 mm.
60	Torpsberget	60°21,5 14°15,9	75	BG P	7	BG	1-2	12	GGr P	1-5	3	0,5-1	0,005-0,040 Bi 2 Ore 1	Grm light grey-brown, very fine-grained, schlieric, with less fine-grained lenses and sericite-rich streaks. Alkf clear with sericite-filled cracks. Ab clear with sericite patches and veins. Q rounded, weakly und. Olive-brown biotite.

SOUTHERN DALARNA. OTHER PORPHYRIES

No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14
61	Knästen Dark	60°21,3 14°21,5	80	BG -G	4	PR	1-2	13	GW GrW	1-3	1	0,3 -1	0,005-0,020 Bi 1 Ore 1	Grm light grey-brown, very fine-grained, eq, with sparse diffuse, less fine-grained, lighter streaks and dotted with very small scales of olive-green biotite and ore. Alkf light brown-grey or clear, p. grid-twinned. Ab-Ol grey or dirty grey, p. clear, with sericite spots and also epidote and fluorite p. idiom. Q angular, und. Small aggr. of olive-green biotite and ore.
62	Flatbyn, W of	60°17,3 14°13,6	85	BG	1	PR RY	1-2	10	GW GY	1-4	-	-	0,02-0,08 Musc 1 Ore 1	Grm clear, less fine-grained, eq, dotted with small scales of olive-green biotite and ore. Alkf light grey. Ab brown-grey, p. idiom, with sericite and large muscovite scales.
63	Vakern, NW of	60°23,2 14°7,3	92	GB	1	PR	1-2	4	GW GY	1-2 (-10)	-	-	0,01-0,10 Chl 2 Ore 1	Grm light grey-brown, trachyte-like, with small lath-shaped feldspars, dotted with small grains of mica and ore. Alkf light grey-brown or clear, indist. in parallel light. Ab light grey or clear, p. idiom. with small muscovite scales. Chlorite phenocrysts 1-2 mm.
SW AND W OF SILJAN. VENJAN PORPHYRITE														
64	N.Kättbo, W of	60°51,1 14°9,3	50	PG	1	PR	0,5 -1	29	GW GGr	1-2 (-6)	-	-	0,01-0,04 Bi 4 Ho 5 Pyr 3 Ep 2 Chl 3 Ore 3	Grm very light grey-brown, alternating with dark brown parts, ineq, microporph. Small phenocrysts 0,2-0,5 mm. Alkf clear with poikilitic border. And dirty grey, p. idiom, mostly uneven grains, dotted with sericite and zoisite or epidote. Some phenocrysts clear, zonal. Biotite and chlorite form idiom. flakes 1-2 mm, hornblende and pyroxene irr. prisms. Pyroxene also inclusion in hornblende. Other const. apatite, prehnite.

SW AND W OF SILJAN. VENJAN PORPHYRITE

No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14
65	Landbobyň	60°45,6 14°8,7	54	G	1	PR	1-3	28	GrW	2-4	-	-	0,01-0,05 Bi 7 Ho 1 Pyr 4 Ore 3	Grm very light grey-brown with dirty grey patches, ineq, microporph. Numerous small, uneven or rounded phenocrysts 0,1-0,5 mm. Alkf clear with poikilitic border. And dirty grey, dotted with sericite and zoisite, p. idiom. Many grains clear. Broad flakes of biotite, p. altered to chlorite, 1-2 mm. Idiom. prisms of pyroxene 1-2 mm. Also rhombic pyroxene.
66	S.Kättbo	60°49,9 14°12,3	55	G	-	-	-	26	GW GGr	1-4	-	-	0,005-0,015 Bi 7 Ho 2 Pyr 6 Ore 3	Grm light brown-grey, very fine-grained, eq, microporph. Small phenocrysts 0,2-0,8 mm. And dirty grey, dotted with sericite and zoisite, p. broadly tabular, p. irr.rounded. Some grains quite clear. Idiom. biotite, p. altered to chlorite, 1-2 mm. Idiom. prisms of pyroxene 1-3 mm. Also rhombic pyroxene. Aggr. of pyroxene, hornblende, biotite, and ore. Rare quartz grains 0,5 mm. Large grains of apatite. Prehnite.
SW AND W OF SILJAN. QUARTZ-PORPHYRIES														
67	Fulåberg, E of Dark	60°56,9 14°20,8	61	BG	19	PR	2-3	11	GW GGr	2-4	6	1-3	0,005-0,020	Grm brown-grey, very fine-grained with less fine-grained lenses, schlieric. Numerous small, angular phenocrysts 0,1-1 mm. Alkf brown or clear, spotted, p. idiom. Ab light grey, mod. seric. or clear, p. idiom. Q corrod. or rounded, p. idiom. Tabular phenocrysts of light green amphibole + iron ore 1-3 mm.

SW AND W OF SILJAN. QUARTZ-PORPHYRIES

No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14
68	Leksberget, N of	60°56,7 14°23,5	62	BG	16	PR	2-3	9	GW GGr	2-3	7	1-2	0,002-0,020 Ep 1 Ore 2 Carb 2	Grm brown-grey, very fine-grained, schlieric with many small, angular phenocrysts less than 1 mm. Alkf brown or light brown, spotted. Ab grey or grey-brown. Feldspar phenocrysts very unequal in size, with rugged outlines. Q corroded or rounded. Also narrow, winding quartz lenses. Rich in carbonate, rather altered.
69	Vimo, S of Rather dark Red feldspar eyes	60°49,7 14°17,4	71	BG	13	PR	1-3 (-9)	8	PG GGr	2-3	5	0,5- 1,5	0,005-0,010 Chl 2	Grm light brown-grey, very fine-grained, eq, indist. schlieric. Alkf brown or light brown spotted, with cr. nic. large perthite patches. Ab grey, seric, p. idiom. Feldspar phenocrysts often hardly visible in parallel light. Q str. corrod.
70	Vimo, S of	60°49,6 14°17,5	73	GB	14	PR	1-3	8	GW	2-3	3	0,5- 2	0,005-0,010 Ore 2	Grm light brown-grey, very fine-grained with coarser streaks and narrow sericite veins. With cr. nic. indist. micropoikilitic 0,02-0,04 mm. Alkf brown or light brown, spotted, p. idiom. Ab light grey-brown or brown, spotted, p. idiom. with sericite veins. Q rounded, broken, with sericite-filled cracks.
71	Jugen, S of Grey-red flames	60°52,0 14°21,7	74	BG P	13	PR	1-2 (-4)	5	GrW	1-2 (-4)	5	1-3	0,002-0,010 Bi-Chl 2	Grm light brown-grey, very fine-grained, with scattered, somewhat larger, angular or irr. grains. Slightly schlieric. With cr. nic. indist. micropoikilitic 0,02-0,04 mm. Alkf brown or light brown, spotted, p. idiom. Ab light grey, str. seric. Q corrod.
72	Gruvor, S of	60°51,2 14°20,5	75	G	12	PR GW	1-3 (-5)	6	GW GGr	1-3	4	1-2	0,005-0,020	Grm light grey-brown, eq. Alkf brown or grey-brown, rich in albite. Ab grey, p. clear p. dotted with sericite. Q usually str. corrod, broken. Small tabular phenocrysts of light mica or chlorite and iron ore.

SW AND W OF SILJAN. QUARTZ-PORPHYRIES

No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14
73	Vimo, SE of Fig. 13	60°50,6 14°17,9	75	G	11	PR	1-4	8	GW GGr	1-4	3	1-2	0,005-0,015	Grm light grey-brown, very fine-grained, eq. Small phenocrysts of quartz and feldspar 0,2-0,8 mm. Alkf dark brown, spotted, p. clear. Ab grey, seric, or clear, p. idiom. Q corrod, irr.
74	Ljotberget	60°49,1 14°21,3	76	B- GB	11	PR	1-3	6	GW	1-2	5	1-2	<0,005	Grm light grey-brown, extremely fine-grained, schlieric, with irr. stripes of sericite. Alkf dark brown or brown, p. clear, p. idiom. Ab light grey, str. seric, p. quite clear. Q str. corrod. Also small, angular phenocrysts of quartz and feldspar. Flakes of light mica and iron ore.
75	Vimo, E of	60°51,2 14°18,8	77	BG	13	PR GW	1-3	3	G	1-2	5	0,5 -1	0,005-0,040	Grm light grey-brown, ineq. Small, angular, unevenly distributed phenocrysts 0,1-0,3 mm. Alkf dark brown or brown, spotted, p. clear, rectangular. Ab grey or grey-brown, seric, also inclusion in Alkf. Q p. idiom, usually str. corroded. Mpr Or ₁ Ab ₉₅ An ₄ .
76	Rädsjön, SW of	60°48,9 14°18,9	77	GB P	10	PR	2-3	7	GW	2-3	4	1-2	(<0,005) 0,01-0,03	Grm rather dark grey-brown, eq, slightly schlieric, in parallel light homogeneous with a very fine net-texture, with cr. nic. densely small-spotted (0,01-0,03 mm). Alkf light brown, mostly quite clear, p. idiom. Pl light grey, very str. seric, p. idiom. Q usually much corrod. Small phenocrysts of muscovite + iron ore.
77	Leksberget	60°54,8 14°23,2	77	GR	6	PR	1-2	7	GW	1-2	6	0,5 -1	0,005-0,050 Ore 3	Grm grey-brown, altered, slightly schlieric ineq. Numerous small, angular phenocrysts of quartz and feldspar 0,2-0,5 mm. Alkf brown or grey-brown, spotted. Ab brown-grey, str. seric. Q corrod, p. idiom, with concentric growth zones.

SW AND W OF SILJAN. QUARTZ-PORPHYRIES

No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14
78	Stikosels- berget Fig. 14-15	60°53,3 14°17,9	82	BL	8	BL	1-3	3	GGr	1-3	4	0,5 -2	0,005-0,15	Grm grey-brown, very ineq, schlieric, with pumice fragments. Arcuate and Y-shaped shards visible in parallel light. With cr. nic. winding streaks of narrow feldspar rectangles in a very fine-grained grm. Alkf light brown or brown, spotted, mostly clear, with large epidote grains. Ab light grey or quite clear. Q small, angular. Also larger, fractured quartz fields. Tabular phenocrysts of epidote+muscovite+chlorite+iron ore, 1-2 mm. Also irr. aggr. of epidote, chlorite, and carbonate.
79	Ryssjön	60°54,3 14°18,3	86	BR	5	PR	<1	4	GW	<1	3	<0,5	0,005-0,030	Grm brown-grey, ineq, slightly schlieric, altered, with numerous, irr. sericite patches and narrow quartz stripes. Feldspar phenocrysts angular, hardly visible in parallel light. Alkf clear. Ab brown-grey, str. seric.
SW AND W OF SILJAN. PORPHYRIES WITHOUT QUARTZ PHENOCRYSTS														
80	Brintbodarna Dark	60°42,3 14°7,3	45	BL	-	-	-	42	GW	1-4	-	-	0,01-0,02 Bi-Chl 7 Ore 5	Grm brown-grey or dark brown, schlieric, microporph. Small phenocrysts 0,3-0,8 mm. Ol clear or light grey, idiom. Single grains str. seric. Rectangular phenocrysts of light green chlorite + talc? Flakes or staffs of biotite-chlorite and iron ore. Large zircons
81	Åmberg, SW of	60°55,1 14°21,3	59	BR	7	PR GW	2-4	25	GrW GGr	2-5 (-10)	-	-	0,01-0,03 Ep 3 Chl 2 Ore 3	Grm dark grey-brown, poikilitic. Alkf dark brown or brown, spotted, also clear, p. idiom. Ab dirty grey, str. seric, idiom. Both Alkf and Ab dotted with large epidotes. Aggr. of epidote, chlorite, and iron ore 1-3 mm. Poikilitic sponges 0,2-0,4 mm.

SW AND W OF SILJAN. PORPHYRIES WITHOUT QUARTZ PHENOCRYSTS

No	1	2	3	4	5	6	7	8	9	10	13	14
82	Rullbodarna, E of	60°52,7 14°8,6	62	GR	-	-	-	23	GY	2-5 (-7)	0,04-0,20 Ep 6 Chl 8	Grm rather coarse-grained, spackled, spiny, with grey-brown feldspar laths and clear quartz. Ab brown-grey, idiom, str. seric, also dotted with epidote or zoisite. Aggr. of chlorite and epidote.
83	Åskaken, S of	60°55,2 14°18,4	84	R	8	PR	1-2 (-7)	3	GW	1-3 (-5)	0,01-0,05 Ep 2 Ore 3	Grmf brown or light grey-brown. Grm unevenly dotted with epidote and iron ore, dominated by 0,5-1 mm large spherulites. Many phenocrysts less than 1 mm. Alkf brown or light brown, spotted. Pl grey, also enclosed in Alkf.
84	Långsisdammen NE of Fig. 18	60°56,6 14°11,9	85	GR	1	GR	1-2	10	GW GrW	2-4	0,02-0,06 Chl 1 Carb 2	Grm light grey-brown, pronouncedly poikilitic. Alkf light brown. Ab light grey, idiom, p. seric. Aggr. of chlorite and carbonate adjacent to Ab. Also large muscovite flakes. Poikilitic sponges 0,2-0,4 mm.
85	Rullbodarna, E of	60°52,6 14°8,7	87	R	9	PR	2-4	2	GW	2-3	0,01-0,03 Ore 2	Grmf brown. Grm spackled, ineq, spherulitic and granophyric. Fan-shaped spherulites 0,2-0,4 mm. Alkf dark brown, idiom, with cr. nic. homogeneous, also in the centre of spherulites. Pl dark grey or grey-brown, str. seric, p. clear, also inclusion in or adjacent to Alkf. Small, irr. quartz fields.
86	Fulåberg Indist. feldspar phenocrysts	60°56,8 14°19,3	87	RB	9	RB	1-2	1	G	1-2	0,005-0,010 Sp/ 0,05-0,12 Musc 1,5 Ore 1,5	Grm light grey-brown, very fine-grained, indist. schlieric, with cr. nic. spotted. Alkf light grey-brown or clear, idiom. Ab light grey or clear, p. str. seric, idiom, with somewhat larger muscovite flakes. Also inclusion in Alkf. Elongated, narrow quartz lenses and very thin sericite stripes.
87	N.Kättbo, NW of Fig. 17	60°51,3 14°10,7	88	GR	7	PR	1-5	1	GW	1-2	0,05-0,30 Mica 1 Ore 2	Grmf brown or grey-brown. Grm coarse-grained, pronouncedly granophyric. Alkf brown, idiom. Pl grey, str. seric, core in Alkf. Green mica, muscovite, large grains of apatite.

SW AND W OF SILJAN. PORPHYRIES WITHOUT QUARTZ PHENOCRYSTS

No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	
88	Lindor, W of	60°52,7 14°13,1	94	GR	3	PR	2-3 (-5)						0,02-0,10	Grm light brown-grey, poikilitic, unevenly dotted with small ore grains. Also some indist. spherulites. Alkf light brown, p.idiom. Small uneven, granulated quartz fields, also with lath-shaped feldspar crystals. Poikilitic sponges 0,2-0,4 mm	
89	Lake Venjan, SW of	60°50,9 14°3,9	94	BG P				5	GY	2-5			0,01-0,02	Grm light brown-grey, poikilitic, with unevenly distributed phenocrysts. Ol grey-brown, str. seric, idiom. Poikilitic sponges 0,1-0,2 mm.	
90	Trollkyrkan	60°47,6 14°18,2	94	R	3	R	3-7						0,01-0,05	Grm light grey-brown, ineq, with numerous brown or grey-brown spherulites 0,5-1 mm. Alkf light brown, p.idiom. Minor const. epidote, green mica, and ore.	
CENTRAL DALARNA. QUARTZ-PORPHYRIES															
91	Afstasgraven	61°25,2 13°43,2	59	BR	14	R	3-10	16	GY GW	2-6	7	1-3	0,03-0,15	Grm finely granophyric. Grmf light grey-brown. Alkf light brown or grey-brown, spotted, idiom, with patches of talc (?). Ab light grey, str. seric, p. idiom. Q rounded, slightly corrod. Idiom. phenocrysts of chlorite c.1 mm. Other minor const. epidote, light mica, apatite, carbonate, and ore.	
92	Jöllen, W of	61°22,8 14°1,0	60	R	23	R	4-10					14	1-2	0,02-0,15	Grm slightly granophyric with uneven grain boundaries. Grmf light brown or brown-grey. Alkf brown, p.idiom, also with plagioclase inclusion. Q usually rounded, also idiom. Aggr. of chlorite, muscovite, and ore. Other minor const. epidote, titanite, apatite, fluorite, and zircon.

CENTRAL DALARNA. QUARTZ-PORPHYRIES

No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14
93	L.Ugsi, SW of	61 ⁰ 14,8 13 ⁰ 45,1	61	GY	18	PR	1-5	5	GY	1-2	14	1-2	0,01-0,03	Grm light grey-brown, eq. Alkf brown, dist. idiom, also with inclusions of quartz. Ab light brown-grey, hardly visible in parallel light, p. idiom, also inclusion in Alkf Q p. idiom, often str. corrod. Patches of sericite. Small fan-shaped aggr. of olive-brown biotite. Other minor const. epidote, muscovite, titanite, iron ore.
94	Väsaberget	61 ⁰ 10,4 14 ⁰ 4,6	67	R	11	R	2-5	4	GGr	2-4	16	1-4	0,01-0,20	Grm grey-brown, ineq, dominated by spherulites (0,7-1,5 mm). Alkf dark brown, idiom. Ab grey, p.idiom, also inclusion in Alkf. Q idiom. or str. corrod. Spherulites rich in sericite, mostly with central quartz grain. Small phenocrysts of light mica.
95	Bönsaberg, W of	61 ⁰ 11,5 14 ⁰ 17,5	69	R	16	PR	1-3 (-7)	5	GW GY	1-4	9	1-3	0,01-0,10	Grm ineq, speckled, indist. poikilitic. Grmf brown. Numerous small phenocrysts 0,2-0,5 mm. Alkf brown, spotted, idiom. Ab grey, p.str. seric, sometimes brown-grey in the central part with clear border zone. Q p.corrod, also idiom.
96	Väsaberget	61 ⁰ 10,4 14 ⁰ 4,6	77	RB	10	PR	2-5	1	GGr	1-4	9	1-2	0,03-0,08 0,003-0,005	Grm grey-brown with small, rounded, greyish spots and coarser, quartz-rich stripes (0,04-0,2 mm). Very fine-grained, interstitial mass. Alkf brown, idiom. Ab grey or light grey, mod. to str. seric, p.idiom, with small grains of epidote. Q p.idiom, with reaction zone. Small phenocrysts of muscovite.
97	Myckelsjön, S of	61 ⁰ 0,6 13 ⁰ 59,0	78	GR	5	R	1-3	6	GGr	1-3 (-5)	6	1-2	0,02-0,15	Grm speckled, ineq, with brown grmf. Rich in fine-grained sericite, also larger muscovite scales. Small spherulites mainly around quartz grains. Alkf brown, p.idiom. Ab grey-brown, str. altered and covered with carbonate. Q p.idiom, also str. corrod.

CENTRAL DALARNA. QUARTZ-PORPHYRIES

No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14
98	Ormtjärn, NW of Flamy Indist. feld- spar pheno- crysts Fig. 19	61°25,0 14°39,5	80	G- GB	1	PR	1-2	6	GGr	1-2	9	1-3	0,02-0,20	Grm light grey, ineq, altered, rich in sericite, dominated by large spherulites, mainly around quartz grains, also sericite-rich coronas. Quartz-filled cracks in varying directions. Alkf light brown. Ab grey, str. altered, seric, p. idiom. Q idiom. Lumps of iron ore.
CENTRAL DALARNA. RED PORPHYRITE														
99	Höghed	61°14,8 14°40,8	54	R	1	PR	1-2	22	PRB	1-3			0,02-0,06 Ep 16 Chl 3 Ore 2	Grm brown-red, speckled, with uneven grain boundaries. Epidote patches 3-5 (-15) mm. Alkf brown. Pl grey-brown or grey, idiom, dotted with small epidote grains. Quartz lenses with epidote.
100	Åskaken, N of	60°59,0 14°12,2	57	BL	2	PR	1-4	24	GGr	1-3			0,01-0,04 Ep 2 Chl 6 Carb 6 Ore 2	Grm light grey-brown, microporph, homogeneous in parallel light, with patches of dirty carbonate and of epidote + chlorite (1-2 mm). Alkf light brown. Ol light brown-grey, idiom. Small irr. quartz fields. Phenocrysts of light green chlorite 1-4 mm. Green mica and amphibole.
101	Klitten, N of	61°18,7 14°6,8	58	RB				26	GrW GY PR	1-4			0,01-0,05 Ep 3 Chl 9 Amph 1 Ore 3	Grm grey-brown, microporph, indist. poikilitic, homogeneous in parallel light. Small feldspar phenocrysts 0,1-0,2 mm, appearing with cr. nic. Pl light red-brown, idiom. Phenocrysts of epidote 0,5-2 mm. Irr. fields of light green chlorite.

CENTRAL DALARNA. RED PORPHYRITE

No	1	2	3	4	5	6	7	8	9	10	13	14
102	Skattungun, S of	61° ^{09,4} 14° ^{58,3}	59	R	-	-	-	22	PR	1-3 (-5)	0,01-0,05 Ep 4 Chl 10 Ore 3	Grm light red-brown. Irr. spots of epidote and numerous light green, rounded phenocrysts of chlorite with epidote and iron ore, 1-5 mm. Ab brown-grey or light red-brown, idiom, often hardly visible in parallel light, also antiperthitic with brown patches of alkali feldspar. - Pale amphibole, apatite.
103	Emådalen, SSW of	61° ^{17,3} 14° ^{42,2}	62	BR	-	-	-	23	PR	2-3	0,01-0,04 Ep 3 Chl 6 Ore 4	Grm dark brown-red, speckled, with uneven grain boundaries. Ol grey-brown, seric, idiom, sometimes with inclusions of very fine-grained grm. Irr. "phenocrysts" of light green chlorite + epidote + iron ore.
104	Grönklitt	61° ^{13,0} 14° ^{32,7}	62	BR	-	-	-	24	GY PBR	1-3	0,01-0,06 Ep 2 Chl 4 Amph 4 Ore 4	Grm lilac-brown with lighter, diffuse patches and uneven grain boundaries. Ol dirty grey or grey-brown, idiom, finely dotted with sericite, zoisite, and epidote. Idiom. phenocrysts of light green amphibole 1-3 mm. Aggr. of light green amphibole, chlorite, epidote, and ore, 1-5 mm. Idiom. apatite.
105	Åberga, E of With grey- green pat- ches	61° ^{09,6} 14° ^{47,2}	62	RB	6	PR	2-4	24	GGr	2-5	0,01-0,12 Amph 6 Ore 2	Grm light grey-brown with dark red-brown patches, homogeneous in parallel light, indist. poikilitic. Alkf dark brown, p. clear. Ol dark grey, seric, idiom. Phenocrysts of light green amphibole 1-5 mm and aggr. of amphibole, iron ore, and apatite.
106	N.Åskaken, E of Fig. 20	60° ^{59,0} 14° ^{14,4}	62	R	4	PR	1-2 (-4)	21	GW GrW	2-4	0,01-0,10 Ep 5 Chl 2 Mica 2 Ore 3	Grm lilac-brown with small, needle-like grains, indist. poikilitic, microporph. Small phenocrysts 0,2-0,8 mm. Alkf brown, p. clear, idiom. Ol grey or grey-brown, str. seric, idiom, also dotted with epidote. Small, uneven quartz fields 0,5-1 mm. Phenocrysts of epidote + chlorite + ore, 1-2 mm. Green mica.

CENTRAL DALARNA. RED PORPHYRITE

No	1	2	3	4	5	6	7	8	9	10	13	14
107	Hornberga, NW of	61°12,5 14°36,0	63	BR	-	-	-	24	GY	1-4	0,01-0,10 Ep 2 Chl 4 Amph 4 Ore 3	Grm light lilac-brown, speckled, with uneven grain boundaries. And grey, str. seric. and dotted with epidote, idiom. Numerous rectangular phenocrysts of light green amphibole + chlorite + ore, 1-4 mm. Idiomorphic apatite.
108	Unntorp, W of	61°23,3 14°22,0	63	BR	-	-	-	26	GGr PR	1-5	0,01-0,08 Ep 4 Chl 4 Ore 2	Grm light red-brown, ineq, microporph. with numerous small feldspar phenocrysts 0,2-0,6 mm. Ol grey-brown, dotted with epidote and sericite, idiom. Small phenocrysts of epidote and chlorite and, rarely, diopsidic pyroxene. Amphibole, biotite
109	Hornberga, NNW of	61°13,4 14°36,7	64	RB	-	-	-	26	GGr PBR	1-2 (-4)	0,02-0,10 Amph 7 Ore 2	Grm light grey-brown, poikilitic, with uneven grain boundaries. Ol dirty grey or grey-brown, idiom. Numerous phenocrysts of light green amphibole 1-5 mm. Chlorite, apatite.
110	Fyriberg, NE of	61°11,2 14°30,5	64	GB	5	PR	1-3 (-5)	22	GrW	1-3 (-5)	0,01-0,10 Amph 2 Pyr 2 Ore 4	Grm red-brown with light grey-brown patches, poikilitic. Alkf brown, p. clear, idiom. And grey, p. clear, idiom. Small quartz lumps. Aggr. of light green amphibole, diopsidic pyroxene, and ore, 1-5 mm. Flakes of biotite 1-3 mm. Also chlorite and epidote.
111	Bönsaberg, ESE of	61°10,9 14°21,8	64	BR	6	PR	1-3 (-5)	22	GGr	2-3 (-7)	0,01-0,03 Amph 2 Chl 1 Ore 5	Grm light and darker grey-brown, flamy, with very fine-grained, needle-shaped grains, microporph. Small phenocrysts 0,2-0,8 mm. Alkf brown, idiom. Ol-And dirty grey or brown-grey, str. seric, p. clear, idiom. Aggr. of chlorite with small amphibole needles and ore, 1-5 mm. Epidote.
112	Näsberg Fig.21	61°10,8 14°23,9	64	BR	4	PR	1-3	21	GY GW	2-5	0,01-0,10 Chl 2 Ep 1 Ore 8	Grm lilac-brown, poikilitic. Alkf dark brown, p. clear, idiom. Ab-Ol grey, dotted with epidote, idiom. Phenocryst-like aggr. of chlorite, epidote, and ore, 1-3 mm. Dark fields with narrow quartz lamellae. Large grains of apatite.

CENTRAL DALARNA. RED PORPHYRITE

No.	1	2	3	4	5	6	7	8	9	10	13	14
113	Orsa, E of Numerous green epidote patches	61°06,7 14°39,9	64	RB	6	PR	1-4	20	PBR	2-5	0,01-0,05 Ep 7 Ore 2	Grm light red-brown to grey-brown, homogeneous in parallel light. Marked feldspar phenocrysts. Alkf brown, idiom. Ab-Ol grey-brown or grey, idiom, dotted with sericite and epidote. Also groups of large epidote crystals on both Alkf and Pl.- Chlorite.
114	Fryksåsen, ESE of	61°11,3 14°34,9	65	RB	2	PR	1-2	20	GGr BR	1-3	0,01-0,02 Ep 6 Chl 1 Ore 5	Grm red-brown with clear patches, very fine-grained Alkf dark brown, idiom. Pl grey-brown, idiom, p. covered with small grains of epidote and ore. Irr. finely granulated fields of quartz and chlorite and numerous dirty grey, epidote-rich pseudomorphs 3 mm large. Idiom. apatite.
115	Hornberga, N of	61°14,7 14°37,0	65	BR	-	-	-	23	GY PBR	1-4	0,01-0,05 Ep 4 Chl 4 Ore 2	Grm lilac-brown, ineq, indist. poikilitic. Pl grey or grey-brown, hardly visible in parallel light, dotted with sericite and epidote, idiom. Phenocryst-like aggr. of chlorite, epidote, and ore, 1-4 mm. Few quite small quartz lenses. Apatite.
116	Lusbo, S of	61°26,2 14°30,5	66	RB	-	-	-	17	PRB	1-2	0,005-0,030 Ep 7 Chl 7 Ore 2	Grm light red-brown with diffuse, lighter flames, very fine-grained, homogeneous in parallel light. Ol grey-brown or grey, p. clear, dotted with sericite and epidote. Irr. aggr. of yellow-green epidote, chlorite, and ore and of quartz and brownish epidote.
117	Hansjö, N of	61°10,3 14°35,3	66	RB	-	-	-	24	GGr PRB	2-5	0,01-0,04 Amph 7 Ore 3	Grm dark brown-red with light grey parts. Pl grey or grey-brown, seric, p. clear, idiom. Aggr. of light green amphibole and ore, 1-4 mm.
118	Emådalen, NW of	61°20,5 14°38,3	66	BR	-	-	-	24	GW GY	1-2 (-4)	0,01-0,10 Ep 2 Chl 5 Amph 1 Ore 2	Grm lilac-brown with light grey parts and uneven grain boundaries. Pl grey, dotted with epidote and sericite, idiom. Phenocryst-like aggr. of chlorite, epidote, brown amphibole, and ore. Narrow, granulated streaks of quartz. Idiom. apatite.

CENTRAL DALARNA. RED PORPHYRITE

No.	1	2	3	4	5	6	7	8	9	10	13	14
119	Emådalen, NW of	61°20,2 14°38,7	68	GB	-	-	-	19	GW GGr	1-4	0,01-0,06 Chl 2 Amph 3 Pyr 5 Ore 2	Grm dark red-brown with very light grey-brown parts and uneven grain boundaries. Pl dirty grey, idiom. Small, granulated lenses and narrow streaks of quartz. Idiom. phenocrysts of diopsidic pyroxene and light green amphibole, 1-3 mm. - Idiom. apatite
120	Storstupet	61°13,8 14°47,5	68	BR	-	-	-	22	PRB	1-2 (-4)	0,01-0,04 Ep 2 Chl 2 Amph 3 Ore 2	Grm dark lilac-brown, p. poikilitic. Pl grey-brown, idiom, p. dotted with epidote and sericite. Phenocrysts or irr. aggr. of light green amphibole, epidote, chlorite, and ore.
121	Emådalen, NNW of	61°21,9 14°41,5	68	BR	-	-	-	23	GY PR	1-5	0,01-0,05 Ep 1 Chl 5 Ore 3	Grm dark brown-red with uneven grain boundaries and dotted with small ore rods of varying directions. Ab-Ol grey-brown or grey, idiom, p. dotted with epidote and sericite, sometimes with inclusions of the grm. Idiom. phenocrysts of almost colourless chlorite 0,5-4 mm.
122	Skattungen, S of	61°10,0 14°59,9	68	BR	-	-	-	20	PR	1-2 (-4)	0,01-0,04 Ep 2 Chl 6 Ore 3	Grm dark brown-red, indist. poikilitic. Ol grey-brown or brown, dotted with epidote. Phenocrysts and irr. aggr. of chlorite, epidote, and ore, 1-4 mm. - Idiom. apatite.
123	Orsá, ENE of	61°7,7 14°41,3	69	GB	-	-	-	19	GGr PR	1-5	0,02-0,06 Ep 3 Chl 3 Amph 3 Ore 3	Grm light grey-brown with dark red-brown patches, indist. poikilitic, uneven grain boundaries. Ol grey-brown or grey, seric, p. dotted with epidote. Some phenocrysts quite clear. Phenocrysts of light green amphibole 1-2 mm, and irr. aggr. of epidote, amphibole, chlorite, and ore, 1-5 mm. - Large grains of apatite.

CENTRAL DALARNA. PORPHYRIES RICH IN LARGE FELDSPAR PHENOCRYSTS

No.	1	2	3	4	5	6	7	8	9	10	13	14
124	Brindberg, N of Fig. 22	61°21,9 13°55,8	30	R	40	R	2-15	24	GGr GY	2-8	0,02-0,15	Grm ineq, speckled, consisting of dark brown alkf, subordinate grey albite and quartz, Microporph. Small phenocrysts 0,2-0,5 mm. Alkf dark brown, spotted, idiom. Ab grey, str. seric, p. idiom, also core in Alkf or with dark rim of alkf. Tabular phenocrysts of chlorite 2 mm. Other minor const. epidote, amphibole, biotite, titanite, fluorite, apatite, zircon, and ore. Mpr $Or_{65}Ab_{31}An_4$, $Or_{34}Ab_{58}An_8$, $Or_2Ab_{91}An_7$.
125	Kåtilla, W of	61°13,6 13°59,7	31	R- BR	25	PR	3-10	36	GGr	2-7	0,01-0,10	Grm ineq, p. granophyric. Grmf brown and light grey Alkf brown, spotted or clear, p. idiom. Ol grey, str. seric, p. clear, also with brown rim of alkf, p. idiom. Small phenocrysts of chlorite + ore 1-2 mm. Other minor const. biotite, muscovite, apatite, and titanite.
126	Jöllen, N of	61°23,3 14°1,7	37	R	40	R	3-10	19	GGr GY	3-10	0,01-0,10	Grm rather light brown, speckled, ineq. Grmf brown and light grey. Alkf brown, idiom. Ab light grey, seric, with epidote, also inclusion in Alkf. Aggr. of chlorite, epidote, and ore. Other minor const. fluorite and apatite.
127	Trollberget	61°36,8 13°56,2	38	GR	36	PR	3-10	20	GGr GrW	2-6	0,02-0,20 Amph 2 Chl 2 Ore 2	Grm brown, speckled, ineq, microporph. Small phenocrysts 0,5-1 mm. Alkf brown, spotted, idiom. Ol dark grey or grey, str. seric, p. idiom, with rim of alkf. Iron ore with border of titanite.
128	Laxsjön, SW of	61°32,1 14°24,5	39	BR	40	PR	1-5	14	GGr GY	2-12	0,02-0,20	Grm brown, ineq, closely microporph. Small, rounded phenocrysts 0,5-1 mm. Alkf dark brown, spotted, p. clear. Ab grey, with sericite and epidote, also diffuse inclusion in Alkf. Small phenocrysts of light green amphibole and chlorite. Other minor const. titanite, apatite, zircon, and ore.

CENTRAL DALARNA. PORPHYRIES RICH IN LARGE FELDSPAR PHENOCRYSTS

No	1	2	3	4	5	6	7	8	9	10	13	14
129	Granånäs	61°30,1 13°38,9	42	R	41	PR	2-12	13	GGr	4-8	0,01-0,015	Grm red-brown, fine-grained to coarser, p. granophyric, microporph. Small phenocrysts 0,5-1 mm. Dist. feldspar phenocrysts. Alkf brown or light brown, spotted, idiom. Ab light grey, seric, p. idiom, with rim of alkf, also inclusion in Alkf. Small phenocrysts of chlorite 0,5-2 mm. Other minor const. epidote, light mica, apatite, and ore.
130	Noppikoski, W of	61°29,3 14°48,0	44	R- GR	33	R	5-10	16	GGr GY	3-8	0,02-0,10	Grm eq, brown to light brown, speckled, p. granophyric, microporph. Small phenocrysts 0,7-1 mm. Alkf brown or light brown, idiom. Ab light grey, str. seric, p. idiom, also inclusion in Alkf. Small quartz aggr. Idiom. phenocrysts of chlorite 1-2 mm. Minor const. muscovite, apatite, and ore.
131	Evertsberg, W of	61°7,4 13°54,1	44	R	43	PR	3-10	10	GGr	2-6	0,02-0,20	Grm ineq, speckled, grmf dark brown and (very subordinate) grey with angular grain boundaries, sparsely microporph. Small phenocrysts 0,5-0,8 mm. Dist. feldspar phenocrysts. Alkf light to dark brown, spotted, p. clear, idiom, with grm-filled cracks. Ol grey, idiom, str. seric, with rim of alkf, also idiom. crystal in Alkf. Minor const. amphibole, chlorite, titanite, apatite, and ore.
132	Älvhö, E of	61°29,6 14°45,4	45	R- GR	28	PR	3-12	20	GW	2-7	0,05-0,20	Grm ineq, less fine-grained, speckled, granophyric. Grmf light brown resp. light grey, microporph, small phenocrysts 0,5-1 mm. Alkf brown, p. idiom, also, rarely, inclusion in plagioclase. Pl light grey, seric, with rim of alkf, also core in Alkf. Small aggr. of chlorite + ore. Other minor const. light mica, titanite, apatite, and zircon. Mpr Or ₂ Ab ₉₇ An ₁ .

CENTRAL DALARNA. PORPHYRIES RICH IN LARGE FELDSPAR PHENOCRYSTS

No.	1	2	3	4	5	6	7	8	9	10	13	14
133	Käringberget	61°21,8 14°0,0	45	R	38	R	3-15	11	GGr GY	3-6	0,02-0,20	Grm ineq, spackled, with uneven grain boundaries. Grmf dark brown and grey (very subordinate). Microporph. Small phenocrysts 0,5-1 mm. Dist. feldspar phenocrysts. Alkf dark brown, p.idiom, sometimes with inclusions of the grm. Ab grey or light grey, p.clear, with sericite and epidote, with narrow rim of alkf. Small phenocrysts of chlorite 0,5-1,5 mm. Other minor const. epidote, apatite, and ore.
134	Månsta, WNW of	61°16,1 13°57,1	45	R	19	PR	1-5	33	GrW	1-10	0,01-0,03	Grm brown, fine-grained, diffuse, closely microporph. Small phenocrysts 0,2-1 mm. Alkf light brown or clear, spotted. Pl grey or grey-brown, seric, also inclusion in Alkf or with narrow rim of alkf. Mostly rounded or irr. phenocrysts. Small rare Q 0,5-1 mm. Minor const. chlorite, brown epidote, apatite, zircon, and ore. Mpr Or ₂ Ab ₉₄ An ₄ and Or ₁ Ab ₇₅ An ₂₄ .
135	Jöllen Fig. 25	61°22,7 14°1,5	46	R	40	R	2-6	11	GGr GY	2-4	0,005-0,020 0,05-0,15	Grm light brown, ineq, fine-grained with more coarse-grained patches and stripes, micropoikilitic, microporph. Small phenocrysts 0,5-1 mm. Alkf brown or grey-brown. Ab-Ol light grey, with sericite, also core in Alkf or with narrow rim of alkf. Mostly rounded or irr. phenocrysts. Minor const. chlorite, epidote, apatite, and iron ore with border of titanite.
136	Oxåsen, NW of Flesh-red Fig. 24	61°4,3 13°52,5	47	R	26	R	2-12	19	GGr GY	2-5	0,04-0,20	Grm rather coarse-grained, ineq, grmf dark brown, closely microporph. Small rectangular or quadratic feldspar phenocrysts 0,3-1 mm. Alkf dark brown, p. idiom. Ol grey, dotted with sericite and chlorite, also inclusion in Alkf or with broad rim of alkf. Large aggr. of chlorite, apatite, and ore. Other minor const. epidote and titanite.

CENTRAL DALARNA. PORPHYRIES RICH IN LARGE FELDSPAR PHENOCRYSTS

No.	1	2	3	4	5	6	7	8	9	10	13	14
137	Månstaberget	61°14,6 13°58,0	47	RB	17	PR	2-6	30	GW GGr	2-5	0,01-0,10 0,1-0,5	Grm ineq, diffuse, with coarser stripes and granophyric patches. Grmf light brown or grey-brown. Alkf brown or light brown, spotted, p.clear, also with epidote. Ol grey, seric, with epidote, p. idiom. Phenocrysts and irr. aggr. of biotite, chlorite, and ore, 0,5-1 mm.
138	Torrlid, E of	61°18,7 14°11,8	49	GR	32	PR	1-5	14	GW GrW	1-10	0,01-0,05	Grm very fine-grained, eq, with coarser patches and stripes, closely microporph. Small feldspar phenocrysts 0,5-1 mm. Grmf brown or grey-brown. Alkf dark brown or clear, spotted. Ol grey, str. seric, also core in Alkf or with rim of alkf. Small amphibole phenocrysts 0,5-1 mm. Other minor const. chlorite, epidote, titanite, apatite, and ore.
139	Pillisknoppen N of	61°33,0 14°38,1	49	RB	38	PR	1-3	9	GW GY	1-5	0,02-0,05	Grm eq, unevenly spotted, closely microporph. Small feldspar phenocrysts 0,3-1 mm. Grmf brown or very light brown. Alkf clear to light brown, with poikilitic border. Ol dirty grey or grey-brown, seric, p. clear. Small phenocrysts of biotite 0,5-1 mm. Minor const. amphibole, chlorite, apatite, zircon, and ore, titanite, orthite.
140	Oxåsen Brick-red	61°3,0 13°56,2	50	R	35	R	3-8	13	GY	3-7	0,02-0,10	Grm ineq, with uneven grain boundaries, p. granophyric. Grmf brown and grey (subordinate). Numerous small feldspar phenocrysts 0,2-0,8 mm. Alkf dark brown or brown, idiom. Ab light grey or grey, idiom, with sericite and epidote, also indist. core in Alkf and with rim of alkf. Aggr. of chlorite, epidote, apatite, and ore.

CENTRAL DALARNA. PORPHYRIES RICH IN LARGE FELDSPAR PHENOCRYSTS

No.	1	2	3	4	5	6	7	8	9	10	13	14
141	Jöllen, S of	61°22,4 14°1,7	55	R	33	PR	1-5	9	GY	1-3	0,01-0,20	Grm ineq, speckled, with uneven, angular grains, microporph; small, rounded feldspar phenocrysts 0,3-1 mm. Grmf dark brown. Alkf brown or grey-brown, p. clear, spotted. Ol light grey, seric, with patches and rim of alkf. Minor const. light green amphibole, green biotite, chlorite, epidote, titanite, apatite, and ore.
142	Gällsjöberget	61°30,3 14°29,9	56	BR	22	R	3-16	13	GW GrW GY	3-20	0,02-0,15	Grm ineq, speckled, with uneven grain boundaries, grmf brown or grey-brown. Small feldspar phenocrysts 0,2-0,8 mm. Alkf dark brown or grey-brown, spotted, p. clear. Ol light grey, very str. seric, with narrow rim of alkf, also core in Alkf. Idiom. phenocrysts of chlorite and ore, 1-2 mm. Other minor const. light green amphibole, epidote, apatite, zircon, and ore.
143	Oxåsen, W of Fig. 23	61°3,2 13°54,8	56	R	31	PR	1-3	10	GGr	2-5	0,01-0,05	Grm fine-grained with coarser, irr. stripes. Grmf dark brown or brown with uneven grain boundaries. Numerous small, dark brown and fewer grey phenocrysts 0,1-1 mm. Dist. feldspar phenocrysts. Alkf dark brown or lighter grey-brown with dark brown rim, p. clear. Ab grey or light grey, str. seric, also with narrow, dark brown rim of alkf. Minor const. epidote, chlorite, apatite, and ore.
144	Sjurberget Flesh-red	61°8,0 14°6,3	58	R	23	R	3-6	14	G	3-5	0,02-0,06	Grm ineq, rich in sericite. Grmf red-brown. Alkf dark brown, spotted. Ab light grey, very str. seric. Granulated quartz lenses with needle-formed quartz crystals. Minor const. green mica, apatite, and ore
145	Oxåsen, W of	61°3,1 13°53,6	61	R	27	R	2-14	7	GGr	2-5	0,03-0,40	Grm ineq, granophyric, grmf brown or grey (subord.) Closely microporph. Small, idiom. feldspar phenocrysts 0,4-1 mm. Alkf dark brown or brown. Ab grey or brown, str. seric, usually with marked rim of alkf, also diffuse core in Alkf. Minor const. epidote, chlorite, and ore.

CENTRAL DALARNA. PORPHYRIES RICH IN LARGE FELDSPAR PHENOCRYSTS

No	1	2	3	4	5	6	7	8	9	10	13	14
146	Göransbodarna NNE of	61°21,4 14°09,6	64	GB	22	PR	3-10	9	GGr GY	2-7	0,03-0,06	Grm grey-brown, fine-grained, eq, homogeneous in parallel light. With cr. nic. trachyte-like with short, needle-formed feldspar crystals. Alkf brown or clear, spotted, p. idiom. Ab grey or dark grey, str. seric, also core in Alkf. Idiom. crystals of light green amphibole 1-2 mm and of chlorite + ore 0,5-1 mm. Other const. epidote and apatite.
147	Kätilla	61°13,5 14°00,5	64	BR	17	PR	2-8	14	GGr GW	2-10	0,01-0,10	Grm ineq, indist. poikilitic, with uneven grain boundaries, microporph. Grmf brown or grey-brown. Alkf brown or clear, spotted. Ab grey or dark grey-brown, str. seric, p. idiom, also with rim of alkf. A few small Q 0,2-0,8 mm. Phenocrysts of chlorite 1-2 mm. Other minor const. biotite, apatite and ore.
148	Loka, NNW of	61°17,7 13°59,3	67	R	22	PR	2-12	8	GGr	3-8	0,01-0,05	Grm fine-grained, eq, with uneven grain boundaries, grmf brown. Alkf brown or clear, spotted, idiom. Ab grey or light grey, mostly str. seric, rounded grains or idiom. Phenocrysts of chlorite 1-3 mm. Other minor const. biotite, apatite, and ore.
149	Björka, SW of	61°04,1 14°19,5	74	R	8	R	2-10	13	GW GGr	2-6	0,05-0,50	Grm rather coarse-grained, granite-like, with uneven grain boundaries. Grmf brown. Small rectangular feldspar phenocrysts 0,3-0,5 mm. Alkf brown, p. idiom. Ab grey, p. str. seric. with zoisite, also core in Alkf, p. idiom. Aggr. of chlorite and epidote. Other minor const. apatite and ore.
150	Kansbol, S of	61°06,4 14°21,5	78	RB	9	PR	2-5	10	GW	2-7	0,02-0,08	Grm brown with clear, irr. patches, poikilitic; uneven grain boundaries. Grmf brown or light brown. Alkf light brown or clear, p. idiom. Ol grey or grey-brown, str. seric, or quite clear, p. idiom, also core in Alkf. Idiom. phenocrysts of biotite and chlorite 1-3 mm. Other minor const. titanite, apatite, and ore.

CENTRAL DALARNA. PORPHYRIES WITH COARSER GROUNDMASS

No.	1	2	3	4	5	6	7	8	9	10	13	14
151	Trängslet Quartz-syenite- porphyry Fig. 26	61°23,0 13°44,1	49	R	28	R	3-10 (-15)	18	GW	3-8	0,3-1,5	Grm coarse-grained, granophyric, consisting of quartz, dark brown alkf and light grey albite, the latter frequently forming the core also in small alkf grains. Alkf brown or dark brown, uniform or with core of albite, p.idiom. Ab grey or light grey, p.str. seric, with broad rim of alkf. Lumps of ore. Other minor const. chlorite, epidote, muscovite, titanite, apatite, fluorite, zircon, and carbonate.
152	Bönsaberg Brick-red	61°11,5 14°18,3	77	R	10	R	2-5 (-7)	10	GGr	2-3	0,02-0,20	Grm speckled, granophyric. Grmf grey-brown. Alkf brown, spotted. Ab-Ol light grey, p.str. seric, p.idiom, also diffuse core in Alkf. Minor const. chlorite, apatite, and ore.
153	Svarttjärns- berget, SE of	61°1,8 14°8,5	84	R	10	R	1-3 (-5)	3	GGr	1-2	0,03-0,12	Grmf dark brown with uneven grain boundaries. Alkf dark brown, spotted, p.idiom, with talc aggr. Ab light grey, mod. seric, also irr. core in Alkf. Minor const. chlorite, fluorite, apatite, and ore.
154	N. Garberg Brick-red with green spots 2 mm	61°1,7 14°12,5	88	R	8	R	1-2	-	-	-	0,04-0,15	Grm granophyric, with uneven grain boundaries. Grmf brown or grey-brown. Small feldspar phenocrysts less than 1 mm, unevenly distributed. Alkf brown or grey-brown. Ore lumps and many quite small grains of ore. Other minor const. biotite and apatite.
155	Lusbo	61°26,2 14°30,6	89	R	2	PR	2-5	7	GGr GW	2-6	0,02-0,20	Grm diffuse, ineq. Grmf light grey-brown. Small, sparse spherulites less than 0,5 mm. Alkf brown, spotted. Ol light grey, p.str. seric, also with somewhat larger muscovite flakes. Minor const. chlorite, epidote, titanite, apatite, carbonate, and ore.

CENTRAL DALARNA. IGIMBRITES

No	1	2	3	4	5	6	7	8	9	10	13	14
156	Bosseldal, SE of	61°4,4 13°58,6	52	BR	31	PR	1-3	10	GW	1-3	0,003-0,020	Grm brown or red-brown, pronouncedly schlieric, closely porphyritic, with phenocrysts of varying size, usually rounded or angular, many less than 1 mm. Alkf brown, spotted. Ab grey, str. seric, also core in Alkf. A few small Q 0,2-0,5 mm. Tabular phenocrysts of biotite-chlorite + ore 0,5-1,5 mm, lumps of ore and irr. aggr. of chlorite and epidote.
157	Månstaberget Dark	61°15,3 13°57,5	53	G	24	R- PR	1-3	18	GGr	1-3	0,005-0,050	Grm grey, schlieric, rich in small, splintered feldspar phenocrysts 0,2-1 mm. Round feldspar eyes and quartz fields. Alkf brown, spotted, mostly clear. Ol grey, seric, p. clear. Idiom. phenocrysts of chlorite + ore 0,5-2 mm. Lumps of ore + apatite. Other const. epidote and prehnite.
158	Månstaberget Fig. 30	61°15,3 13°57,5	56	BG	21	PR	1-3 (-4)	17	GGr	1-3	0,001-0,003	Grm grey resp. brown, extremely fine-grained, slightly schlieric, with small fragments of pinkish granite porphyry. Many small feldspar phenocrysts less than 1 mm. Alkf light brown, spotted, p. quite clear, with cr. nic. large perthite patches. Ab light grey, mod. seric. Feldspar phenocrysts marked, mostly angular, some Alkf idiom. Phenocrysts of biotite-chlorite-ore 1-3 mm. Lumps of ore + apatite
159	Göransbodarna, N of "Black Orrlok" (Loc. boulder)	61°21,0 14°3,5	56	B- LB	26	R	2-5 (-7)	17	GGr	2-3	0,010-0,020	Grm reddish brown, dist. schlieric. Feldspar phenocrysts irr. Alkf dark brown or brown-spotted, p. clear. Ab grey, str. seric, p. clear. Tabular phenocrysts of chlorite + ore. Lumps of ore + apatite.
160	Göransbodarna, N of "Black Orrlok" (Loc. boulder) Fig. 31	61°21,0 14°3,5	57	B	21	R- PR	1-3 (-5)	17	GGr GY	1-3 (-5)	0,005-0,010	Grm dark grey or brown-grey, dist. schlieric, p. very fine-grained. Feldspar phenocrysts rounded or irr. Alkf light brown, p. clear. Pl grey, str. seric, p. quite clear. Tabular phenocrysts of chlorite + ore. Lumps of ore + apatite. Other minor const. biotite and epidote. Mpr Or ₈₉ Ab ₉ An ₂ , Or ₁₂ Ab ₆₆ An ₂₂ , Or ₂ Ab ₉₅ An ₃ .

CENTRAL DALARNA. IGIMBRITES

No.	1	2	3	4	5	6	7	8	9	10	13	14
161	Skarphol, SW of	61°2,7 14°1,9	61	LB	15	PR	1-3 (-5)	16	GW	1-3 (-4)	0,002-0,005	Grm grey, pronouncedly schlieric, with extremely fine-grained, brown streaks. Small, more coarse-grained parts 0,01-0,05 mm. Feldspar phenocrysts of varying size, mostly irr. Alkf brown, spotted, with large epidotes. Ab light grey or grey-brown, weakly seric, also with epidote. Idiom. phenocrysts of biotite-chlorite-ore 1-2 mm.
162	Rämma, N of Dark	61°13,7 13°56,0	62	RB	18	R	1-3 (-5)	13	GY	1-3	0,002-0,020	Grm grey, fine-grained, with extremely fine-grained brown streaks and patches, dist. schlieric. Feldspar phenocrysts irr, of varying size. Alkf brown, p. quite clear, also with large epidotes. Ab light grey, str. or weakly seric, p. corrod, also enclosed in Alkf. Small tabular phenocrysts of chlorite and ore 0,5-1 mm. Aggr. of chlorite, apatite, and ore.
163	Svarttjärns- berget Pale red feld- spar eyes 8 mm Fig. 42	61°2,7 14°6,7	64	LB	3	PR	1-3 (-8)	26	PG	1-3	0,002-0,040	Grm dark grey, in parallel light compact, with cr. nic. fine-threaded, trachyte-like. Alkf light brown or brown, str. corrod. Ab light grey-brown, mod. seric, p. idiom, also str. corrod. Rather rich in iron ore. Idiom. flakes of light mica + ore 2-5 mm. Large prisms of apatite.
164	Torrilid, E of	61°18,8 14°11,8	67	G	17	PR	1-3	12	GW	1-3	0,003-0,005 Sp 0,05-0,2	Grm light grey, slightly schlieric, poikilitic with net-work of narrow quartz crystals. Alkf dark brown spotted, p. clear. Ol grey or grey-brown, p. seric, p. quite clear. Tabular phenocrysts of biotite-chlorite and ore 0,5-2 mm. Other minor const. epidote, prehnite, and apatite.
165	Torrilid, NE of Indist. red stripes	61°19,3 14°11,3	68	GB	9	PR	1-2 (-4)	16	GW	1-3 (-6)	0,005-0,010 Sp 0,10-0,2	Grm light brown-grey, indist. schlieric, with cr. nic. closely spotted, poikilitic, with net-work of narrow quartz laths. Alkf brown or clear, p. idiom. Ol brown-grey, seric, p. clear. Tabular phenocrysts of light mica + ore 0,5-1,5 mm. Lumps of ore + apatite. Rich in iron ore.

CENTRAL DALARNA. IGNIMBRITES

No	1	2	3	4	5	6	7	8	9	10	13	14
166	Nedre Blecket, NW of	61°16,7 14°19,0	69	GB	12	PR	1-3	14	GrW	1-4	0,003-0,005 Sp 0,1-0,3	Grm grey, indist. schlieric, poikilitic, with fine net-work of quartz crystals. Small vugs of quartz and feldspar crystals. Alkf brown, spotted, p. with large epidotes. Pl grey or brown-grey, str. seric, also with epidote, p.idiom. Small flakes of light mica and ore. Lumps of epidote, apatite, and ore.
167	Blyberget Light red, elongated lenses "Blyberg" Fig. 32	61°9,8 14°10,2	70	GB	12	PR	1-2 (-4)	12	G GrW	1-3 (-5)	0,002-0,005 Sp 0,1-0,3	Grm light grey, pronouncedly schlieric, with cr.nic. spotted. Alkf dark brown or clear, sometimes corrod, p.idiom. Ab-Ol grey or grey-brown, seric. or clear, p.rectangular. Quartz lenses with feldspar crystals at the edges, also narrow quartz stripes with epidote. Numerous small ore grains. Tabular phenocrysts of mica-chlorite-ore 0,5-2 mm. Lumps of ore with epidote and apatite. Mpr Or ₉₇ Ab ₃ and Or ₈ Ab ₈₀ An ₁₂ .
168	Bosseldal, SE of Broad, light red stripes	61°4,4 13°58,6	73	LG	17	PR	1-2	8	GW	1-3	0,002-0,005 0,02-0,05	Grm grey, very fine-grained, with less fine-grained, light grey-brown streaks and patches, pronouncedly schlieric. Alkf brown or clear, p.idiom. Ab light brown-grey, p.idiom. A few Q 0,2-0,8 mm. Granulated quartz lenses and stripes. Tabular phenocrysts of biotite-chlorite and ore 1-3 mm. Other minor const. apatite, zircon, and carbonate.
169	Höghed, N of Indist. grey stripes	61°15,2 14°40,8	74	LB	13	PR	1-2 (-5)	9	G GrW	2-5 (-7)	< 0,001 0,01-0,04	Grm brown, extremely fine-grained, and grey, less fine-grained, pronouncedly schlieric, slightly perlitic. Alkf brown, spotted. Ab light grey, str. or weakly seric. A few Q 0,3-0,6 mm. Aggr. of epidote, chlorite, apatite, and ore.
170	Gopshus, SSW of	61°4,5 14°12,9	75	LG	8	PR	1-3	14	GW	1-3	0,001-0,005 Sp/ 0,05-0,15	Grm grey-brown, slightly schlieric, with cr. nic. spotted, between the spots extremely fine-grained. Alkf brown, spotted, p.clear. Ab grey or grey-brown, str. seric. Granulated, frayed quartz lenses and stripes and small patches with net-work of quartz crystals. Lumps of ore. Other minor minerals biotite and chlorite.

CENTRAL DALARNA. IGIMBRITES

No.	1	2	3	4	5	6	7	8	9	10	13	14
171	Gopshus, SSW of With light red patches Fig. 34	61°3,4 14°10,8	75	RG	11	PR	1-4	10	GW	1-4	0,003-0,005 Sp/ 0,08-0,25	Grm brown-grey, schlieric, with cr. nic. sparsely spotted. Alkf brown or dark brown, spotted, p. clear, p. idiom. Ab grey or grey-brown, p. idiom. Narrow, winding quartz stripes and quartz lenses with idiom. feldspar crystals at the edges. Irr. ore lumps. Other minor minerals biotite and apatite
172	Näckådalen, SW of	61°17,8 14°21,6	76	BR	12	PR	1-2 (-4)	4	GW GGr	1-2 (-3)	0,003-0,010 Sp 0,04-0,1	Grm light red-brown, indist. schlieric, with cr. nic. spotted. Alkf brown or grey-brown, p. idiom. Ab light grey, p. idiom. Coarsely crystallized quartz lenses with some epidote. Lumps of ore. Other minor minerals chlorite, apatite, zircon.
173	Väsaberget, S of With dark patches	61°9,2 14°4,9	77	PG	12	RY	1-2	8	PG	1-2	0,005-0,050	Grm light grey, ineq, indist. schlieric. Numerous small feldspar phenocrysts 0,2-1 mm. Narrow quartz stripes, p. with marginal feldspar crystals. Alkf brown, spotted. Ab light grey, slightly seric, p. clear, also diffuse core in Alkf. Minor const. biotite, chlorite, epidote, apatite, and ore.
174	Näckådalen, N of With light red patches	61°21,2 14°24,8	78	RG	11	PR	1-4	10	GW	1-4	0,003-0,005 0,03-0,10	Grm grey-brown, schlieric, very fine-grained with more coarse-grained streaks and patches. Alkf dark brown, p. idiom. Ab grey or grey-brown, seric. Q less than 1 mm, corrod. Minor const. biotite, light green mica, apatite, and ore.
175	Näckådalen, NE of	61°21,1 14°30,1	80	LB	10	PR	1-3 (-7)	8	GW GrW	1-3 (-5)	0,005-0,015	Grm grey-brown, ineq, hardly noticeably schlieric. Alkf dark brown or brown, p. idiom. Ab light grey, mod. seric, also with epidote groups, p. idiom. A few small Q 0,4-0,7 mm, p. idiom. Tabular phenocrysts and aggr. of chlorite, epidote, and ore. Other minor const. fluorite, apatite, and carbonate
176	Månstaberget, W of	61°15,6 13°54,4	80	GR	13	R	1-5	5	GW GY	1-3	0,010-0,015	Grm brown-grey, eq, not noticeably schlieric. Alkf brown, spotted, p. clear, p. idiom. Ab light grey or grey, seric, p. idiom. A few quite small Q. Flakes of chlorite + ore 1-2 mm. Other minor const. amphibole, epidote, apatite.

CENTRAL DALARNA. IGIMBRITES

No	1	2	3	4	5	6	7	8	9	10	13	14
177	Torrild, SE of Fig. 28,29 Dark	61°18,5 14°11,9	81	LB	2	PR	0,5- 1	11	GW	0,5- 1	0,001-0,025	Grm pronouncedly schlieric, with alternating grey and light grey-brown, narrow, winding stripes, with cr. nic. breaking up into short, thread-like crystals. Numerous small feldspar phenocrysts less than 1 mm, p. granulated. Alkf light brown, p. idiom. Ab light grey-brown, mod. seric, p. idiom. Q finely granulated, has replaced feldspar phenocrysts. Flakes of chlorite-epidote-ore 0,5-1,5 mm. Small irr. ore lumps with epidote. Other minor const. titanite, muscovite, and apatite.
178	Månstaberget Fig. 35 Dark	61°15,3 13°57,4	81	LB	8	PR	1-2 (-3)	7	GrW GY	1-2 (-3)	0,001-0,003 Sp 0,04-0,2	Grm grey-brown, pronouncedly schlieric, with cr. nic. closely spotted. Coarser streaks rich in quartz with brown feldspar crystals. Alkf dark brown, spotted, p. clear. Ab light grey, seric, p. clear, p. idiom. Strings and irr. aggr. of ore and also tabular phenocrysts of ore with rests of biotite. Other minor const. chlorite, epidote, apatite.
179	Väsaberget Red-brown stripes	61°10,2 14°4,9	81	EG	7	PR	1-5	6	G GrW	1-5	0,003-0,005	Grm light grey-brown, dist. schlieric, very fine-grained, with coarser, ineq. grey-brown streaks, richer in quartz, also with small spherulites. Phenocrysts unevenly distributed. Alkf brown, spotted. Ab light grey or grey-brown, spotted, mod. seric. Scattered, irr. ore lumps and tabular phenocrysts of ore + light mica 1-2 mm. Other minor const. epidote, biotite, chlorite.
180	Gopshus, SW of Fig. 36 Brick-red	61°4,2 14°12,7	81	R	11	PR	1-3	6	GW	1-2	0,005-0,015 Sp 0,1-0,2	Grm forms a brown net-work with light grey-brown meshes, not noticeably schlieric, with cr. nic. closely spotted. Alkf brown, spotted, p. clear. Ab light grey or clear, mod. seric. Tabular phenocrysts of biotite + ore 1-1,5 mm. Other minor const. chlorite and apatite.

CENTRAL DALARNA. IGIMBRITES

No.	1	2	3	4	5	6	7	8	9	10	13	14
181	Unntorp, S of Fig. 33 Dark	61°21,9 14°24,5	82	GB	8	PR	1-2 (-4)	7	GW	1-3	0,003-0,006 0,01-0,10	Grm light grey, finely striped, ineq. Alkf light brown, spotted, p. clear. Ab light grey, slightly seric, p. idiom. Ore lumps and tabular phenocrysts of chlorite-epidote-ore 1-2 mm. Other minor const. apatite and zircon.
182	Krångdalen, NE of	61°2,5 14°3,7	83	RB	5	R- PR	1-2	10	G- GW	1-2 (-4)	0,001-0,003 Sp 0,05-0,1	Grm light grey-brown, extremely fine-grained, pronouncedly schlieric with indist. light-brown flames and narrow stripes of quartz and feldspar crystals. With cr. nic. spotted, also larger (1-1,5 mm), angular grains, not visible in parallel light. Alkf light brown, p. clear. Ab light grey or clear, mod. seric. Tabular phenocrysts of chlorite + ore 0,5-1,5 mm. Other minor const. apatite and zircon.
183	Älvho, E of	61°29,7 14°45,5	84	LB	6	PR	2-5	5	GW	2-3 (-5)	0,003-0,005 Sp 0,05-0,2	Grm light brown, fine-grained, schlieric, with narrow, winding quartz stripes. Also broad, p. granophyric bands with small, idiom. feldspars. With cr. nic. unevenly spotted. Alkf brown or light brown, spotted, with epidote groups, p. idiom. Ab light grey, weakly seric, p. idiom. A few small Q 0,4-1 mm. Also small "blisters" of quartz. Single tabular phenocrysts of chlorite + ore 0,5-2 mm. Other minor const. fluorite and carbonate.
184	Våmsjön, W of "Red Rännås" Brick-red	61°21,2 14°11,4	84	R	7	PR	1-4	7	GW	1-4	0,003-0,005 Sp 0,05-0,2	Grm light brown, inhomogeneous, very fine-grained, schlieric, with light brown, less fine-grained network. With cr. nic. unevenly spotted. Alkf dark brown or brown. Ab grey or grey-brown, p. idiom. Coarse-grained quartz stripes with feldspar crystals at the edges. Indist. tabular phenocrysts of mica + ore 0,5-1,5 mm. Other minor const. chlorite, epidote, fluorite, and apatite.
185	Övre Lädesjön	61°2,8 14°8,6	84	G	9	PR	2-3 (-5)	6	GW GY	2-4 (-7)	0,005-0,020 Sp 0,1-0,2	Grm light brown, schlieric, broadly banded, with cr. nic. closely spotted. Alkf dark brown, p. idiom. Ab grey, str. seric. Small phenocrysts of biotite + ore 0,5-1,5 mm. Other const. chlorite and apatite

CENTRAL DALARNA. IGIMBRITES

No	1	2	3	4	5	6	7	8	9	10	13	14
186	Brunnsberg	61°17,7 13°55,5	85	BR	8	R	1-2 (-4)	5	GW	1-2	0,005-0,010	Grm light brown, fine-grained, eq, not noticeably schlieric but with single parallel, somewhat coarser stripes. Alkf light brown, p. idiom. Ab light grey, with some sericite, p. idiom. A few quite small Q 0,1-0,3 mm. Minor minerals epidote, chlorite, carbonate, and ore.
187	Björnarvet	61°6,6 14°6,9	85	R	5	PR	1-3 (-5)	4	G- PG	1-2	0,02-0,06	Grm light brown, rather coarse-grained, eq, locally schlieric, inhomogeneous, breccia-like, indist. perlitic. Microporph. with small, angular feldspar phenocrysts 0,1-0,5 mm, very unevenly distributed. Alkf dark brown. Ab grey or grey-brown. Other const muscovite (rather much), biotite-chlorite, apatite, and ore.
188	Ribbåsen, S of Dark green spots 1-4 mm	61°19,4 14°3,9	86	R	10	R	1-3	1	GGr	1-2	0,005-0,060	Grm brown-red with diffuse, lighter patches, ineq, not noticeably schlieric. Alkf very dark brown. Ab grey, str. seric. Minor minerals light mica, chlorite, and ore.
189	Näckådalen, ENE of	61°19,3 14°26,3	86	G	8	PR	1-3	4	GW GGr	1-2	0,001-0,005 0,02-0,05	Grm light grey, very fine-grained, schlieric and brecciated by a lighter, less fine-grained network. Granulated quartz lenses and stripes. Alkf light brown. Ab light grey, seric, hardly visible in parallel light, p. idiom. Rare, tabular phenocrysts of mica-epidote-ore 1-1,5 mm. Other minor minerals chlorite and apatite.
190	Månstaberget	61°15,1 13°57,5	86	RB	10	PR	3-5	3	GW	2-3	0,005-0,020 Sp 0,08-0,2	Grm light grey-brown, indist. schlieric, with narrow, less fine-grained streaks rich in quartz. With cr. nic. spotted. Alkf dark or light brown or clear, p. idiom, also with epidote. Ab light grey, p. seric. Single Q 1 mm. Minor const. chlorite, titanite, apatite, and ore.

CENTRAL DALARNA. IGIMBRITES

No	1	2	3	4	5	6	7	8	9	10	13	14
191	Gopshus, SW of	61°4,8 14°12,3	86	BR	8	R	1-2 (-3)	4	GW	1-2	0,005-0,010 Sp 0,1-0,2	Grm a very fine-grained, brown net-work with diffuse, very light brown-grey meshes, indist. schlieric, with narrow quartz stripes. With cr. nic. closely spotted. Alkf light brown or clear. Ol grey, str. seric. Tabular phenocrysts of light mica + ore 0,5-1,5 mm. Other minor const. epidote, chlorite, apatite, and zircon.
192	Oxberg, W of	61°7,5 14°3,9	86	R	10	R	1-3	3	GY	1-2	0,010-0,025	Grm brown, fine-grained, eq, with irr. much coarser patches of quartz and feldspar, also quartz lenses with small, idiom. feldspar crystals. With cr. nic. close-lying, poikilitic sponges 0,2-0,8 mm. Alkf dark brown, spotted, p. idiom. Ab grey-brown or grey, mod. seric. Tabular phenocrysts of biotite-chlorite, apatite, and ore, 0,5-2 mm.
193	Skrumåla- knallarna Red-striped	61°22,0 14°9,4	87	GB	7	R	1-3 (-5)	3	GW GGr	1-3 (-5)	0,005-0,030 0,03-0,06	Grm light brown, fine-grained, ineq, p. weakly granophyric, dist. schlieric with less fine-grained bands. Also much coarser streaks and lenses of quartz with small feldspar crystals. Alkf brown or grey-brown. Ab grey, seric, p. idiom. Small, irr. ore lumps. Other minor const. epidote, titanite, and fluorite.
194	Karlsarvet, W of With red- brown flames	61°16,5 13°55,5	87	G	6	PR	1-3 (-5)	3	GW	1-3	0,001-0,003 0,02-0,06	Grm light brown, extremely fine-grained, brecciated and lying as isolated patches in a less fine-grained, light grey mass. Schlieric, with fragments of pumice, p. perlitic, also with spherulites. Alkf light brown or grey-brown, spotted, p. idiom. Ab light grey or clear. Rich in carbonate.
195	Göransbodarna, NW of Flesh-red Alkf "Bölsås"	61°20,5 14°6,4	88	LB	9	R	2-6 (-8)	3	PG GY	1-2 (-4)	0,005-0,015 Sp/ 0,05-0,07	Grm light grey-brown with brown-red, winding streaks, dist. schlieric. With cr. nic. closely spotted, also visibly in parallel light. Alkf dark brown, p. idiom. Pl grey, seric, p. idiom. A few small Q 0,2-0,5 mm. Narrow quartz stripes. Minor const. chlorite, apatite, and ore.

CENTRAL DALARNA. IGIMIBRITES

No.	1	2	3	4	5	6	7	8	9	10	13	14
196.	Orrklitten Indist. feldspar phenocrysts	61°19,6 14°10,2	88	B- Bl	2	PR	0,5- 1,5	9	GW	0,5- 1,5 (-2)	0,002-0,003	Grm very fine-grained, densely striped, with alternating dark grey and light brown, slightly winding stripes, the latter with cr. nic. breaking up into small, rectangular grains 0,01 x 0,1 mm. Alkf dark brown. Pl grey-brown, p. str. seric, mostly clear. Narrow, rectangular ore grains.
197	Näckådalen, NW of Red-striped	61°20,4 14°22,4	88	GB	6	PR	0,5- 1 (-3)	5	GrW	0,5- 1 (-2)	0,005-0,015 Sp/ 0,02-0,04	Grm light brown-grey, schlieric, with narrow, winding, coarse-grained quartz stripes, next to these a very fine-grained zone without spots with cr. nic. otherwise quite small spots. Alkf light brown, p. idiom. Ab light grey, p. str. seric, p. idiom. Quite small phenocrysts of biotite + ore. Other minor const. epidote and apatite.
198	Våmsjön, SSW of	61°20,3 14°11,4	88	RB	6	PR	2-5	5	GW GY	2-5	0,005-0,040 Sp 0,05-0,1	Grm light brown with diffuse, very light patches, ineq, not noticeably schlieric, with cr. nic. unevenly spotted (frayed spots). Irr. lenses or vugs with coarse-grained quartz and small feldspar crystals. Alkf brown, spotted. Ab light grey or grey. Flakes of biotite-chlorite and ore 0,5-1,5 mm. Aggr. of biotite, apatite, and ore.
199	Bössjön, SW of	61°19,2 14°16,3	88	RB	7	PR	1-3 (-6)	2	GW	1-3	0,02-0,04	Grm light grey-brown, indist. or not schlieric, eq. "micropoikilitic" sponges 0,02-0,04 mm. Some quite short quartz stripes. Alkf light grey-brown, spotted. Ab grey. Large grains and small dots of ore. Other minor const. olive-green biotite, titanite, fluorite, carbonate.
200	Näckådalen Grey-red flames	61°18,9 14°24,3	88	GB	6	PR	1-2 (-4)	3	GW GrW	1-4	0,005-0,040 0,04-0,10	Grm light grey-brown with light brown, coarser streaks and lenses, schlieric. Alkf brown, spotted, p. idiom. Ab light grey or brown-grey, seric, p. idiom. A few Q 0,5-1,5 mm. Irr. strings of ore and small phenocrysts of chlorite + ore 0,5-1,5 mm. Other minor const. epidote, titanite, apatite, and zircon.

CENTRAL DALARNA. IGNIMBRITES

No.	1	2	3	4	5	6	7	8	9	10	13	14
201	Bössjön, NW of "Gammalklitt" Very thin, red stripes	61°20,5 14°13,9	88	B- Bl	8	PR	1-5 (-8)	4	P GGr	1-3	0,005-0,010 0,01-0,10	Grm light grey, very fine-grained, pronouncedly schlieric with narrow, less fine-grained stripes. Also broader stripes of coarse-grained quartz and small feldspar crystals, sending out narrow branches. Alkf brown or clear, p. idiom. Ab light grey or brown-grey, mod. to str. seric, p. idiom. A few phenocrysts of chlorite + ore, 1-3 mm, and small aggr. of epidote, fluorite, and ore.
202	Bössjön, N of "Black Rännäs" With red bands Fig. 40, 41	61°21,5 14°16,5	89	BG	8	PR	1-2 (-5)	3	GW	1-3	0,005-0,030 0,1-0,5	Grm light brown-grey, fine-grained, with much coarser bands or lenses of quartz and crystals of feldspar, also with small spherulites. Rather rich in sericite. Alkf grey-brown. Ab light grey, seric. A few phenocrysts of light mica and ore 1-1,5 mm. Among minor const. also fluorite.
203	Risberg "Loka-Risberg"	61°19,7 13°59,2	89	R- BR	7	PR	1-3	3	GW GrW	1-3	0,005-0,010 Sp 0,05-0,2	Grm alternating light brown and light grey, schlieric, with cr. nic. spotted. Narrow, winding quartz stripes and vugs with small feldspar crystals. Alkf light brown or light grey. Ab light grey, mod. seric. A few phenocrysts of chlorite + ore 1-1,5 mm. Other minor const. biotite, muscovite, apatite, titanite, and zircon.
204	Dysberg, NE of "Dysberg" Red flames Fig. 38	61°10,3 13°58,2	89	LB	3	R	1-3 (-10)	6	GW	1-4	0,03-0,06	Grm light brown, schlieric, with large, light-grey spherulites. Alkf light brown or grey, spotted. Ab light grey or grey-brown, mod. seric. Short, diverging strings of iron ore. A few phenocrysts of chlorite + ore 1-2 mm. Other minor const. epidote, apatite, and zircon. Mpr $Or_{80}Ab_{20}$, $Or_2Ab_{96}An_2$.
205	Bosseldal, SE of	61°4,4 13°58,6	89	R	7	PR	1-5	2	GW	1-4	0,005-0,040 0,05-0,50	Grm light brown, dist. schlieric, ineq, with coarser stripes and lenses of quartz and feldspar crystals, also with spherulites. Alkf light brown, spotted, p. idiom. Ab light grey, mod. seric. Idiom. Q 0,3-0,5 mm. Minor const. brown and green mica, apatite, and ore.

CENTRAL DALARNA. IGNIMBRITES

No	1	2	3	4	5	6	7	8	9	10	13	14
206	Svarttjärns- berget, SE of	61°2,5 14°7,5	89	GR	6	PR	1-2	2	GW GY	1-2 (-3)	0,005-0,10	Grm light brown, slightly schlieric, very ineq, recrystallized, with diffuse fragments of pumice. Feldspar phenocrysts unevenly distributed, sometimes hardly visible in parallel light. Alkf brown, spotted. Ab light grey or grey. Many small, ragged ore aggr. Other minor const. green mica, chlorite, apatite, and zircon.
207	Dasåsen, SW of	61°35,1 13°39,8	90	RB	8	R	1-3 (-5)	2	GW GGr	1-3	0,005-0,015 0,02-0,07	Grm light brown, very fine-grained, dist.schlieric with narrow, parallel, less fine-grained stripes of quartz and feldspar. Alkf brown or light brown, p.idiom. Ab light grey, mod. seric. A few quite small Q 0,2-0,4 mm. Minor const. biotite, chlorite, apatite, and ore.
208	Göransbodarna N of Red stripes	61°21,2 14°8,0	90	LB	8	PR	1-4	2	GW GY	1-3	0,003-0,020 0,02-0,10	Grm light brown, very fine-grained, schlieric, with dist, narrow, light brown stripes and less fine-grained, broader stripes of quartz and feldspar. Alkf brown, spotted, p.clear, p.idiom. Ab light grey, mod. seric. Minor const. chlorite, apatite, zircon, and ore. Mpr Or ₄ Ab ₉₅ An ₁ .
209	Karlsarvet, W of	61°16,5 13°55,1	90	R	8	PR	1-2 (-4)	1	GW	1-2	0,003-0,007	Grm light brown, very fine-grained, slightly schlieric, with diffuse, brown stripes, making an acute angle with thin, quartz-rich stripes with feldspar crystals and fluorite. Alkf light brown or grey, p.idiom. Ab light grey or grey-brown, mod. seric. A few phenocrysts of chlorite + ore 0,5-2 mm. Rare Q 0,2-0,5 mm. Minor const. epidote and apatite.
210	Karlsarvet, W of Grey patches	61°16,5 13°55,5	91	R	5	R	1-2	3	GW	1-2	0,005-0,025 0,025-0,050	Grm brown-red, fine-grained, schlieric, brecciating a less fine-grained, light grey mass. Alkf light brown, spotted. Ab light grey or grey. Minor const. green mica, fluorite, carbonate, and ore.

CENTRAL DALARNA. IGNIMBRITES

No.	1	2	3	4	5	6	7	8	9	10	13	14
211	Risberg Red stripes "Loka-Risberg"	61°19,7 13°59,2	91	BR	5	PR	1-2 (-3)	4	GW GY	1-2 (-3)	0,005-0,010 Sp 0,05-0,1	Grm light grey-brown, schlieric, with brown, very fine-grained streaks and numerous, parallel stripes of more coarse-grained quartz (0,2-0,7 mm) with small feldspar crystals. With cr. nic. closely spotted. Alkf dark brown. Ab grey or grey-brown. Minor const. biotite, apatite, and ore.
212	Dyverberget, NE of	61°25,1 14°12,8	91	GR	5	PR	1-5	3	GW	1-3	0,01-0,10	Grm light grey-brown, indist. schlieric, with winding quartz stripes, p.granophyric, also small, incomplete spherulites. Quartz lenses with idiom. feldspar crystals at the edges and small, round quartz fields with feldspar in the centre. Alkf light brown, p.idiom. Ab light grey. Minor const. light mica and ore.
213	Orrklitten "Orrklitt" Fig. 37	61°19,6 14°10,2	91	B1	2	PR	0,5- 1 (-2)	4	GW	0,5- 1 (-2)	0,010-0,025	Grm grey-brown, fine-grained, surrounded by a dark grey, compact net-work. Light brown, bent or Y-shaped or more irr. worm-like shards 0,1-0,6 mm long. Many small feldspar phenocrysts. Alkf brown, spotted. Ab light grey or grey-brown, seric. or clear. Small lumps of ore.
214	Bössjön, NW of Very thin, red stripes "Gammalklitt"	61°20,5 14°13,9	91	B- B1	7	PR	2-7	2	GW GGr	1-3	0,005-0,015 0,01-0,10	Grm brown-grey, pronouncedly schlieric, with many narrow, less fine-grained stripes of quartz and feldspar. Also broader, much coarser bands, sending out narrow, parallel branches. Indist. spherulites. Alkf dark brown, spotted, p.idiom. Ab grey-brown, str. seric. Lumps and narrow crack fillings of iron ore. A few tabular phenocrysts of ore + chlorite 0,5-1 mm. Mpr Or ₉₉ Ab ₁ and Or ₄ Ab ₈₉ An ₇ .
215	Svarttjärns- berget Red stripes	61°2,9 14°6,6	91	GB	5	PR	0,5- 1 (-3)	2	GW	0,5- 1 (-3)	0,003-0,030	Grm light brown with darker brown, irr. stripes, dist. schlieric. Unevenly distributed phenocrysts. Broader stripes of more coarse-grained quartz with idiom. feldspar crystals. Alkf brown, spotted, p. clear, p.idiom. Ab light grey, str. seric. Small phenocrysts of muscovite + ore.

CENTRAL DALARNA. IGIMBRITES

No	1	2	3	4	5	6	7	8	9	10	13	14
216	Karlsarvet, W of Red stripes	61°16,5 13°55,5	92	R	4	PR	1-5	2	GW	1-2	0,005-0,025 0,02-0,06	Grm lilac-brown, fine-grained, ineq, schlieric, surrounding a less fine-grained, light grey mass. Alkf brown or light grey. Ab grey. Aggr. of green mica and chlorite. Other minor const. ore and rather much carbonate.
217	Göransbodarna N of	61°20,5 14°07,6	92	B- Bl	2	PR	0,5- 1,5	5	GW	0,5- 2	0,001-0,003 0,06-0,15	Grm dark grey, very fine-grained, schlieric, with small, less fine-grained, light grey-brown, winding lenses. Alkf brown, spotted. Ab grey or light grey, str. seric, p.clear. A few Q very light brown, granulated, 0,2-1 mm. Idiom. magnetite crystals.
218	Digerbergs- tjärn, W of	61°13,8 13°55,3	93	BL	5	R	1-2 (-4)	2	GW	1-2	0,010-0,020	Grm grey, fine-grained, with distorted and Y-shaped brown-red grains of alkf, 0,2-1 mm, partly replaced by quartz. Alkf spotted or clear, p.idiom. Pl gray or brown, str. seric, p.clear. A few small Q 0,2-0,4 mm, p.idiom. Flakes of chlorite + ore 0,5-1 mm. Other minor const. titanite, fluorite, apatite.
219	Göransbodarna N of "Black Rännås" Red stripes	61°21,1 14°08,0	93	BG	5	R- PR	1-3 (-5)	2	G GrW	1-3	0,003-0,005 0,03-0,10	Grm grey, very fine-grained, pronouncedly schlieric with very narrow, distinct, light brown stripes. Also more coarse-grained, brownish streaks with small spherulites and lath-shaped feldspar crystals. Alkf dark brown or brown, spotted. Ab grey, seric. A few small phenocrysts of chlorite + ore.
220	Karlsarvet, W of Grey patches Fig. 27	61°16,5 13°55,5	93	BR	4	PR	1-2	2	GW	1-2	0,003-0,010 0,01-0,05	Grm light brown, very fine-grained, with less fine-grained, light grey, angular fragments (eutaxitic breccia). Alkf brown, spotted. Ab grey or grey-brown. Small lumps of ore.
221	Unntorp, SW of Indist. feld- spar pheno- crysts	61°22,5 14°23,5	93	PR	5	PR	0,5- 2	1	GW	0,5- 2	0,01-0,02 0,05-0,50	Grm schlieric, ineq, with alternating brown, fine-grained, and light grey, less fine-grained stripes, the latter rich in quartz. Looks like a pressed net-work. Alkf light brown, spotted. Ab light grey, str. seric, p.clear. Minor const. light mica, apatite, and ore.

CENTRAL DALARNA. IGNIMBRITES

No.	1	2	3	4	5	6	7	8	9	10	13	14
222	Tandberget, SE of	61°16,6 14°37,8	93	LB	3	PR	1-2	3	GW	1-2	0,003-0,025 0,01-0,04	Grm light brown-grey, ineq, pronouncedly schlieric with alternating, very and less fine-grained stripes. Also more coarse-grained (0,05-0,15 mm) quartz stripes. Alkf light brown, spotted. Ab light grey, str. seric, p.clear. Minor const. amphibole, biotite, apatite, and ore.
223	Älvdalen, S of Flamy. Indist. feldspar phenocrysts	61°12,5 14°2,8	93	R	1	R	0,5- 2	5	G GW	0,5- 1 (-4)	0,005-0,020	Grm light grey, fine-grained, with diffuse, brown or light brown patches, poikilitic, not visibly schlieric. Alkf light brown. Ab light grey or grey, p.str. seric. Minor const. muscovite, chlorite, epidote, carbonate, titanite, apatite, and ore.
224	Harpsjö- klacken, W of Flamy Fig. 39	61°28,6 14°17,9	94	BR	3	PR	1-3	2	GW	1-3	0,005-0,050	Grm light grey and brown, schlieric, very ineq, with fan-shaped spherulites. P. breccia-like and inhomogeneous. Numerous small, angular feldspar phenocrysts 0,1-0,3 mm. Granulated quartz lenses with small feldspar crystals at the edges. Alkf light brown or brown, spotted, p.idiom. Ab light grey or grey, mod. seric. Irr. ore lumps. Other minor const. biotite and zircon.
225	Gopshus, SSW of Indist. Alkf	61°3,6 14°12,2	94	BR	2	PR	1-2 (-3)	3	GW	1-2	0,002-0,005	Grm grey-brown, very fine-grained, dist. schlieric with Y-shaped shards. Also narrow, coarser quartz stripes. Unevenly distributed feldspar phenocrysts. Alkf brown, spotted, p.clear. Ab grey, p.str. seric p.clear. Quite small Q 0,1-0,2 mm. Minor const. biotite-chlorite and ore.
226	Näckådalen, NW of	61°20,8 14°20,9	96	BR	2	PR	0,5- 1 (-2)	1	GW	0,5- 1 (-2)	0,01-0,04	Grm light grey-brown, dist. schlieric, with narrow, parallel stripes or elongated lenses of quartz, less fine-grained, p.with feldspar crystals at the edges. Alkf light brown or grey-brown, spotted. Ab light grey. Minor const. chlorite, fluorite, zircon, and ore.

CENTRAL DALARNA. BREDVAD PORPHYRY

No	1	2	3	4	5	6	7	8	9	10	13	14
227	Kåtilla, SW of	61°13,1 13°59,3	76	R	11	R- PR	1-3 (-4)	10	GY	1-3	0,01-0,04	Grm ineq. with more coarse-grained lenses or streaks rich in quartz, p.granophyric. Many small phenocrysts less than 1 mm. Alkf dark brown, spotted, p.idiom. Ab light grey, with sericite and epidote, rim of alkf.
228	Mossiberg, W of	61°32,1 13°48,4	77	GR	14	R	1-4	5	GGr GY	1-3	0,015-0,025	Grm very fine-grained, eq. Alkf dark brown with poikilitic border. Ab grey, str. seric.
229	Evertsberg, SW of	61°7,4 13°56,5	79	GR	10	PR	2-4	5	GGr	2-4	0,015-0,020	Grm very fine-grained, eq, with coarser, granophyric streaks, also isolated granophyre spots. Alkf dark brown, spotted, p.idiom. With cr. nic. large perthite patches. Ab grey to dark grey, str. seric, p.idiom. Flakes of chlorite + muscovite 0,5-1 mm. Many small ore grains and strings.
230	Kräckelbäcken S of Brick-red	61°31,4 14°12,0	81	R	11	PR	1-3 (-5)	4	GGr	1-3	0,03-0,06	Grm less fine-grained, eq. Grmf dark brown. Alkf brown or brown-grey with uneven, poikilitic border. Ab p.poikilitic and almost incorporated with the grm. A few Q 0,4-0,6 mm.
231	Kalkstupet, S of	61°22,7 13°33,9	82	GR	10	R	1-2 (-5)	5	GGr GY	1-2	0,03-0,05	Grm eq, blurred, with coarser streaks, p.granophyric. Alkf dark brown, p.idiom, with indist. poikilitic border, p.homogeneous with cr. nic. Pl str. seric. Numerous quite small ore grains and also larger ore lumps.
232	Granånäs, E of	61°29,6 13°40,1	82	R	7	R	1-4	5	GGr	1-3	0,015-0,025	Grm very fine-grained, eq, with coarser streaks, p.granophyric. Grmf dark brown. Diffuse, light brown patches. Alkf dark brown, flamy, p.idiom, with uneven, poikilitic border, homogeneous with cr. nic. Ol grey, p.str. seric, also idiom. A few idiom. Q 0,3-0,7 mm. Lumps and many small dots of ore.
233	Okbodarna, NW of	61°15,7 13°47,7	82	RG P	7	PR	1-5	7	GW	1-5	0,02-0,04	Grm eq, with coarser streaks and lenses, rich in muscovite. Alkf very dark brown, p.idiom, with poikilitic border. Ab grey, str. seric, also with large muscovite flakes. Idiom. magnetite crystals.

CENTRAL DALARNA. BREDVAD PORPHYRY

No	1	2	3	4	5	6	7	8	9	10	13	14
234	Dasåsen, SW of Brick-red	61°35,3 13°40,3	84	R	7	R	1-2 (-4)	6	GGr	1-3	0,02-0,04	Grm eq, blurred, weakly striped, with narrow, coarser streaks. Grmf dark brown. Alkf dark brown, spotted, p.idiom, homogeneous with cr. nic. Ol str. seric, p.idiom, also with narrow rim of alkf. A few Q 0,3-0,5 mm.
235	Afstasgraven	61°24,8 13°43,3	84	R	9	R- PR	1-4	4	GY GW	1-3	0,02-0,05	Grm less fine-grained, eq, with diffuse, light brown patches. Grmf otherwise dark brown. Alkf dark brown, p.clear, with uneven, poikilitic border. Ab p.idiom. Small, scattered ore grains.
236	Vasselbodarna N of	61°10,9 13°41,5	84	R	11	R	1-2 (-6)	3	GY	1-3	0,02-0,03	Grm eq, locally more coarse-grained, granophyric. Also isolated granophyre spots. Alkf dark brown, with broad, poikilitic border, p.homogeneous with cr. nic. Ol light grey or grey, p.str. seric, sometimes with narrow, poikilitic border.
237	Trängslet, NW of	61°24,2 13°41,9	85	R	8	R	1-3 (-5)	4	GY GW	1-3	0,03-0,05	Grm less fine-grained, eq, with diffuse, very light brown patches or flames. Alkf brown or brown-grey, with indist. poikilitic border and grm-filled cracks. Ab light grey, p.idiom. Among minor const. also orthite. Mpr Or ₂₅ Ab ₇₄ An ₁ , Or ₁ Ab ₉₆ An ₃ .
238	Trängslet	61°23,0 13°44,1	85	R	9	R	1-4 (-5)	2	GY	1-3	0,02-0,03	Grm eq, slightly striped, with coarser, indist. poikilitic streaks. Alkf dark brown or brown-grey, p.idiom, with poorly developed, poikilitic border. Ab grey.
239	St.Ugsi, N of Fig. 43	61°14,8 13°38,5	85	R- GR	8	R	2-3 (-5)	3	GGr	2-3	0,02-0,04	Grm eq. Alkf brown or brown-grey, p.idiom, with broad, poikilitic border. Ab light grey, p.str. seric, also core in Alkf, p.idiom. Phenocrysts of light brown biotite 0,5-1 mm. Many small ore grains
240	Hållan, W of	61°6,0 14°4,8	85	R	11	R	1-3	1	GW GY	1-2	0,015-0,025	Grm very fine-grained, eq. Alkf dark brown, spotted p.idiom, with indist, narrow, poikilitic border. Ab grey, p.idiom. A few Q 0,2-0,3 mm.

CENTRAL DALARNA. BREDVAD PORPHYRY

No	1	2	3	4	5	6	7	8	9	10	13	14
241	Bredvad, N of	61°19,7 13°44,2	86	R	8	R	1-3 (-6)	4	PG GY	1-2	0,02-0,03	Grm eq, slightly schlieric, rarely granophyric. Alkf light brown or brown-grey, p.idiom, with poikilitic border and grm-filled cracks. Ab light grey or grey, str. seric, p.idiom, also core in Alkf. A few Q 0,3-0,5 mm.
242	Brunnsberg, W of	61°17,2 13°51,9	87	R	8	R	1-4	3	GGr	2-4	0,01-0,03	Grm ineq, indist. schlieric. Alkf brown, p.idiom, with poikilitic border. Ab-Ol light grey, str. seric, p.idiom.
243	Månstaberget	61°14,6 13°58,0	87	BR	7	PR	1-3	5	GGr GY	1-3	0,02-0,06	Grm less fine-grained, ineq. Alkf brown or clear, spotted, p.idiom, with uneven, poikilitic border. Ab grey or brown-grey, p.str. seric, p.idiom. Phenocrysts of chlorite + ore 0,5-1 mm. Among minor const. also orthite.
244	Ulvsjön, E of	61°35,4 14°16,8	88	GR	8	GR	1-5	2	PG	1-2 (-5)	0,02-0,03	Grm eq, with coarser, granophyric streaks. Alkf brown or clear, spotted, p.idiom, with poikilitic border. Ol light grey or brown-grey, str. seric.
245	Öradtjärn- berget, N of	61°29,5 14°13,7	88	R	7	PR	1-4	1	GGr	1-3	0,02-0,03	Grm eq, with coarser streaks and lenses, also finely striped. Alkf brown or brown-grey, p.idiom. Ol light grey or grey, str. seric. Flakes of light brown biotite c. 1 mm.
246	Kalkstupet	61°23,9 13°33,2	88	R	4	R	1-3 (-7)	6	GGr GY	2-5	0,03-0,06	Grm less fine-grained, eq. Alkf dark brown, spotted p.idiom, also covered with talc. Ab-Ol grey or dark grey, spotted, str. seric, p.idiom, with muscovite flakes. A few Q 0,3-0,6 mm.
247	Gambodarna, S of	61°18,6 13°50,0	88	RG	8	R- PR	2-4 (-7)	3	G GGr	1-3	0,02-0,03	Grm eq, with coarser streaks and patches, p.indist. granophyric. Alkf dark brown, p.idiom, with poikilitic border and grm-filled cracks. Ol grey, p.str. seric. A few Q 0,2-0,6 mm. Small phenocrysts of biotite-chlorite + ore 0,5-1 mm.

CENTRAL DALARNA. BREDVAD PORPHYRY

No	1	2	3	4	5	6	7	8	9	10	13	14
248	Bredvad, NE of Fig. 44,45	61°17,8 13°45,1	88	R	8	R	1-3 (-7)	1	GY	1-3 (-5)	0,03-0,06	Grm less fine-grained, eq. Alkf brown, p.idiom, with broad, poikilitic border. Ab-Ol light grey, with rim of poikilitic alkf. Also core in Alkf. Single Q less than 1 mm. Idiom. magnetite.
249	Trängslet	61°23,0 13°44,1	89	R	8	R- PR	1-5	3	G GY	1-3	0,02-0,05	Grm less fine-grained, ineq, inhomogeneous, with diffuse, light brown patches and uneven grain boundaries. Alkf brown, spotted, p.quite clear, p. idiom. Ol grey, p. quite clear, also idiom. Small feldspar phenocrysts less than 1 mm.
250	Älvdalen, SW of	61°12,5 13°59,9	90	R	4	PR	1-2	4	GW	1-2	0,03-0,05	Grm less fine-grained, ineq, blurred, with uneven grain boundaries. Also coarser patches and streaks. Alkf brown or brown-grey or clear, p.idiom. Ab grey, p.idiom. Phenocrysts of chlorite + ore 0,5-1 mm.
251	Gopshus, SW of	61°4,9 14°13,6	90	P RG	5	PR	1-2	2	PG	1-2	0,005-0,015	Grm very fine-grained, light brown with dirty grey patches. Alkf dark brown, spotted. Ab light grey or grey. Small indist. feldspar phenocrysts less than 1 mm.

CENTRAL DALARNA. BREDVAD PORPHYRY, TRANSITION TO IGNIMBRITE

No.	1	2	3	4	5	6	7	8	9	10	13	14
252	Vasselbodarna S of	61°9,0 13°42,8	65	R	19	PR	1-3	11	GGr	2-3	0,005-0,025	Grm very fine-grained, ineq, with much coarser, uneven streaks. Microporph. with numerous small feldspar phenocrysts less than 1 mm. Alkf dark brown or grey-brown, spotted, p. quite clear, p. idiom. Ol grey or light grey, p. str. seric, also quite clear, p. idiom, with narrow rim of alkf. Phenocrysts of chlorite 1-2 mm. Among minor const. also pyroxene. - Is a special type.
253	Paljokka- berget, NE of	61°34,0 14°36,8	76	GR	13	PR	1-3	6	GGr GY	1-4	0,02-0,04	Grm eq, with more coarse-grained, granophyric lenses and streaks, locally striped. Alkf brown, spotted, with poikilitic border, p. idiom. Many small phenocrysts almost incorporated with the grm. Ab str. seric, p. clear, with rim of alkf. A few Q 0,2-0,4 mm.
254	Dysberg	61°9,5 13°57,0	78	BR	12	PR	1-2	6	GY GW	1-2	0,010-0,030	Grm very fine-grained, ineq, striped, microporph. with small feldspar crystals less than 1 mm. Alkf brown or light grey-brown, p. clear, corrod. Ol grey or brown-grey, str. seric, corrod. Small Q 0,2-0,3 mm. Irr. aggr. and phenocrysts of chlorite + ore 0,5-1 mm.
255	Stop, NNW of	61°21,0 13°51,0	80	GR	12	GR	1-3	5	GW	1-2	0,010-0,020	Grm very fine-grained, ineq, slightly striped, with coarser streaks, locally granophyric. Alkf dark brown or brown-grey, with cr. nic. p. homogeneous. Ab light grey or grey, with rim of alkf. A few Q 0,3-0,5 mm. Also small feldspar phenocrysts less than 1 mm. Small aggr. of chlorite, fluorite.
256	Vasselbodarna S of Fig. 46	61°9,0 13°42,8	81	R	11	R- PR	1-3	6	GGr GY	1-5	0,005-0,015	Grm very fine-grained, eq, dist. striped, also with coarser, p. granophyric streaks. Many small phenocrysts less than 1 mm. Alkf dark grey-brown or clear. Ol light grey, p. str. seric, with narrow, marked rim of alkf. A few Q 0,2-0,5 mm. Small phenocrysts of chlorite + epidote + ore 0,5-1 mm.

CENTRAL DALARNA. BREDVAD PORPHYRY, TRANSITION TO IGNIMBRITE

No	1	2	3	4	5	6	7	8	9	10	13	14
257	Brunnsberg, SW of	61°16,6 13°54,0	87	GR	8	PR	1-2 (-4)	2	G	1-2	0,005-0,015	Grm very fine-grained, slightly schlieric, with indist, somewhat coarser stripes. Also coarser streaks with granophyre. Alkf light brown or grey, spotted, p.idiom. Ab-01 light grey, p. str. seric, p.idiom. A few idiom. Q 0,3-0,7 mm. Single phenocrysts of chlorite 0,5-1 mm.
258	Jöllen, N of	61°23,5 14°0,8	89	R	7	R	1-4	3	GY	1-3	0,015-0,025	Grm very fine-grained, eq, markedly striped. More coarse-grained streaks p. granophyric. Alkf dark brown, p.idiom. Ab-01 grey, p. str. seric. A few Q 0,2-0,7 mm
259	Jöllen, NE of	61°23,1 14°2,7	91	R	6	R	1-3	2	PG	1-3	0,01-0,04	Grm ineq, slightly striped, with somewhat coarser bands. Alkf brown or brown-grey, spotted, p.idiom. Ab light grey or grey. A few Q 0,3-0,6 mm.
260	Brindberg, N of Fig. 47	61°20,6 13°56,7	91	BR	4	PR	1-3	3	GGr	1-2	0,010-0,025	Grm very fine-grained, dark brown, striped, inhomogeneous, with diffuse, very light brown flames or lenses without stripiness. Also coarser granophyric streaks. Alkf brown or brown-grey, p.idiom. Ab grey or light grey, p. clear. Small Q 0,2-0,4 mm, p. idiom. Ore grains with border of titanite.
261	Trängslet	61°23,0 13°44,1	91	P RG	7	PR	1-3 (-5)	1	GW	1-2 (-4)	0,01-0,03	Grm locally dist. striped with sparse, somewhat coarser streaks. Alkf dark brown or grey-brown. Pl grey, very subordinate.
262	Holen Indist. feld- spar pheno- crysts	61°15,0 14°2,3	91	GR	3	PR	1-2	2	PG	0,5- 1	0,01-0,07	Grm less fine-grained, ineq, very light brown with brown patches and coarser quartz lenses or stripes. Alkf dark brown. Pl grey, p. str. seric. A few Q 0,5-1,5 mm. Phenocrysts of biotite 1-2 mm. Also irr. aggr. of biotite and ore.

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