

THE BOREHOLE NR. 65, KVITDALEN.

## The petrographical description.

0,00 - 11,50

The epidotic-greenschist with a lot of epidote, klnozoizite atc. little chlorite and biotite. Aktinolite creat much small acicular crystals. Quartz is present very strongly from ca. 6,70 m to 11,50 m, and creat many paralel weak intercalations and also it is present very strongly in the masement matter of this rock. Biotite is very strongly present ca. from 7,00 m to 11,50 m with more chlorite too. The paralel schistose structure is also very clear after 7,00 m to 11,50 m. From 0,00 to 7,00 m the zone positions (weak only) or intercalations of tiny-grained greenstone are present but not so much and weak only and they cross to greenschist fluently. The mineralisation of some sulphides is very scarce or isn't present mostly. Carbonates creat some irregular weak intercalations, mostly from 7,00 - 11,50 m, some schliers or pellets, lenticles and irregular grains, but they are not so much present. The total colour of this rock is green-gray and bright green-gray. The average gradient of this foliation is  $40^{\circ}$ - $45^{\circ}$  around mostly.

11,50 - 17,10

The biotitic and sericitic micaschist with a lot of quartz, which creat the homogenetic weak, paralel intercalations (1-2 mm in average thickness) and also with some few schliers of carbonates. Garnet creat the small grains, which are present very few only. The paralel schistose structure is very clear. On some places is clear the recumbent folding with mm amplitud. The total colour of this rock is gray. The average gradient of a foliation is  $30^{\circ}$  and  $35^{\circ}$  around.

17,10 - 19,70

The chloritic greenschist with a lot of epidote, klnozoizite act just the same as in 0,00 - 11,50 m. A lot of paralel positions of quartz are present between 17,20 - 18,40 m (the thickness of quartz positions is 1-2 cm in average). The average gradient of a foliation is  $40^{\circ}$  and  $45^{\circ}$  around.

19,70 - 20,40

The biotitic micaschist with a lot of very small grains of garnet, with quartz mostly, with some sericitic and with some calcitic silicates and chlorite, but scarcely only. Some weak paralel intercalations are created by quartz, but by some carbonates not so much too. The mineralisation of some sulphides

isn't present mostly. The total colour of this rock is gray. The schistose structure and little bit phacoidal schistose structure are clear. The average gradient of a foliation is  $45^{\circ}$  round.

20,40 - 20,95

The sericitic and biotitic micaschist strongly calcareous, with a lot of small grains of garnet, but white and pink-white colour. Carbonates creat the paralel weak intercalations or positions, pellets etc. and grains too. The some mineralisation of some sulphides is scarce only. The paralel schistose structure is clear. The total colour of this rock is gray or bright gray. The average gradient of a foliation is  $40^{\circ}$  and  $45^{\circ}$  round.

20,95 - 25,40

The sericitic and biotitic micaschist as well as in 20,40 - 20,95 m but with little bit more chloritic and with epidote, klinozoisite etc. and with small acicular crystals of actinolite, but hornblende scarcely too. This rock commemorate on some places more greenschist. The mineralisation of sulphides is scarce only. The total colour of this rock is gray and little bit greengray too. The average gradient of foliation is  $45^{\circ}$  round.

25,40 - 27,65

The tender-grained or tiny-grained amphibolitic greenstone, with a lot of very weak intercalations or paralel veins and grains of carbonates. The schistose structure is very clear. The small micas of biotite is present too, but not so much. Epidote, chlorite and the other calcitic silicates are present strongly. Some impregnation of  $\text{FeS}_2$  mostly is present, but very poor only. The grains of  $\text{FeS}_2$  are irregular and oblate (shaped) mostly. The total colours of this rock is green-gray or gray-green. The average gradient of this foliation is  $45^{\circ}$  around.

27,65 - 30,00

The biotitic mica-schist with sericite, with quartz mostly, with some chlorite and some calcitic silicates, but very few only. Garnet is present scarce only. Carbonates creat not much very weak veins, schliers or some grains. The little, tender phacoidal schistose structure is clear. The some mineralisation of sulphides is very scarce only. The total colour of this rock is gray. The average gradient of the foliation is  $45^{\circ}$  around.

30,00 - 36,10

The tender-grained or little bit tiny-grained amphibolitic greenstone just the same as in 25,40 - 27,65 m, but with more weak intercalations of carbonates and with some strongly impregnation of  $\text{FeS}_2$  in carbonates



intercalations mostly (in example in 30,90 round and in 34,55 m and 34,75 m round.) This weak positions with carbonates and with strong impregnation of  $\text{FeS}_2$  are 0,5 cm or 1 cm maximally thickness. The average gradient of the foliation of this rock is  $45^\circ$  round.

36,10 - 36,50

The chloritic, epidotic and biotitic greenschist as well as in 0,00 - 11,50 m, but strongly calcareous. The average gradient of foliation is  $40^\circ$  and  $45^\circ$  round.

36,50 - 42,70

The biotitic micaschist the same as in 27,65 - 30,00 m, but with more irregular little veins of carbonates and of quartz (white) too. The average gradient of foliation is  $45^\circ$  round. The phacoidal and phacoidal schistose structure is present mostly.

42,70 - 42,90

The chloritic micaschist with a lot of grains of pink garnet with some small or big acicular crystals of hornblende, with epidotid and with the other calcitic silicates but with very strong impregnation of  $\text{FeS}$  only. The entire structure is phacoidal schistose, but round 42,80 m has this rock the strong tiny-folding (the amplitude mm - cm only). The total colour of this rock is dark gray - little bit green. The average gradient of a foliation is  $40^\circ$  round.

42,90 - 43,20

The very strong mineralisation of  $\text{FeS}$  only, but after  $\text{FeS}_2$  only in micaschist as well as in 42,70 - 42,90 m, but mostly after in gray quartz ( $\text{FeS}_2$ ).

43,20 - 45,60

The biotitic and chloritic micaschist with some calcitic silicates, with a lot of grains, irregular schliers, pellets and irregular little veins of carbonates and with a lot of weak intercalations or weak lenticles of quartz. Garnet is very scarce only. Some mineralisation of  $\text{FeS}_2$  mostly is very poor only. The combination of parallel schistose and phacoidal structure is very typical for this rock. The total colour of this rock is gray and very few green-gray too. The average gradient of a foliation is  $40^\circ$  -  $45^\circ$  round.

45,60 - 45,80

The strongly chloritic greenschist with some biotite, allinotite, epidote atc. the others calcitic silicates, but not so much. The mineralisation of some sulphides is very scarce, only. The parallel schistose structure is clear. The total colour of this rock is green. The average gradient of foliation is  $45^\circ$  round.

45,80 - 46,20

The strongly chloritic greenschist, with some small micas of biotite (transversal too), with not much the others calcitic silicates. Carbonates creat a lot of grains, irregular little veins, schliers, pellets or some lenticles, intercalations etc. The mineralisation of  $\text{FeS}_2$  mostly is present, but very poor only.

46,20 - 46,70

The biotitic and chloritic micaschist as well as in 43,20 - 45,60 m. The average gradient of foliation is  $45^\circ$  round.

46,70 - 47,00

The biotitic micaschist with little sericite, with quartz mostly, with some grains or weak intercalations, schliers and pellets of carbonates. Garnet isn't present. Some mineralisation of sulphides is very scarce only. Amphibole or abtinalite creat very little acicular crystals, but scarcely only. Some, not much very little grains creat magnetite. The schistose structure is clear. The total colour of this rock is gray. The average gradient of the foliation is  $50^\circ$  -  $55^\circ$  round.

47,00 - 49,85

The biotitic micaschist as well as in 46,70 - 47,00 m, but with more paralell intercalations, positions or veins of white or white gray quartz and with strong imregnation of  $\text{FeS}_2$  mostly, but  $\text{FeS}$  (creat some scales) is present lessly too. Between 48,50 - 48,70 m is present quartz or quartzite only, with  $\text{FeS}_2$  impregnation too.

49,85 - 50,05

The strongly chloritic and calcarcous greenschist as well as in 45,80 - 46,20 m.

50,05 - 51,20

The sericitic micaschist with a lot of acicular crystals of abtinalite and hornblende, with a lot of grains of pink garnet with epidote and the others calcitic silicates and with chlorite, but few only. The mineralisation of some sulphides is scarce only. The schistosity isn't much clear. Carbonates creat some paralell weak intercalations or schliers, but not so much. The total colour of this rock is gray. The average gradient of a foliation is  $50^\circ$  round.

51,20 - 57,05

The strongly chloritic greenschist the same as in 45,80 - 46,20 m. In 52,90 m is position of carbonates 5 cm.

57,05 - 57,55

The sericitic micaschist the same as in 50,05 - 51,20 m. In 57,20 m round is some little bit strong impregnation of  $\text{FeS}_2$  mostly (the thickness of field of this impregnation is 3-5 cm only). The average gradient of a foliation is  $50^\circ$  round.



57,55 - 57,80

The gray quartz or quartzite with little bit strong impregnation of  $\text{FeS}_2$  mostly. In some places are present small grains of pink garnet. (57,60 m round).

57,80 - 60,20

The tender-grained or tiny-grained strongly calcareous amphibolitic greenstone with some rodlike or acicular crystals of hornblende and with some chlorite, epidote etc. and with a lot of mostly irregular intercalations veins, positions, pellets, schliers or lenticles etc. of carbonates. The same mineralisation of  $\text{FeS}_2$  mostly is very poor or scarce only altogether, but between 57,80 and 58,05 m is little bit strong. The schistosity isn't clear. The total colour of this rock is green. In 58,60 - 58,80 m and in 59,40 - 59,50 m are positions of carbonates with some incloctions of basement rock (follow foliation).

60,20 - 61,40

The sericitic micaschist the same as in 50,05 - 51,20 m. The average gradient of foliation is  $40^\circ$ - $45^\circ$  round.

61,40 - 61,70

The sericitic and biotitic micaschist with quartz mostly, with some small grains of pink garnet. The structure is schistose too, but more. The total colour of this rock is bright gray. The average gradient of foliation is  $50^\circ$  round.

61,70 - 63,90

The white and gray-white quartz with some impregnation of  $\text{FeS}_2$  mostly. This  $\text{FeS}_2$  impregnation creat some intercalations or positions, which mostly follow a direction of foliation (1 cm maximally - thickness). Chlorite and some pellets, schliers etc. of carbonates are present too, but not so much.

The borehole no. 65 was finished in 63,90 m.

(M. Motys).

The profile of the borehole nr.65, Kvitdalen

