

SVERIGES GEOLOGISKA UNDERSÖKNING

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AVHANDLINGAR OCH UPPSATSER

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ARNE G. B. STRÖMBERG

THE CONGLOMERATE-BEARING  
RENSJÖNÄSET GROUP IN THE  
CALEDONIDES OF WESTERN  
JÄMTLAND, SWEDEN



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## CONTENTS

Abstract .....	3
Introduction .....	4
Regional tectonic and stratigraphic features .....	4
Tectonic boundaries .....	8
Rensjönäset Group .....	10
Bottenviken conglomerate .....	10
Quartzite .....	11
Grey, fine-grained sandstone-claystone .....	12
Graphite shale .....	13
Laminated sandstone and shale .....	13
Correlations .....	14
Gammelvallen .....	15
Offerdal .....	15
Other conglomerates .....	16
Conclusions .....	17
References .....	18

## ABSTRACT

On the eastern shore of the lake Stora Rensjön, a conglomerate-bearing sedimentary sequence has been encountered, the Rensjönäset Group, which is similar to the parautochthonous, Eocambrian and Lower Palaeozoic layered series. The conglomerate in the Rensjönäset Group may be compared with the Offerdal conglomerate which lies 60 km further to the east. Between these two is a third occurrence of a similar conglomerate at Gammelvallen. All three conglomerates are tectonically situated close beneath the large Seve overthrust, and are supposed to be parts of westerly occurring layered series which have passively been involved in the large eastward directed thrust movements.

## INTRODUCTION

The Caledonian rocks of Jämtland can be divided tectonically into three units, namely autochthonous, parautochthonous and allochthonous. The difference between the categories relates to the degree of thrust movements, deformation and metamorphism in the respective units. The autochthonous rocks occur only east of the Caledonian marginal thrust (Strömberg 1974), parautochthonous and allochthonous rocks being represented in the topical area.

The area at the eastern shore of the lake Stora Rensjön provides an excellent example of the often complicated tectonic conditions which prevail in the eastern flank of the Tännforsen area synform. Within the allochthonous series of the area occur, not only Seve and Köli rocks, but also an isolated occurrence of a lower tectonic unit which contains the polymict conglomerate described in this paper. In addition, the parautochthon exhibits, in the individual stratigraphic stages of the Lower Palaeozoic layered sequence, a thickness and completeness which is less common in the vicinity of the Mullfjället anticline.

Mapping work in the area was performed in 1964 and the geologic structure has been summarily described by the author in some lectures (cf. GFF 86, p. 522).

The level of Stora Rensjön is now regulated by a dam with outflow to the north. Erosion of the lake shore in recent years has provided good possibilities for studying the rock structures.

G. Frödin (1921) mentioned a conglomerate in the Tännforsen area border zone between Häggsjön and Stora Rensjön. He pointed out that the conglomerate is rich in boulders of porphyry and crystalline basement, and seems to have interpreted it as a basal formation below the garben schists and amphibolites of the Tännforsen area.

At this time, many of the geologists working in the Scandinavian Caledonides had discarded Törnebohms magnificent thrust hypothesis. In spite of the fact that Frödin mentioned the similarity between the Offerdal and Rensjön conglomerates, there were few possibilities of tectonically linking these without returning to a thrust hypothesis.

The relative similarities which exist between the conglomerates, namely those of petrographic character, stratigraphic and regional tectonic positions will be discussed further in this account.

Localities mentioned in the text are determined in the map (Fig. 1) by letter and number in brackets (e. g. A1). The name S. Bergtjärnvalen should be preferred instead of Kjolandvalen (H3) (Fig. 4).

## REGIONAL TECTONIC AND STRATIGRAPHIC FEATURES

A central part of the Stora Rensjön—Kallrör area is occupied by the Mullfjället antiform. At the northern termination of this antiform there are a couple of thrust faults, where repeated slices of bedrocks containing the parautochthonous pile of strata are pressed southwards against the main body of the antiform. The

thrust faults are terminating in open east—west folds, which also alternate with the faults (Fig. 1).

Such a north—south compression seems to be a general feature in the Jämtland area. The northern terminations of other antiforms, the Sylarna antiform as well as the Olden antiform show similar upthrusts with a couple of slices dipping northwards.

Faults striking about northwest and northeast have cut through the rocks of the Mullfjället antiform and may as well be connected with the above mentioned compression.

The Precambrian rocks, which form a core of the antiform, are collected as the Oldfjällen Group, containing rocks which are post-orogenic in relation to the Svecofennian orogeny. Rhyolite, with porphyric grains of feldspar and more seldom quartz, is the most common rock in this group. Pyroclastic rocks occur in different localities. At the eastern Flander bay (D6) of Äggsjön there are igneous rocks of intermediate chemical composition with a probably tuffitic origin. Granite is found along the road east of Sundet (J9).

Parautochthonous rocks in Fig. 1 are named according to a preliminary stratigraphy (Strömberg 1974). Sedimentary rocks of Eocambrian Vemdalen Subgroup, Cambrian Oviken Group, Ordovician Föllinge Group and Silurian Änge Group form the cover on the parautochthonous Precambrian. These sediments are often restricted to the quartzite of the Vemdalen Subgroup overlain by the Holmsjö graywacke. Thus Cambrian and Lower Ordovician layers seem to be missing in some parts of the area. Where the Kläppe shale (alum shale) does occur it is often only a few metres thick. The Tornäs limestone (Ortoceras limestone) is found only in a narrow part of the area and is relatively completely developed between the former farm V. Flandern and Flanderstöten (E5).

The incomplete representation of the Lower Ordovician layers give indications of non-depositional or erosional conditions prevailing in some parts of the area that time.

The Silurian Änge Group with the Berge limestone (Thorslund 1948, Strömberg 1974) is represented at Kallrör (D12) and Sikås (A12), where this group exhibits the highest layers of the parautochthon below the main allochthonous thrust.

The Rensjönäset Group seems to form a local, lowermost unit in or below the allochthonous Seve-Köli complex. The tectonic and stratigraphic details will be further treated below.

Phyllitic sedimentary rocks are an important constituent of the Offerdal nappe (Strömberg 1961) in this area exclusively represented by tectonized rocks. Of these, plane and hard quartzitic "Offerdal" schists have been quarried northeast of Gråsjön (M8). The Särvi nappe has been found on the Kallrör peninsula (E12). The characteristic structure with basic dikes in arenaceous rocks is best seen near the Kallsjön shore as well in Skagen (F12) as northwest of Berge (B13). The

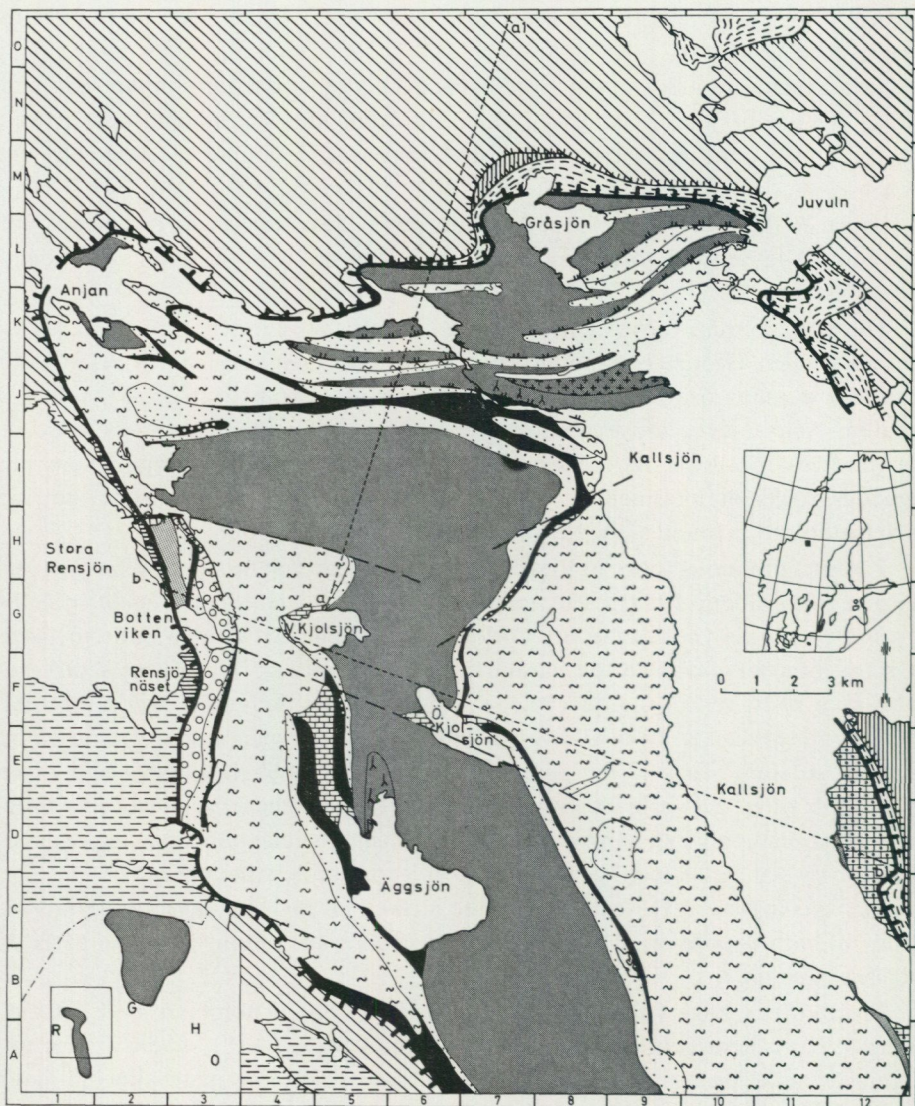
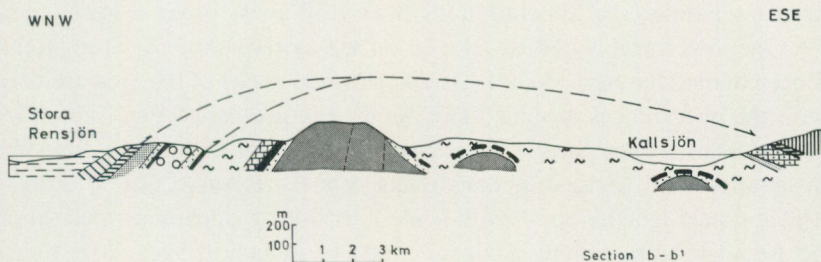
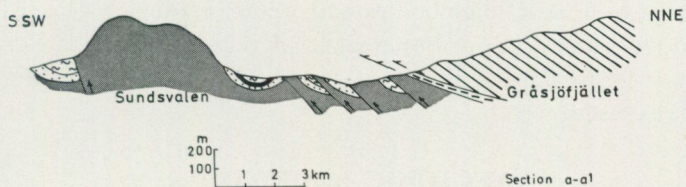


Fig. 1. Schematized geologic map of the Stora Rensjön–Kallsjön area. Insert map shows: R=Rensjönäset, G=Gammelvallen, H=Hällan, O=Offerdal. Sections on the opposite page transecting the map area in north-northeastern and east-southeastern directions respectively.



LEGEND

Helags Nappe

Tännforsen Group (Köli)

Anjan Group (Seve)

Särv Nappe

Offerdal Nappe

Rensjönäset Group

Sandstone and shale

Graphite shale

Quartzite

Bottenviken conglomerate

Main thrust

Subordinate thrust

Thrust fault

Fault

Parautochthon

Änge Group

Fällinge Group

Kogsta shale

Holmsjö graywacke

Tornäs limestone

Oviken Group

Kläppe shale

Höberg conglomerate

Vemdalen subgroup

Oldfjällen Group

Porphyritic rhyolite

Pyroclastic rocks

Granite



Anjan Group with Seve amphibolites and metamorphic schists are found west of Häggsjö (A4) and north of Bottenviken. Around and west of Stora Rensjön the metamorphic calcareous phyllites (Garben schists) of the Tännforsen Group have a wide extension.

### TECTONIC BOUNDARIES

The area studied on the eastern shore of Stora Rensjön exhibits two tectonic discordances.

The upper discordance is a thrust which is partly marked by mylonite. This overthrust separates the allochthonous Seve-Köli rocks from a lower tectonic unit. As the lower unit is best developed on the eastern shore of Stora Rensjön, it has been named the Rensjönäset Group. The Seve rocks of the area are connected with the occurrences around Lake Anjan and are called the Anjan Group. The difference between these groups is mainly evident in that the Rensjönäset Group is apparently lacking igneous rocks, while the Anjan Group is built up of basic and acid igneous rocks with some horizons of calcareous meta-arenites.

The Anjan Group exhibits a higher grade of metamorphism than the more easterly lying Rensjönäset Group, but this difference becomes less apparent due to the strong deformation and recrystallization which has affected nearly all the rocks of the area. Both groups clearly originated in very different geological environments, and have come to lie in close contact with each other as a result of Caledonian thrusting.

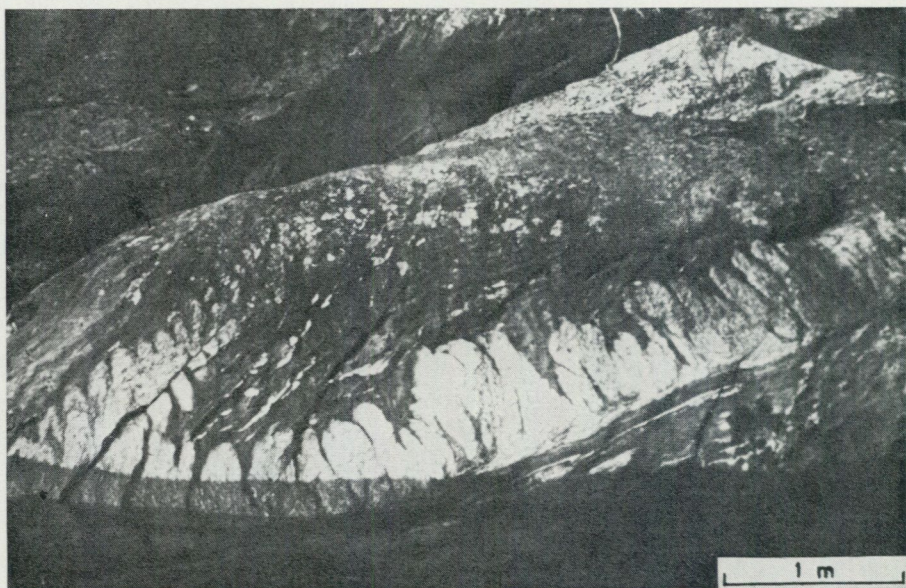


Fig. 2. Structures in the Anjan Group rocks on the shore cliffs of Stora Rensjön. A layer of light-coloured supracrustal rock has been ptygmatically folded and intruded by a basic magma.

The Anjan Group rocks occur along the eastern shore of Stora Rensjön, and are bounded to the west by the calcareous phyllites of the Tännfors depression. The rocks are mainly light-coloured schists of effusive or meta-sedimentary character, which alternate with dark schists of meta-basite type. The meta-basite rocks appear in general as layers or sills. Tectonic breccias, isoclinal folding and refolding indicate strong deformation.

Considerable variations occur in the structure and mineral composition of the rocks. Garnet mica schists and garnet amphibolites appear in the shore outcrops north of the Bottenviken embayment.

About 2 km NW of the outflow from Södra Bergtjärn (II), a 20 metres thick body of black igneous rock has been encountered, which appears as a ridge along the shore. The pitted weathered surface indicates selective weathering of a rare, metabasitic rock with anisotropic mineral distribution.

The Anjan Group seems to contain basic igneous rocks of different ages. A younger basic rock appears sometimes intruded in already deformed and recrystallized host rocks. In the shore cliffs shown in Fig. 2, intrusive greenstones occur as 2—5 metres thick dykes in folded, light-coloured supracrustal rocks. This somewhat resembles the Särvi structure (Strömberg 1961), but the amphibolitic intrusive rocks are too metamorphosed for safe comparison with the Ottfjäll diabases.

The Anjan Group is not present between Stora Rensjön and Häggsjön. There the Bottenviken conglomerate lies near the calcareous phyllites of the Tännforsen Group with a continuation of the tectonic contact appearing in between (Fig. 4, II).

In the north, however, the overthrust is clearly documented by a strip of blastomylonitic schists. This mylonitic strip, with NNW strike, lies just to the east of the shore of Stora Rensjön. Like the whole packet of tectonic units, this schist exhibits a rather steep westerly dip. The outflow of S. Bergtjärn (H2) cuts through the mylonite schist, which there is developed with porphyroblasts of pink microcline (Fig. 4, I). Tectonically, the Rensjönäset Group seems to be folded into an isoclinal antiform, tilted eastwards. In this fold the layers at Fig. 4, I may represent the western limb and the layers at Fig. 4, II form the eastern limb (cf. also Fig. 1).

The stratigraphic relationships indicate that a tectonic break bounds the development of the Rensjönäset Group to the east. The Rensjönäset Group, with polymict conglomerate, grey quartzite, black shale and interlayered shale and quartzite, represents a sedimentary facies which is similar to, but yet differs from the parautochthonous layered sequence to the east.

If there is no tectonic break east of the Rensjönäset Group, then this group would have a late Precambrian to Eocambrian age, forming the inverted basal layers of the folded L. Palaeozoic sequence in the western limb of the Mullfjället antiform (Fig. 1, section b—b').



Fig. 3. Tectonized Bottenviken conglomerate near the shore of Stora Rensjön.

### RENSJÖNÄSET GROUP

The Rensjönäset Group is composed of five formations namely the Bottenviken conglomerate, white or grey quartzite, grey sandstone-claystone, graphite shale, laminated sandstone and shale.

### BOTTENVIKEN CONGLOMERATE

The conglomerate at Bottenviken occurs in a zone several hundreds of metres wide, which extends from Södra Bergtjärn in the north to Holmtjärn in the south. The conglomerate dips steeply to the west, and is estimated to have a thickness of approximately 100 metres. Tectonic s-surfaces in the conglomerate show an average dip of  $60^{\circ}$  NW and seem to be largely orientated at a steep angle to the dip of the layering. The s-surfaces are thought to be the axial planes of an early isoclinal folding ( $F_1$ ).

The conglomerate is in general strongly deformed and has therefore (eg. at Bergtjärnvalen) become flattened to an almost gneiss-like appearance, in which pebbles of mainly quartzite, porphyry and granite, remain as tectonic relicts in the plastic mass (Fig. 3).

There appears to be a certain amount of primary variation vertically within the conglomerate. In the western, outer part of Bottenviken, near to the black

shale, the conglomerate is rich in boulders of granite and porphyry. Deformation is very strong in this part of the conglomerate, and it is possible that boulders of material with lower competence (greenstone-greenschist) have been more strongly flattened and cannot be distinguished within the streaky matrix.

Further east in Bottenviken the conglomerate is coarser (Fig. 5). At the same time, the rock appears to include a greater amount of basic igneous rocks, such as amphibolite, gabbro and ultrabasite.

A few small pebbles from the Bottenviken conglomerate have been investigated petrographically. Although these specimens will not be representative for the mass of rock fragments, their characters presented below may give some indication to the composition of the conglomerate:

1. Andesitic tuffite with a fluidal structure, formed by different dark and light lamina, with oligoclase and augite with epidote respectively prevailing.
2. Greenschist, with light and dark spots, the former composed of talc, serpentine, epidote and albite, the latter with epidote, chlorite, biotite and albite.
3. Granite, of intermediary composition, fine crystalline, containing spindle-perthitic microcline and plagioclase of two generations.
4. Quartzdiorite, rich in plagioclase, which contains a lot of epidote.
5. Granite of plagioclase-rich type. The plagioclase is crushed in rounded grains.
6. Quartzite or vein quartz. The rock is thoroughly deformed and recrystallized, showing two crossed s-planes.

The Bottenviken conglomerate thus seems to contain a collection of fragments mainly of igneous rocks, both volcanic and plutonic. The content of plagioclase-rich rocks is interesting as it suggests an eroded bedrock somewhat unlike that of the parautochthonous basement in the surrounding culminations.

### QUARTZITE

The top of the mountain Kjolandvalen (H 3), which lies southeast of Södra Bergtjärn, consists of a white pure quartzite. The quartzite, which is presumed to be more than 50 m thick, passes downwards on the east side of the mountain into a chlorite-rich grey schist of some tens of metres thickness. The schist is underlain by the black shale described below.

Quartzites occur at several localities within the Rensjönäset group area. Locally the colour of the quartzite varies from white to grey and black. This possibly relates to the proximity of the black, carbon-bearing shale.

It is not absolutely certain that all the quartzite occurrences would have the same age. However, all thick quartzite layers of this type within the parautochthon have so far proved to be of late Precambrian or early Cambrian age.

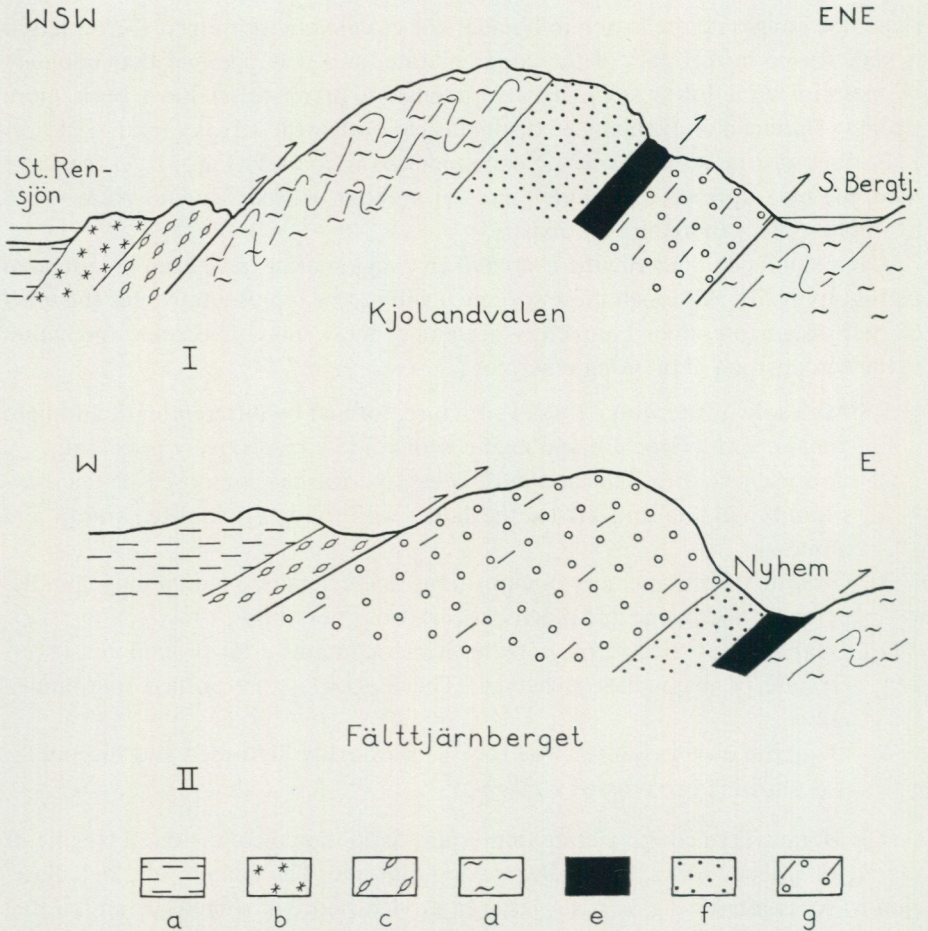


Fig. 4. Transverse sections on the eastern side of Stora Rensjön. Section I is transecting Mt Kjolandvalen north of Bottenviken and section II transects the region at Nyhem f. d. fäb., 2 000 m south of Rensjönäset. a=Tännforsen Gp, b=Anjan Gp, c=blastomylonite (Offerdal nappe), d=sandstone and shale, e=graphite shale, f=quartzite, g=Bottenviken conglomerate.

#### GREY, FINE-GRAINED SANDSTONE—CLAYSTONE

On the promontory which lies south of Bottenviken appears a grey, fine-grained sandstone. Its grain size is 0.05 mm or less, and calcite forms part of the matrix. The sandstone forms layers up to several metres in thickness and is interlayered with a grey clay shale. Sub-vertical tension cracks indicate stretching in a north-south direction (Fig. 6).

North of Bottenviken the sandstone is more strongly deformed, possibly also containing an increasing amount of shale. This rock is supposed to be closely related to the Eocambrian quartzite (older) and graphite shale (younger).



Fig. 5. The conglomerate at the northern shore of Bottenviken. Cf. the hammer in the upper right part of the picture with the shaft striking west.

### GRAPHITE SHALE

Between the Bottenviken conglomerate and the white quartzite on the east slope of Kjolandvalen, occurs a graphite-bearing black shale which may be up to 20 metres in thickness. The shale dips  $40^{\circ}$  W and lies in contact with the conglomerate. The conglomerate is strongly deformed at its contact with the shale which possibly marks a tectonic disturbance. In the parautochthonous layered sequence a similar graphite shale has been ascribed as the Kläppe Formation of middle to upper Cambrian age (Strömberg 1974).

### LAMINATED SANDSTONE AND SHALE

The western part of Kjolandvalen exhibits a series of alternately layered dark sandstone and shale. This rock type is somewhat similar to the series of alternating greywacke and clay shales which represent a main part of the Ordovician in the parautochthonous sequence. The Rensjönäset Group laminated rocks differ from the parautochthonous greywackes in being generally more quartzitic. These laminated rocks have locally a relatively great thickness (estimated at 200 m) and therefore form a quantitatively dominating part of the Rensjönäset Group.

A small reservation ought to be mentioned here. Clear indication that the Rensjönäset Group is of Eocambrian to lower Palaeozoic age is lacking. Unfortunately one must reckon with some uncertainties concerning the stratigraphy in

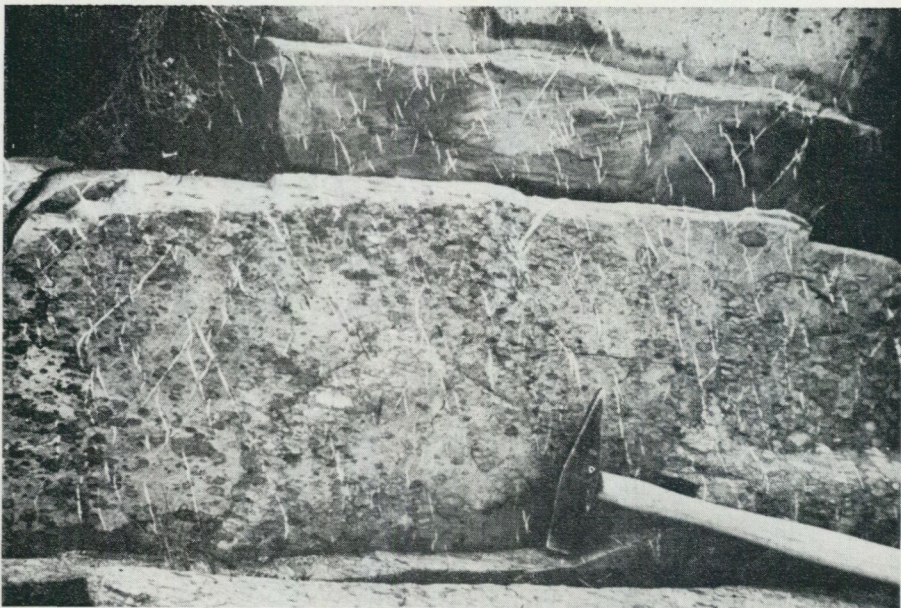


Fig. 6. Quartz-filled tension joints in dark siltstone on the southern side of Bottenviken. The surface is vertical, facing north-northwest.

the tectonically disturbed Rensjönäset Group. It has hitherto not been possible to assess primary up-and-down relations in the sections at Stora Rensjön (Fig. 4). Thrust faults may have disturbed the primary stratigraphic succession.

A near connection between the Bottenviken conglomerate and quartzite with black shale seems however very probable. In the parautochthonous sequence of western Jämtland that couple of quartzite — black shale formations is always characteristic for the Eocambrian-Cambrian basal strata of the sequence. The possible age of the Bottenviken conglomerate could thus be either older, viz. uppermost Precambrian or younger, viz. Cambrian.

Taken into consideration the known evidences, the author has presumed an uppermost Precambrian age for the conglomerate as is shown in the Rensjönäset pile of Fig. 7.

Some connection with the Uppermost Precambrian Falkvalen-Anaris Group (Strömberg 1961) of the Offerdal nappe seems rather probable. Of that reason it is necessary to compare the Rensjönäset Group and especially the Bottenviken conglomerate with similar formations.

### CORRELATIONS

The Rensjönäset Group with the Bottenviken conglomerate, has a very characteristic tectonic position close beneath the large overthrust of the allochthonous

nappe complex. Similar conglomerates occur in analogous position in several places further east in Jämtland. Comparison with these other localities can contribute to the assessment of the tectonic and stratigraphic relationships.

### GAMMELVALLEN

Gammelvallen (Fig. 1, "G" in insert map) is situated south of the lake Juvuln, 30 km east of Kallsedet (L10). Beneath the allochthonous thrust plane a conglomerate is found, which is rich in boulders of rhyolite porphyry, granite and quartzite. The overlying nappe contains metamorphic Anjan Group rocks of light-coloured gneisses and amphibolites. The conglomerate which appears beneath the nappe front can be followed several kilometres northwards from Skultjärn to west of Finningsvålen. The conglomerate lies with a sedimentary contact to a hard black Eocambrian quartzite with grey quartzitic sandstone below which occur interlayered shale and greywacke-sandstones. This sequence is similar to the parautochthonous lower Paleozoic sequence, here occurring in an inverted position (Fig. 7). In the composition, the Gammelvallen conglomerate is very similar to the conglomerates in the Offerdal area.

In the surrounding areas, many local imbrications and anticlinal structures occur where Eocambrian quartzite is found directly on parautochthonous Precambrian without any noticeable basal conglomerate or older horizon. One must therefore regard the inverted sequence at Gammelvallen as allochthonous in relation to conceivably original localities in the nearby parautochthonous rocks.

### OFFERDAL

Around the southern part of the Ansätten outlier of allochthonous nappes, appears a rim of porphyry-boulder conglomerate (Fig. 1, "O" in insert map). This is sometimes overlain by younger layers such as the dark quartzite and differing shales, and underlain by older layers of dolomite, light quartzite or arkose and brecciated rhyolite porphyry. The conglomerate-bearing series of the Offerdal area will be described further in a forthcoming publication.

In the Ansätten klippe occur 3 nappes of the allochthonous nappe complex: amphibolite-Seve (Helags nappe), Särsv and Offerdal nappes. To these is now added the equivalent of the Rensjönäset Group in the Offerdal area. This group is tectonically separated from the Offerdal nappe by a thrust, sometimes marked by mylonitic schists.

Many different ages have previously been accepted for the so-called Offerdal conglomerate. Törnebohm (1896) attributed it to a late Precambrian period, an interpretation accepted also by Högbom (1920). Askund (1939) regarded it

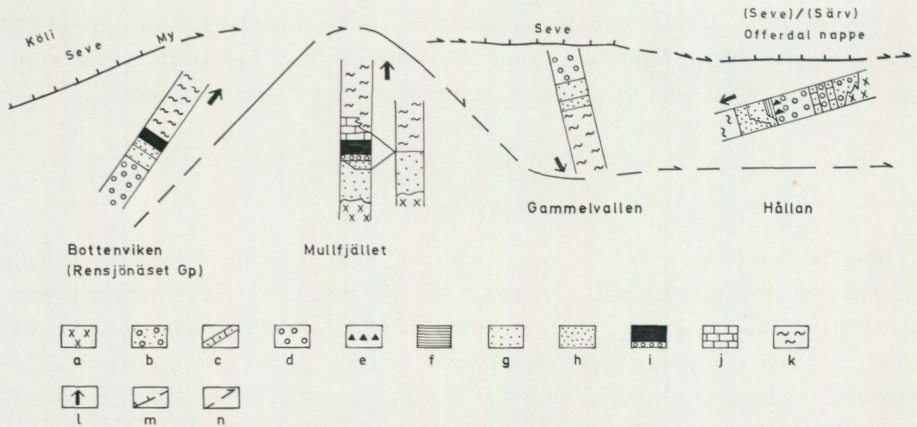


Fig. 7. Stratigraphic columns in allochthonous and parautochthonous units between Stora Rensjön and Offerdal. a = Precambrian basement, b = white quartzite or reddish arkose, c = dolomite, d = conglomerate, e = diamictite, f = laminated shale, g = dark quartzite, h = gray siltstone, i = black shale with conglomerate (Cambrian), j = limestone (Ordovic.), k = inter-layered sandstone and shale (Ordovic.), l = way up, m = main Seve thrust, n = subordinate thrust.

as one of the youngest members of the Olden nappe sequence with a supposed Upper Silurian or Devonian age. Thorslund (1948) thought the conglomerate belonged to a particular tectonic unit, being a psephitic facies sediment of Silurian age.

The conglomerates around Offerdal are, from the evidences available, late Precambrian or Eocambrian sediments, deposited near a basement of Precambrian crystalline rocks.

The different localities in Offerdal often exhibit incomplete sequences, but a relatively complete sequence is present in the Hållan (Fig. 1, "H" in insert map) section (Fig. 7). It is interesting to note the — possibly apparent — stratigraphic similarities between the Hållan section and certain basal layers of the Särvi nappe (Ulvberg complex and Grönstack complex, Strömberg 1961) which form a series — white quartzite, dolomite, fragmental rock (diamictite), laminated schist etc.

#### OTHER CONGLOMERATES

The phosphorite-bearing Höberg conglomerate has a type locality south of Höberg farm, in the Grubbdalsån river, 15 km west of Hotagen. It underlies the black Kläppe shale and is widespread in the parautochthon of western Jämtland. It contains small pebbles of quartzite, shale and phosphorite in a matrix of shale. This conglomerate is encountered in many places in the map area (Fig. 1, J3, F5, G7, K10), but seems not to be a correlative of the Bottenviken conglomerate.

The Vemdalen quartzite forms the lowest formation of the parautochthonous layered sequence. In this quartzite occur rarely and locally, thin conglomerate layers. Such a layer has been found some tens of metres above the base of the quartzite at Daltjärn (G8), 5 km W of Smedviken. The conglomerate layer is only about one metre thick, and contains pebbles of quartzite and porphyry. The lowest layers of the quartzite rest generally directly on crystalline Precambrian rocks. In some other areas in Jämtland, the author and others have found small local breccias or conglomerates in a basal position under the quartzite (cf. Frödin 1916, Gee et al. 1972, Asklund 1938). In most cases, however, the Vemdalen quartzites seem to lack coarse clastic basal layers comparable with the conglomerate at Bottenviken.

Uppermost Precambrian formations are lacking in the parautochthonous layered sequence in the whole of central and western Jämtland (Strömberg 1974). In the uppermost Precambrian "red sparagmite" sandstones of northern and southern Jämtland, conglomerates with pebbles of mainly rhyolites are relatively common.

One must also allow the possibility that the Bottenviken conglomerate is correlatable with the conglomerate which occurs in the Köli stratigraphy further south, on the eastern rim of the Tännfors depression. The appearance of mylonites between the Rensjönäset Group rocks and the Anjan Group makes this alternative less probable.

However, it seems reasonable to compare the Rensjönäset Group with the quartzitic mylonites which appear under the Anjan Group rocks of Seve-type at Nordhallenberget 10 km southeast of Häggsjön (A4). These mylonitic quartzite schists are sometimes similar to the laminated quartzite-shale series which forms a quantitatively large part of the Rensjönäset Group.

## CONCLUSIONS

A tectonic reduction of the Rensjönäset Group southwards is apparent from the map in Fig. 1. This means a local wedging out of the group and this process seems to be repeated in both southern and eastern directions. The effect can be regarded as a kind of boudinage in the Rensjönäset tectonic unit.

Such a local wedging out of a whole tectonic unit is supposed, even on a larger scale, to be characteristic of several of the larger nappes (Offerdal, Särvi, Helags nappes) which belong in the large allochthonous thrust sheet.

This local wedging out differs somewhat from the successive wedging westwards which Zachrisson (1973) described as a general feature for the Seve rocks in the Scandinavian Caledonides.

As already mentioned, basal conglomerates of the type described from Offerdal and Gammelvallen are generally lacking in the parautochthonous sedimen-

tary sequence adjacent and close to the west of this area and are missing in the Olden and Mullfjället antiforms. One must therefore look for the original position of these conglomerates further away in the direction from which the overthrust came, i. e. the west or northwest.

In the Sylarna antiform, south of Storlien, are found parautochthonous Palaeozoic rocks and Eocambrian quartzite, often strongly deformed. Even there, however, no rocks like the Bottenviken conglomerate are found. To the north the Sylarna anticline plunges more, and in the most northerly culmination east of Skurdalssjön, most of the parautochthonous layered sequence is missing.

From all the evidences available, the conglomerate originated at a location which primarily was situated west of Stora Rensjön, possibly at or west of the Norway/Sweden boundary. It seems possible that the conglomerate-bearing layered sequence below the large overthrust can be the remains of parautochthonous rocks which were passively involved in the large overthrust movements to the east.

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