CORRELATION BETWEEN THE LATE PRECAMBRIAN OLDER SANDSTONE SERIES OF THE VARANGERFJORD AND TANAFJORD AREAS

PRELIMINARY REPORT

by

Signe-Line Røe[1])

Abstract.

Sedimentary rocks belonging to the late Precambrian Older Sandstone Series (overlain unconformably by the Eo-Cambrian—Lower Cambrian Vestertana Group) are described from the Vadsø—Komagelven area on the northern side of Varangerfjord. The c. 1300 m thick Varangerfjord Older Sandstone Series succession is divided into twelve informal members.

A correlation of the upper c. 1000 m of this succession with the late Precambrian Tanafjord Group is then presented.

Finally the regional discordance present between the Older Sandstone Series and the Vestertana Group is briefly mentioned.

Introduction.

The area investigated is situated on the northern side of Varangerfjord, East Finnmark, between longitudes 29° 38′ and 30° 20′ east and latitudes 70° 04′ and 70° 18′ north.

For mapping purposes, 1 : 50 000 AMS topographical maps were used as aerial photographs were not available. The mapped area covers approximately 450 sq. km. Good exposure is, in general, restricted to the coastal section and to the inland valleys.

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Previous to this investigation the area had not been mapped geologically. The geological map presented with this paper does, however, include a tract of ground mapped by Siedlecka & Siedlecki in 1968, that of the Kjøltindene–Grythaugen–Holmfjellet area. (Fig. 1 and map, fig. 3).

A brief description of the rocks occurring along the coastal section of the present area was given by Holtedahl (1918). In 1969 Hobday, Geddes and Reading (Oxford University) studied these same sediments, this work forming a part of a recent publication (Banks et al. 1970).

The purpose of the present paper is to make a lithostratigraphical comparison between the late Precambrian rocks (The Older Sandstone Series) of the Tanafjord area and part of the succession within the investigated area: this is based on six weeks field work during the summer of 1969.

Geological background.

From a geological point of view, the present area forms part of the Tanafjord–Varangerfjord region (Siedlecka & Siedlecki, 1967), which is underlain by sediments of late Precambrian and Eo-Cambrian – Lower Cambrian age. (The find of *Platysolenites antiquissimus* (Føyn 1967) has established that the youngest formation on the Varanger Peninsula is of Lower Cambrian age). To the south, this sedimentary succession unconformably overlies the crystalline Precambrian basement. To the north-east, the Trollfjord–Komagelv thrust fault forms the boundary of the Barents Sea Region (Fig. 1, also Siedlecka & Siedlecki 1967).

The rocks of the Tanafjord–Varangerfjord region have been divided into two parts: –

2. Vestertana Group (Reading 1965) c. 1450 m – sandstones and shales with two tillite formations at the base.
1. Older Sandstone Series (Føyn 1937) c. 1300 m (in the Tanafjord area) – sandstones and shales with dolomite in the upper part.

The late Precambrian rocks or the Older Sandstone Series, consisting of sandstones and shales with dolomites occurring in the upper part, is overlain with a slight angular unconformity (Holtedahl 1918, Føyn

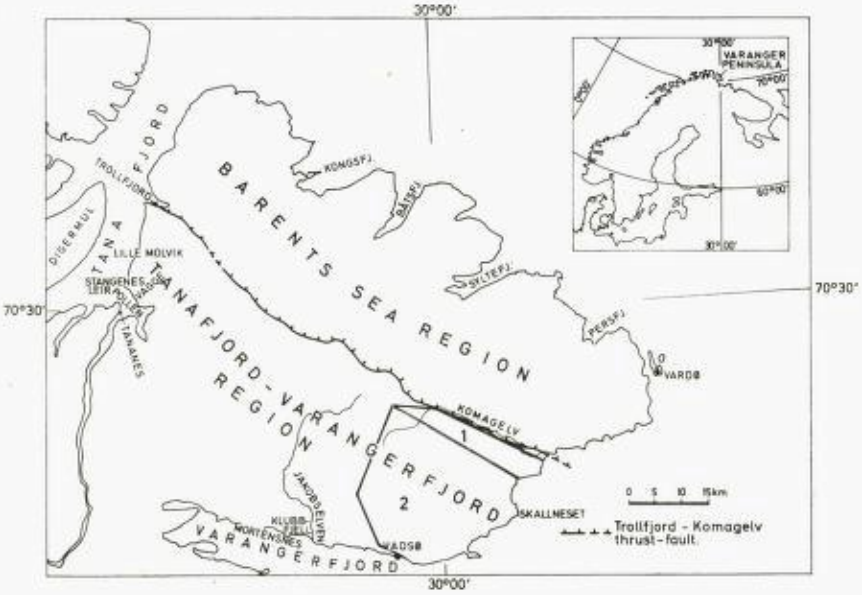

Fig. 1. Map showing the situation of the Vadsø—Komagelven area.
1. Mapped by A. Siedlecka and S. Siedlecki. (1968)
2. Mapped by the present author. (1969)

1937) by the Eo-Cambrian – Lower Cambrian tillite-bearing sandstone and shale succession, the Vestertana Group.

Detailed stratigraphic studies on the sediments of the Older Sandstone Series have previously been restricted to two coastal areas; the Tanafjord area (Føyn 1937, Siedlecka & Siedlecki 1970), and the inner part of the Varangerfjord area (Holtedahl 1918, Rosendahl 1931, Bjørlykke 1967, Banks et al. 1970). Siedlecka & Siedlecki (1970) traced the units of «The Older Sandstone Series on the Tanafjord» (Føyn 1937) inland to the Kjøltindene and Grythaugen areas (Fig. 3), and have proposed a detailed lithostratigraphic classification for this succession.

Stratigraphy.

Mapping by Siedlecka & Siedlecki in 1968 established that rocks constituting part of the Vestertana Group occur in the areas south of Kjøltindene and south-east of Skallelvskaret. In the investigated area these rocks unconformably overlie an approximately 1300 m thick sedimentary sequence belonging to the Older Sandstone Series.

Older Sandstone Series.

The Older Sandstone Series (Føyn 1937) on the northern side of the Varangerfjord consists exclusively of clastic sedimentary rocks. Unconformities appear to be absent within the succession.

Banks et al. (1970) divided the part of the sequence appearing between Mortensnes and Skallneset (Fig. 1) into six informal members; in the present paper a different scheme is proposed, the three youngest members of Banks et al. (1970) being sub-divided into a total of six members. In addition, three still younger members constituting this same succession have been introduced. Thus, the present author proposes a subdivision of the entire Older Sandstone Series succession on the northern side of Varangerfjord into twelve mappable units (members I to XII), with an estimated thickness of c. 1300 m[1]) (Fig. 2). The interrelationship of the two subdivisions is as follows:

Banks et al. (1970)	Present author
	member XII
	member XI
	member X
Upper Sandstone Member	members IV to IX
Upper Siltstone Member	
Middle Sandstone Member	
Middle Siltstone Member	member III
Lower Sandstone Member	member II
Lower Siltstone Member	member I
base unknown	

The three lowest members of the sequence (I Lower Siltstone member, 20 m; II Lower Sandstone member, 112 m; III Middle Siltstone member, 50 m) crop out along the coast of Varangerfjord between Mortensnes and Vadsø. These have not been studied by the author, but detailed descriptions are to be found in the paper by Banks et al. (1970).

IV. *Grey sandstone member, 40 m.*

Only the upper few metres of the Grey sandstone member is exposed in the south-western part of the investigated area. This member is

[1]) The estimates are uncertain, mainly due to the inaccuracy of the topographic maps and to the paucity of outcrops.

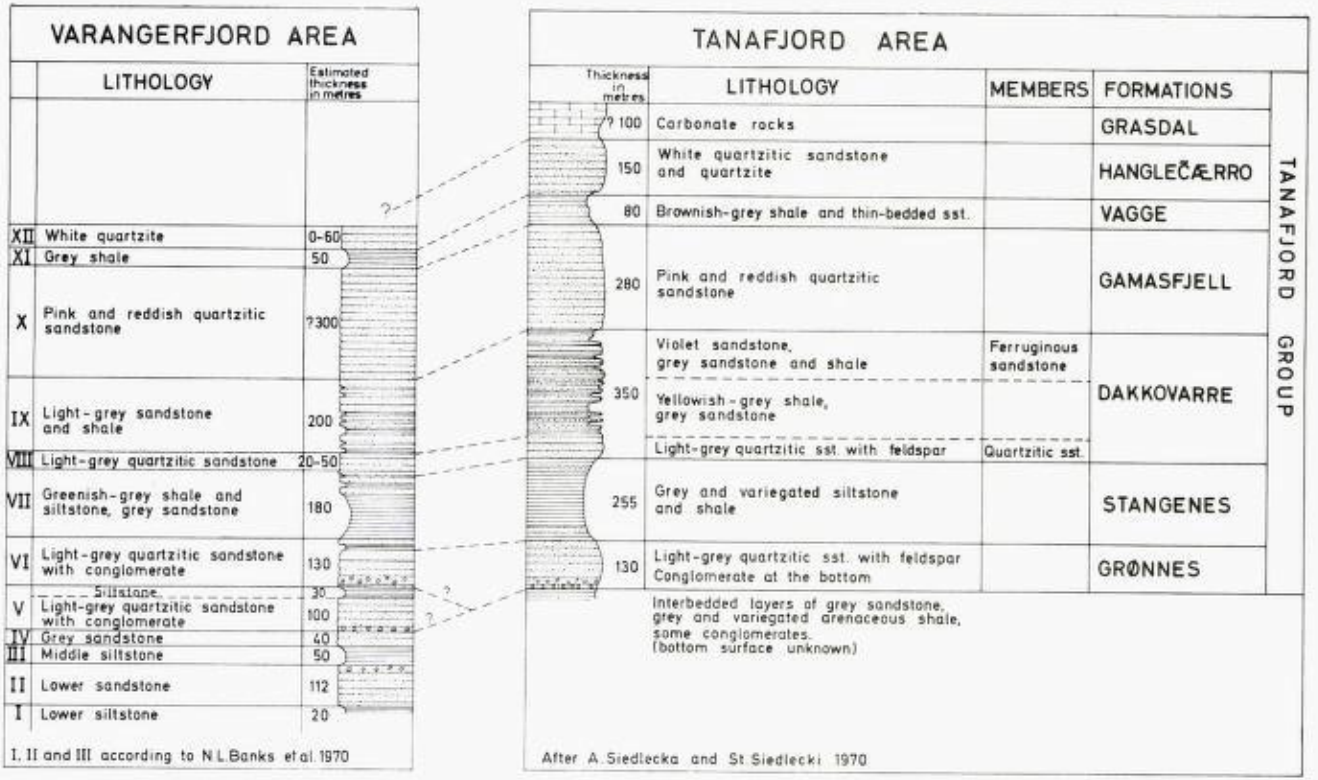

Fig. 2. Lithostratigraphic correlation between the late Precambrian sedimentary rocks of the Varangerfjord and Tanafjord areas.

assumed to correspond to the lower part of the Middle Sandstone Member of Banks et al. (1970).

The lithology, as seen in the limited exposure, is a medium-grained grey to light-grey sandstone. On weathering surfaces the colour varies from yellow to red.

V. *Light-grey quartzitic sandstone member with conglomerate, upper part siltstone, 130 m.*

A continuous section through this member occurs along the coast between Kiby and St. Ekkerø (Fig. 3). The member can be subdivided into two lithologically different parts.

1) The lower c. 100 m consist mainly of medium-grained light-grey quartzitic sandstone which tends to be friable on weathered surfaces. Fine- to coarse-grained (partly conglomeratic) feldspathic sandstone occurs subordinately within this unit. East of Gulneselven (Fig. 3), green mud-clasts measuring up to 50 cm are present in these sandstones. A notable feature of the sandstones are pyrite concretions with diameters of about 1 cm. Near the base of this lower part of the member lenticular layers of quartzite conglomerate appear, these being interbedded with sandstone. The thickness of the layers varies from a few centimetres up to 2 metres. The matrix of the conglomerate varies from quartzitic to feldspathic sandstone. The pebbles are subrounded to rounded up to 4 cm across. A few pebbles of red jasper have been observed. This conglomerate horizon has been traced discontinuously from Melkevarden to Tomaselven and is thought to be an equivalent of the conglomerates mentioned by Holtedahl (1918) from Klubbviken and Klubbfjell (Fig. 1).

2) The upper part of member V, which corresponds to the Upper Siltstone member of Banks et al. (1970), is exposed on St. Ekkerø.

It consists of light-grey siltstones interbedded with fine-grained grey sandstones. These grade upwards into siltstones and medium-grained light-grey sandstones. On weathering surfaces these rocks have a characteristic brown colour. Inland, rocks of the upper unit have been found only as loose fragments on the ground. The unit seems to thin out towards the west, this conclusion being supported by the observation that south of Sildstadhaugen the thickness of the rocks occurring between the more resistant sandstones above and below is about 10 metres.

The Upper Sandstone Member of Banks et al. (1970) has been divided by the present author into four separate members, each of which has a distinctive lithological character and can be mapped from the coast inland towards the west.

VI. *Light-grey quartzitic sandstone member, with conglomerate, 130 m.*

Along the coast the lower part of the light-grey sandstone member crops out on St. Ekkerø, and the upper part at and to the north of Krampenes.

Near the base, above c. 4 m of light-grey sandstone with siltstone partings, there are conglomerate layers which are quite similar to the conglomerates described in member V, except that here no jasper pebbles have been seen. The conglomerates have been traced westwards to Tomaselven, appearing inland mainly as a belt of loose quartz pebbles on the ground. The conglomerates are overlain by light-grey medium-grained quartzitic sandstone which is the predominant lithology of this member.

The upper c. 20 metres of the member consist of fine-grained laminated sandstones, massive sandstones and some shales.

VII. *Greenish-grey shale and siltstone, grey sandstone member. 180 m.*

These rocks have been called «green coloured arenaceous shales» by Holtedahl (1918). Along the coast, good sections through this member appear between Krampenes and Urneset. The lower boundary of the member is drawn above the uppermost massive quartzitic sandstone of member VI.

Sandy and clayey shales with interbedded grey siltstones and sandstones constitute the lower part. The shales are mostly greenish-grey with thin red-violet laminae. In some horizons the red-violet colour is predominant. Upwards, the shales pass gradually into a heterogeneous succession of thick-bedded light-grey sandstones and shales, the sandstones dominating in the upper part.

It should be mentioned here that, in the author's opinion, the Upper Siltstone member of Banks et al. occurring in the upper part of the Jakobselv valley just west of the present area is in fact the equivalent of this member (VII).

VIII. *Light-grey quartzitic sandstone member, (20—50) m.*

The resistant nature of this member of the sequence compared with the rocks above and below facilitates its mapping over large areas. The thickness is variable; from c. 20 m to c. 50 m.

The typical lithology is a light-grey to white quartzitic sandstone. A transition is present between these sandstones and the greenish-grey shales and siltstones with grey and light-grey sandstone of the preceding member, and the lower boundary has been placed below the lowermost observed bed of white quartzite.

IX. *Light-grey sandstone and shale member. 200 m.*

The lower part of this member is best exposed in a river section on the plateau above the valley west of Nattfjellet. The upper part is best studied along the coast and in the area north of Vasavannet.

Lithologically this member is heterogeneous, the rocks comprising light-grey quartzitic sandstones interbedded with brownish-grey laminated sandstones, green shales and light-coloured siltstones. Red thin-bedded sandstones occur interbedded in the upper part of the member, while towards the top massive light-grey sandstones gradually predominate.

A feature common to the sandstone members described so far are the ferruginous spots seen on weathered surfaces. The size of these spots is usually less than 2 mm, although in the Light-grey sandstone and shale member (IX) spots up to 5 mm across have been measured.

X. *Pink and reddish quartzitic sandstone member. 300 m.*

This member of the sequence is the most extensive of all members occurring in the Vadsø—Komagelven area. Because of lack of exposure in the area between Skallneset and Skallelven, only 2 metres of these sandstones can be observed along the road north of Skallneset.

The lithology of this member, in contrast to the underlying rocks, is quite homogeneous. The sandstones, which are medium-grained and massive, are notable for their pink and red coloration. The dark red colour is seen partly as bands paralleling the bedding planes and partly as irregular patches.

A transitional lithology separates this sandstone unit from the underlying member, and the lower boundary has been drawn where the sandstone first exhibits a distinct pink colour.

XI. *Grey shale member, 50 m.*

These rocks appear in the area north of Falkefjellet and in Skallelven south-east of Skallelvskaret (Fig. 3). South-west of Skallelven their extent is uncertain on account of the widespread cover of Quaternary deposits. Only the lowest three metres of these rocks are exposed in the investigated area, but north of Falkefjellet the position of the member can be followed quite easily by observing the disintegrated fragments on the ground surface and by noting its occurrence between two resistant sandstone members.

The main lithology is a greyish-green silty shale, which turns brown on weathering. The shales display both parallel and cross lamination. In the lowest three metres intercalations of light-grey thin-bedded sandstones and siltstones are present.

XII. *White quartzite member (0–60) m.*

This is the youngest member of the Older Sandstone Series in the investigated area. Its outcrop extent is restricted to the area south-east of Kjøltindene; it is found to wedge out towards the south-west.

The characteristic lithology is a medium-grained massive quartzite. Although the colour is mostly white, some quartzite horizons are observed to be reddish-grey.

Vestertana Group.

In the Vadsø–Komagelven area a part of the Vestertana Group unconformably overlies the Older Sandstone Series. In the north, the sequence rests on the White quartzite member (XII), in the south on the Grey shale member (XI). North of Skallelvskaret the Older Sandstone Series is overlain by a c. 2 m thick sedimentary breccia with angular quartzite fragments up to 10 cm across in a ferruginous sandy matrix. The quartzite fragments are obviously derived from the White quartzite member (XII); an erosional unconformity is thus indicated. The breccia is interpreted as being the basal horizon of the Vestertana Group (at this particular locality), a formation of which — the Stappogiedde Formation (Reading 1965) — crops out nearby.

In the present area the Vestertana Group consists of the Upper Tillite Formation and the lower and middle parts of the Stappogiedde Formation (Quartzitic sandstone member and the Blue-green and red-violet shale member, Reading 1965). The Lower Tillite Formation and the

Nyborg Formation are absent in this area. The tillite, thought to be the Upper Tillite (Siedlecki, personal communication), is exposed in Skallelven south-east of Skallelvskaret. The lateral extent of the tillite towards the south-west is unknown, due to lack of exposure. To the east, a tectonically strongly disturbed part of the Upper Tillite crops out north of Holmfjellet (Siedlecki, personal communication). North of Falkefjellet, the Stappogiedde Formation rests directly on the Older Sandstone Series, except at the locality north of Skallelvskaret where the thin basal breccia is present.

Correlation with the Tanafjord area.

Problems concerning the relationship between the Older Sandstone Series of the Tanafjord and the Varangerfjord areas have been discussed by Holtedahl (1918, 1932), Rosendahl (1931, 1945) and Bjørlykke (1967). Rosendahl (1945) correlated the sandstones and shales in the Mortensnes–Klubbfjell–Vadsø area (Fig. 1) with the sequence underlying the «Vagge quartzite» (Føyn 1937) of the «Older Sandstone Series on the Tanafjord». This view was supported by Bjørlykke (1967) who suggested that about 500 metres of the sequence appearing in the Tanafjord area had been eroded (or perhaps not deposited) before the deposition of the tillites in the Varangerfjord area.

Field work by the present author has indicated that Føyn's units from the Tanafjord area, with the exception of the upper carbonate rock unit, also occur north of Varangerfjord with little or no change in lithology or thickness. Furthermore, to the west of the Vadsø area, the tillites rest on rocks older than those described by Føyn (1937), and possibly on the oldest unit of this author, from the Tanafjord area.

Siedlecka & Siedlecki (1970) have proposed a formal lithostratigraphical classification for Føyn's «Older Sandstone Series on the Tanafjord», based on detailed studies of these units in the Vagge and Trollfjord Profiles (Fig. 1), and on the tracing of these units inland to the Kjøltindene–Grytehaugen areas. The complete succession has been named the Tanafjord Group and is divided into seven formations. The base of the Group is drawn below the Grønnes Formation (Fig. 2, also Siedlecka & Siedlecki, 1970) which is correlated with Føyn's quartzitic sandstone (zone d) from the Tananes section. In the description which follows, Siedlecka & Siedlecki's (1970) nomenclature has been adopted.

The middle and upper parts of the Older Sandstone Series of the

Varangerfjord area show great similarities, both stratigraphical and lithological, with the Tanafjord Group (excluding the Grasdal Formation, Fig. 2). A feature common to the two successions is the thick sequence of light-coloured quartzitic, partly ferruginous sandstones, interbedded with shales and siltstones. Whereas shales and siltstones are common in the lower part, sandstones tend to dominate higher up.

The placing of boundaries within the Varangerfjord succession has been influenced, to some extent, by the difficulties encountered during mapping in the peninsula interior, where generally only the sandstones protrude sporadically through the superficial cover.

For this reason, and because the thicknesses mentioned are uncertain estimates only, it is considered premature to draw any general conclusions concerning the apparent differences in thickness between the informal members of the Varangerfjord succession and the formations of the Tanafjord Group.

The youngest formation known within the Tanafjord Group – the Grasdal Formation – is not present in the Vadsø–Komagelven area. Here, the Vestertana Group rests unconformably on the members XII (White quartzite member) and XI (Grey shale member).

XII. *White quartzite member.* During mapping in the Kjøltindene –Grytehaugen area in 1968, Siedlecka & Siedlecki established that the White quartzite member could be correlated with the 150 m thick Hanglecærro Formation (Fig. 2). In the area investigated by the author the thickness is about 50 m, thinning out towards the south. South-east of Skallelvskaret this member is absent.

The apparent lack of facies change between this member of the Varangerfjord succession and the equivalent formation in the Tanafjord sequence, and the occurrence of angular fragments of white quartzite in the overlying breccia (north of Skallelvskaret) indicate that the thinning out of the White quartzite member was the result of erosion.

XI. *Grey shale member.* This member is correlated with the Vagge Formation (Vagge shale of Føyn, 1937) which consists of shales and thin-bedded sandstones. The correlation is based on the stratigraphic position of these sediments between two characteristic sandstone members. Detailed lithological differences or similarities between this member and the Vagge Formation have not been observed on account of the poverty of exposure.

X. *Pink and reddish quartzitic sandstone member.* The characteristic feature of this member is its colour and homogeneity. This, mostly pink,

medium-grained sandstone is lithologically identical to the Gamasfjell Formation and must be regarded as a marker horizon for the present correlation.

IX. *Light-grey sandstone and shale member.* Within the Dakkovarre Formation two informal members have been distinguished by Siedlecka & Siedlecki (1970). The lower Quartzitic sandstone member is a homogeneous quartzitic sandstone containing feldspar, the colour being mainly light grey and white. The middle part of the formation consists of interbedded sandstones and shales, present in nearly equal amounts. Red-violet sandstones are characteristic for the upper Ferruginous sandstone member. These are interbedded with light-grey feldspathic and quartzitic sandstones with brown ferruginous spots, and shales.

The Light grey sandstone and shale member in the Vadsø—Komagelven area underlies the Pink and reddish quartzitic sandstone (member X). The similar lithology and the gradual transition in colour between the upper part of the member IX and member X is taken to indicate a gradual and slow change of sedimentary environment.

The correlation between member IX and the middle and upper part of the Dakkovarre Formation is based on lithological similarities and on the continuity of deposition between members IX and X evidenced by the transition noted above. The heterogeneity of the rocks, with the cyclic alternation of sandstones and shales, is a feature common to the correlated strata. Sandstones seem to be more dominant in the Light-grey sandstone and shale member than in the Dakkovarre Formation.

Red-violet colours, like the ones prevailing in the upper Ferruginous sandstone member of the Dakkovarre Formation, have not been observed in the present area. However, the Light-grey sandstone and shale member (IX) in the Vadsø—Komagelven area is ferruginous as shown by the occurrence of brownish-black spots in the sandstones and by the occasional appearance of a rusty red coloration, presumably of secondary origin.

VIII. *Light-grey quartzitic sandstone member.* The Light-grey quartzitic sandstone member (VIII) and the upper few tens of metres of light-grey sandstone of member VII may be correlated with the Quartzitic sandstone member of the Dakkovarre formation.

A distinguishing feature common to the two correlated sequences is their marked resistance to weathering as shown by conspicuous white sandstone ridges.

VII. *Greenish-grey shale and siltstone, grey sandstone member.* The

uppermost c. 20 m of member VI and the Greenish-grey shale and siltstone, grey sandstone member, excluding a few tens of metres at the top (cf. preceding paragraph), is correlated with the Stangenes Formation.

The main lithology of this rock assemblage, and of the Stangenes Formation, is partly clayey and partly sandy shale, usually greenish-grey and containing thin red laminae. Siltstones and thin-bedded sandstones occur interbedded. In the present area sandstones are more frequent in the upper part as compared with the Stangenes Formation.

VI. *Light-grey quartzitic sandstone member with conglomerate.*

V. *Light-grey quartzitic sandstone member with conglomerate, upper part siltstone.* Because of lithological similarities between these two members and the absence of detailed description of the several hundred metres thick rock sequence underlying the Tanafjord Group east of Lille Molvik (Fig. 1, also see Siedlecka & Siedlecki 1970), it is uncertain whether the Grønnes Formation should be correlated only with member VI (excluding the uppermost 20 metres) or whether the correlation should also include member V.

The Grønnes Formation consists of light-grey to white fine- to coarse-grained quartzitic sandstone, with distinctive quartzite conglomerate layers at the base. Occasionally jasper pebbles may be found in the conglomerate. No silty beds have been described from the Grønnes Formation.

Points favouring a correlation between the Grønnes Formation and member VI only may be summarised as follows:

1) The only conglomerate horizons described from the Grønnes Formation occur at or near its base.
2) Concretions of pyrite occur in member V of the present area, and also in the rocks underlying the Grønnes Formation in the Tanafjord area (Siedlecki, personal communication); no such concretions have been found either in member VI or within the Grønnes Formation.
3) The siltstone unit occurring in the upper part of member V has no equivalent within the Grønnes Formation.
4) The estimated thickness of member VI corresponds well with that of the correlated formation in Tanafjord.

Arguments in favour of a correlation of the Grønnes Formation with both the members VI and V may be outlined as follows: —

1) No thick units of light-grey quartzitic sandstone are mentioned in the brief descriptions of lithologies occurring below the Tanafjord Group (Siedlecka & Siedlecki, 1970).
2) The heterogeneity of grain size seen within the Grønnes Formation is also a characteristic feature of member V.
   The quartzitic sandstones of member VI are rather homogeneous from a textural point of view.
3) A few jasper pebbles are seen in the conglomerates near the base of member V, but have not been found in the conglomerates of member VI.
4) The siltstone unit in the upper part of member V seems to thin out towards the west, a feature suggestive of non-deposition of this lithology in the Tanafjord area.

On the basis of this comparison of part of the Varangerfjord sequence with the Tanafjord Group («The Older Sandstone Series on the Tanafjord», Føyn 1937) it is proposed that the present members XII to VI (± V) be assigned to the Tanafjord Group.

If the correlation outlined above is valid, there would appear to be certain minor facies differences between corresponding units within the middle and lower parts of the two sequences. Member IX and the upper part of member VII, for example, are more arenaceous than their Tanafjord equivalents. Members IX and VII also seem to be thinner.

Whether or not there are significant facies differences between the Grønnes Formation and members VI ± V of the present area must remain an open question until a more detailed description of the succession below the Grønnes Formation in the Tanafjord area is forthcoming. Only then will it be possible to decide whether or not member V should be included in the Tanafjord Group.

West of Vadsø, in the Mortensnes area, the tillite unconformably overlies the Older Sandstone Series (Holtedahl 1918); towards the east it lies on progressively younger members of the sequence. At Mortensnes the Lower Tillite (the Smalfjord Tillite of Bjørlykke et al., 1967) rests directly on the Lower Siltstone member (Reading, NGU report, 1969), which is the oldest known member of the Older Sandstone Series on the northern side of Varangerfjord. Thus, 1300 m of this sequence is absent in the Mortensnes area. In Skallelven, the Upper Tillite overlies the Grey Shale member XI; from the observed stratigraphic relation-

ships of the tillite to the subjacent rocks at these two localities, the angular unconformity can be calculated at 1—2 degrees.

From his studies in the Tanafjord area, Føyn (1937) showed that to the south and south-west the tillites overlie progressively older formations of the Tanafjord Group. The lowest unit immediately underlying the tillite in this area is the upper part of the Dakkovarre Formation (zone m, Føyn), at the head of Tanafjord. The maximum estimated angular unconformity in the Tanafjord area is 2 degrees (Føyn 1937).

Assuming an erosional explanation for the unconformity established in these areas (Holtedahl 1918, Føyn 1937, Bjørlykke 1967, and the present paper), the stratigraphic relationships of the tillites in the Tanafjord and Varangerfjord areas would suggest that uplift occurred in and to the south-south-west of the area underlain by the Older Sandstone Series prior to the deposition of the tillite.

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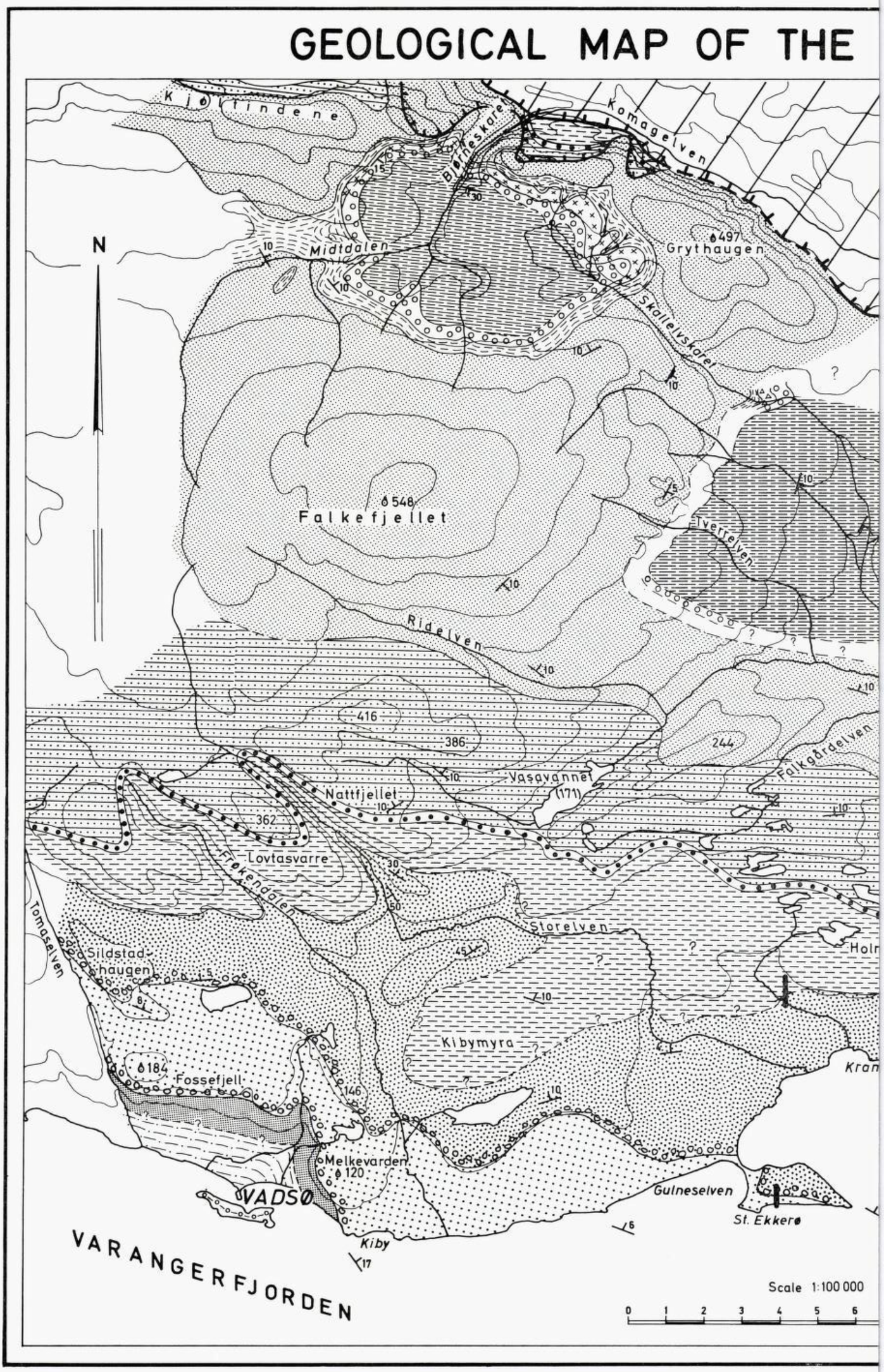
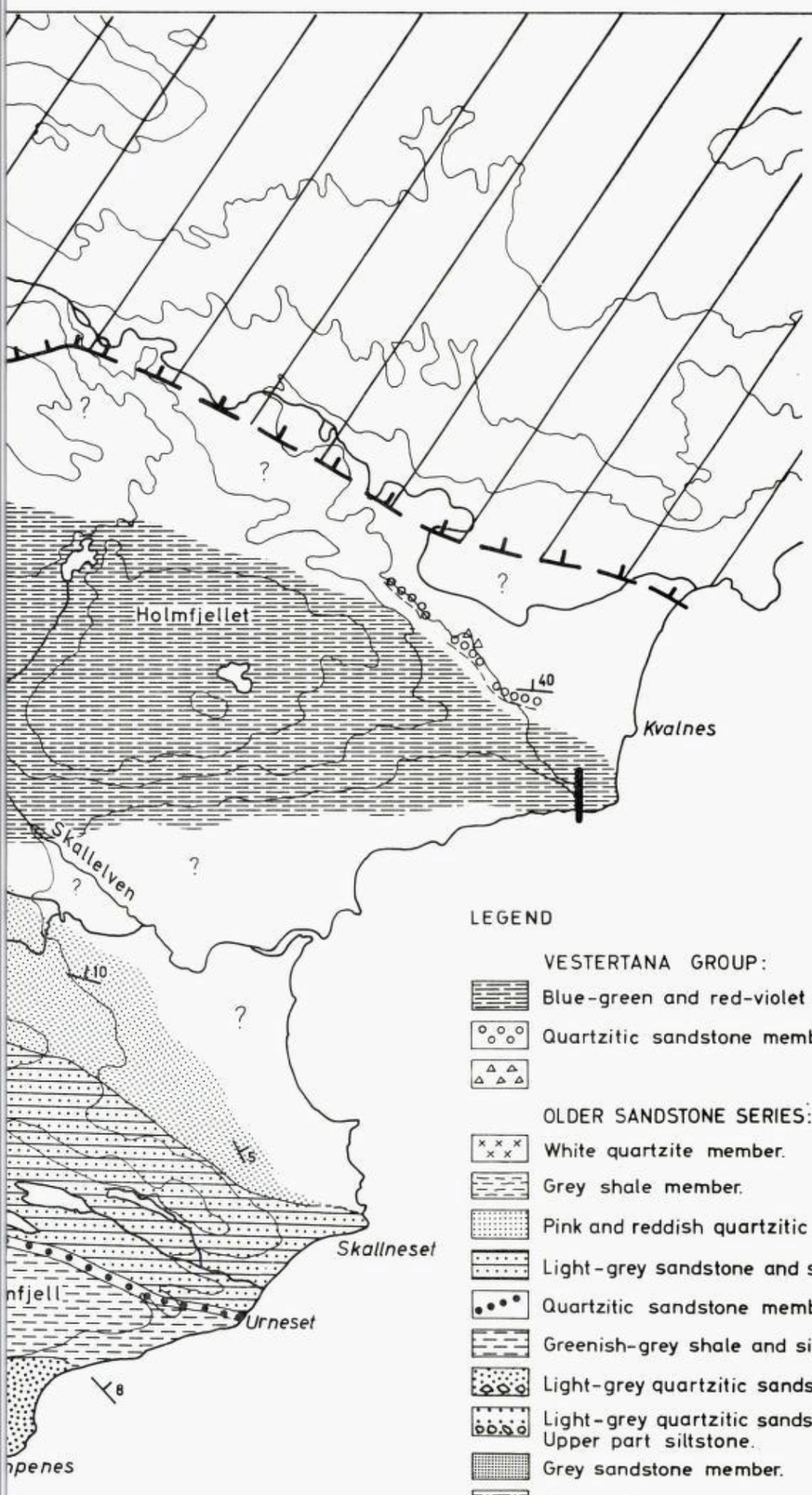

GEOLOGICAL MAP OF THE
Kjøltindene
Børreskaret
Komagelven
N
Midtdalen
Grythaugen
497
Skallelvskaret
548
Falkefjellet
Tverrelven
Ridelven
416
386
244
Falkgårdelven
Vasavannet
(171)
Nattfjellet
362
Lovtasvarre
Frekendalen
Tomaselven
Sildstad-
haugen
Storelven
Kibymyra
184
Fossefjell
146
Melkevarden
120
VADSØ
Kiby
Gulneselven
St. Ekkerø
VARANGERFJORDEN
Scale 1:100 000
0 1 2 3 4 5 6

Fig. 3.

VADSØ-KOMAGELVEN AREA.



LEGEND

VESTERTANA GROUP:

- Blue-green and red-violet shale member. } Stappogiedde Formation.
- Quartzitic sandstone member. } Stappogiedde Formation.
- Upper Tillite Formation.

OLDER SANDSTONE SERIES:

- White quartzite member.
- Grey shale member.
- Pink and reddish quartzitic sandstone member.
- Light-grey sandstone and shale member.
- Quartzitic sandstone member.
- Greenish-grey shale and siltstone, grey sandstone member.
- Light-grey quartzitic sandstone member, with conglomerate.
- Light-grey quartzitic sandstone member, with conglomerate. Upper part siltstone.
- Grey sandstone member.
- Middle siltstone member.
- Lower sandstone member.
- Diabase dyke.
- Rocks of the Barents Sea Region.
- Main fault } of the Trollfjord - Komagelv thrust-fault zone.
- Minor faults } of the Trollfjord - Komagelv thrust-fault zone.
- Strike and dip.

7 8 9 10 km

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