Bergvesenet

Postboks 3021, N-7441 Trondheim

Rapportarkivet

Innlegging av nye rapporter ved: Stein Erik

Bergvesenet rapport nr	Intern Journal nr	Internt arkiv nr	Rapport lokalisering	Gradering
6038				
Kommer fra ..arkiv	**Ekstern rapport nr**	**Oversendt fra**	**Fortrolig pga**	**Fortrolig fra dato:**
Folldal Verk AS		Folldal Verk a.s.		

Tittel

Borhullslogger for diamantborhull Grimsdalsgruva

Forfatter	Dato	Bedrift (oppdragsgiver og/eller oppdragstaker)
Motys, Milosh H.	1970	Folldal Verk AS

Kommune	Fylke	Bergdistrikt	1: 50 000 kartblad	1: 250 000 kartblad
Dovre	Oppland		15192	Røros

Fagområde	Dokument type	Forekomster (forekomst, gruvefelt, undersøkelsesfelt)
Geologi Boring		Grimsdalsforekomsten
Råstoffgruppe	**Råstofftype**	
Malm/metall	Cu, Zn, S	

Sammendrag, innholdsfortegnelse eller innholdsbeskrivelse

Borhullslogger for diamantborhull Grimsdalsgruva

Hullnr. 2, 126, 127, 140, 143

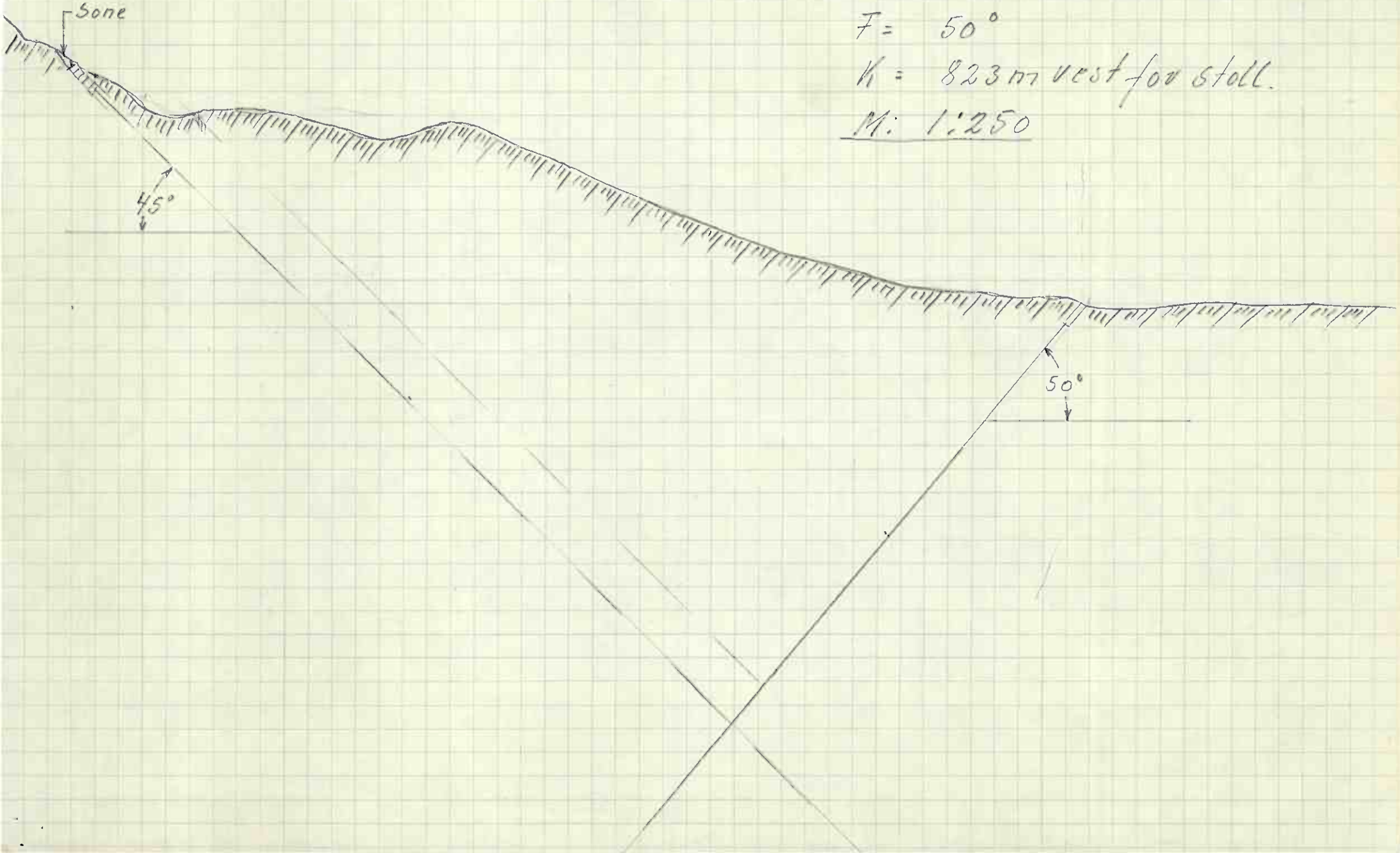
Aktomslag nr. 1039
for A 4

Diamantborhull nr. 2

Grimsdal (Verkenseter.)
og Tverrfjell (1-6-7-8-9-12)
26-27-28-29-31-52/53-54

Grimsdal Bh. nr. 2.

h = 30-40 m
F = 50°
K = 823 m vest for stoll.
M. 1:250



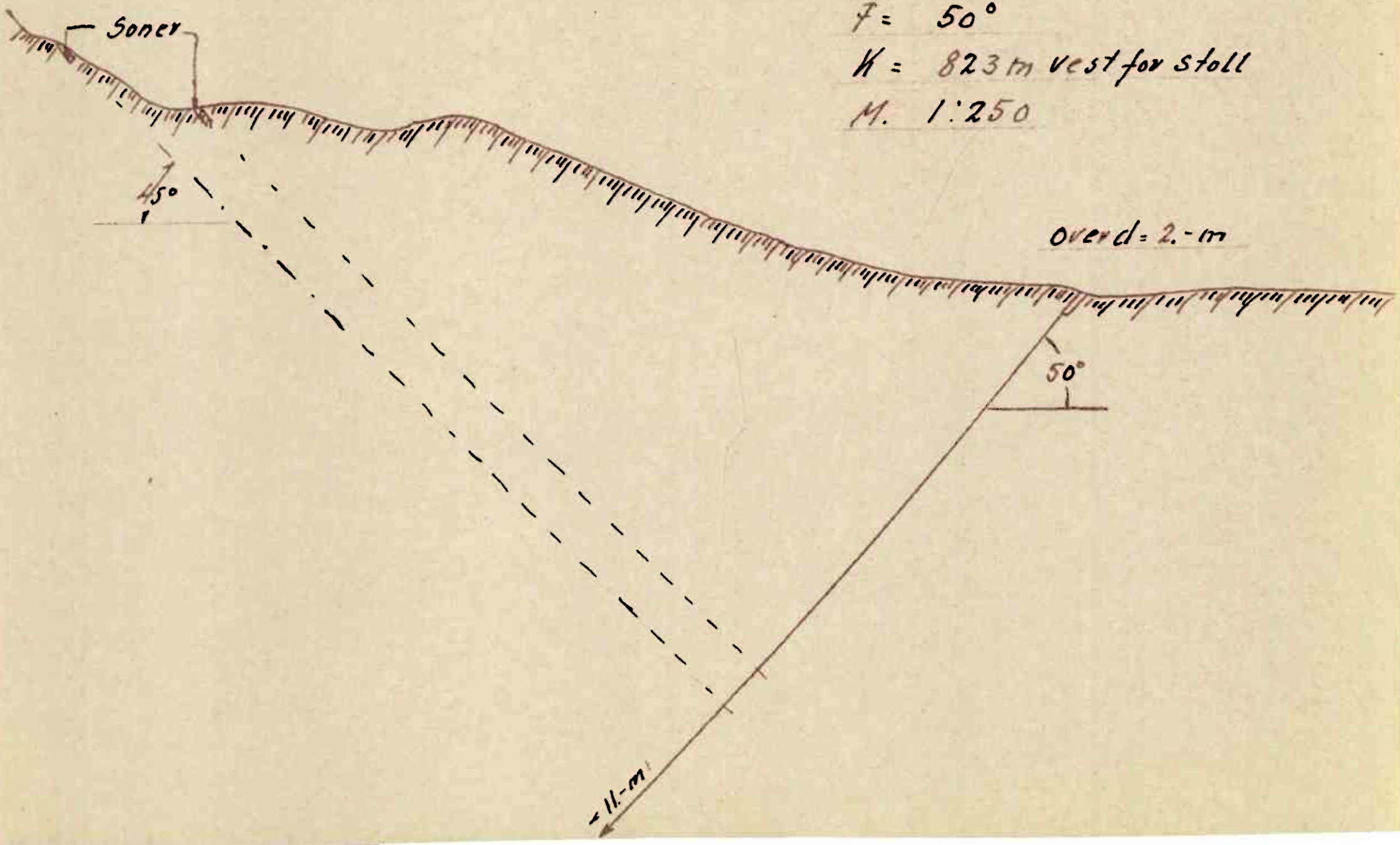
Grimsdal Bh. nr 2.

h = 48.52 m

J = 50°

K = 823 m vest for stoll

M. 1:250



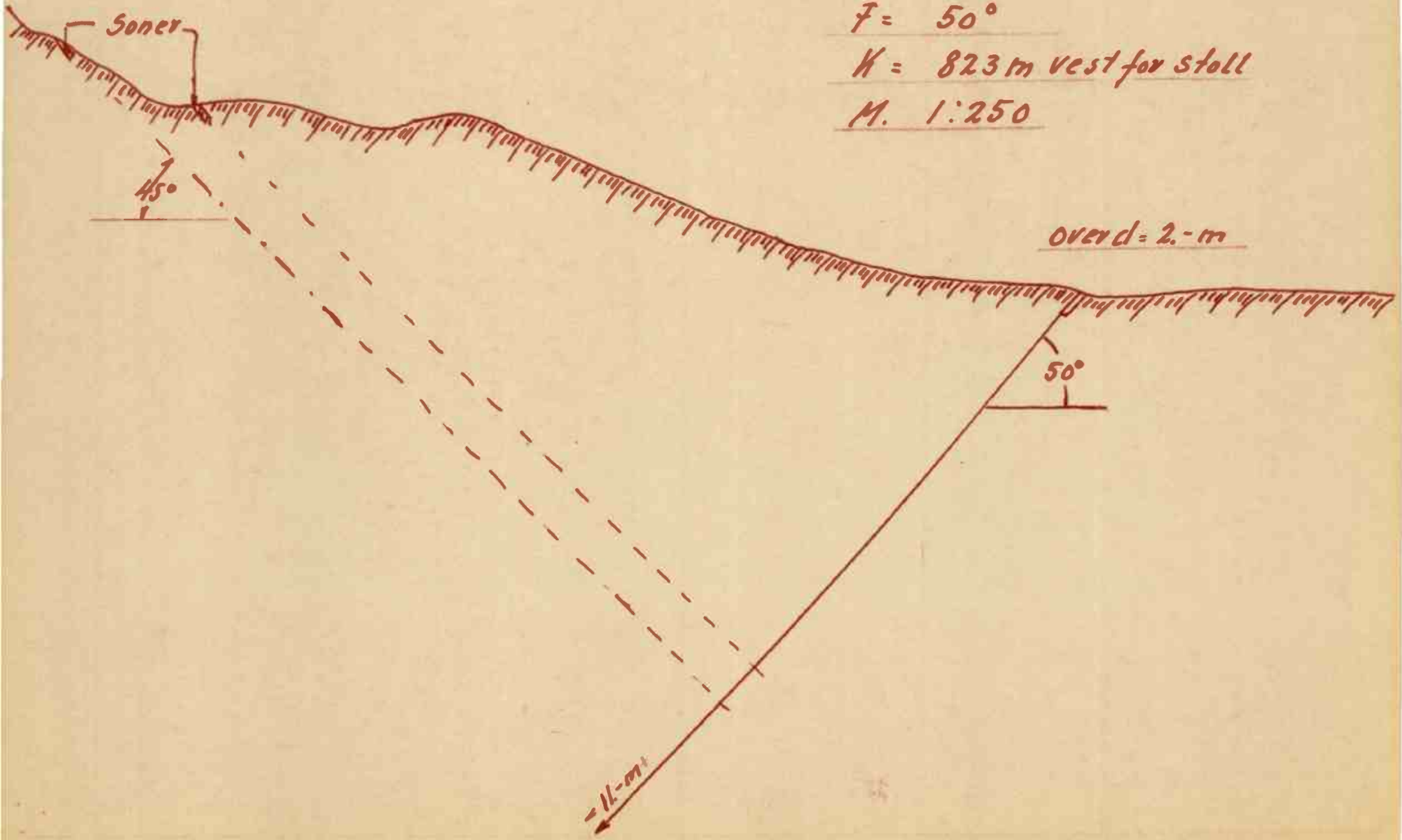
Grimsdal Bh. nr 2.

h = 48.52 m

F = 50°

K = 823 m vest for stoll

M. 1:250



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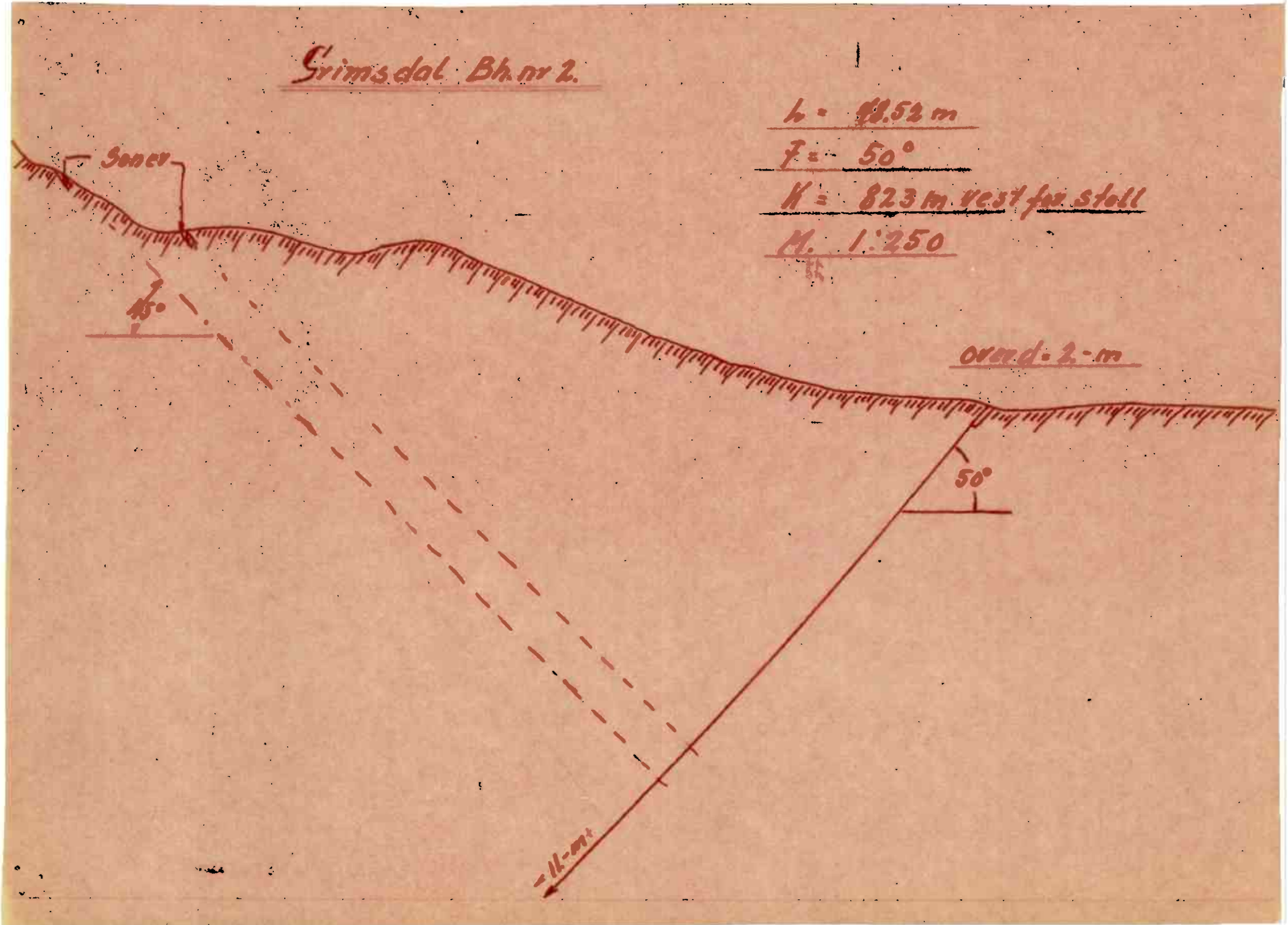


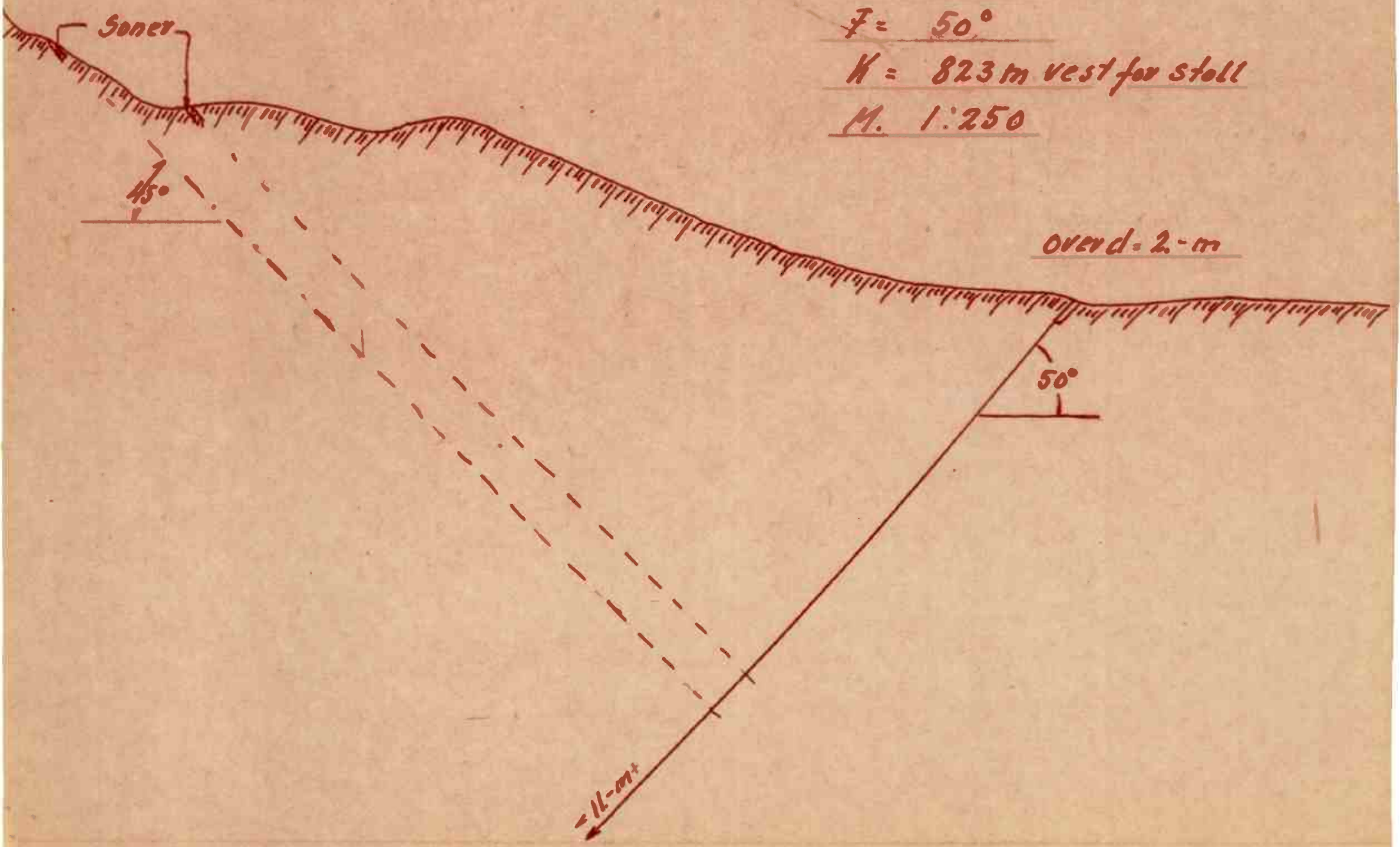
Grimsdal Bh. nr 2.

h = 48.52 m

F = 50°

K = 823 m vest for stoll

M. 1:250



THE BOREHOLE NR. 126. Grimsdalsgruva

The Borehole nr. 126 , Grimsdalsgruva

The petrograficel description :

0,00 - 12,80 The strongly chloritic greenschist with a lot of schliers,pellets and little intercalations of quartz and with some spots of carbonates. The some sulphidic impregnation isńt present in this rock. The total structure of this rock is phacoidal-scistose and schistose. The average gradient of this foliation is 50° about.

12,80 - 14,60 The strongly chloritic and quartzy greenschist with a lot of grains of garnet (the maximally size 2-3mm in average). This rock has the very clear foulding in the CM and DM amplitude. This rock has a lot of schliers and little intercalations of quartz. The phacoidal-schistose structure is present mostly. The average gradient of this foliation is 50° - 60° round.

14,60 - 20,60 The chloritic-sericitic greenschist with a lot of little irregular intercalations,schliers and pellets of quartz and with some zoisit-epidote. The total structure of this rock is phacoidal-schistose. The average gradient of this foliation is 60° - 70° about. Between 16,50-17,20m is present the position of the white quartz with some inclusions of the basement greenschist's rock. In the quartz,at 16,70m and at 16,80m are present some poor and weak impregnations of FeS only.

20,60 - 21,50 The very strong chloritic-amphibolitic greenschist locally with some irregular intercalations,schliers of quartz. The some not thin intercalations are created by the tender-grained and tiny grained amphibolitic and epidotic greenstone. In the greenschist and in the greenstone too are present some small grains of garnet. The total colour of this rock is green and green-gray too. The total structure of this rock is phacoidal and phacoidal schistose too. The average gradient of this foliation of this rock is 50° about.

21,50 - 34,80 The chloritic greenschist with epidotic-zoisite minerales and with a lot of paralel the little intercalations of the quartz,and with some micas of biotite,which are present on the foliation plates. The mineralisation of the some sulphides minerales isn't present. The total structure is phacoidal-schistose and schistose too. The average gradient of this foliation is 40° - 50° about.

34,80- 37,15 The strongly biotitic and little bit chloritic micaschist (gneisic schist too),without some grains of garnet,with a lot of paralel the little irregular intercalations of quartz. The total structure is phacoidal-schistose,but schistose and pell-mell locally too. The average gradient of this foliation is 50° round.

37,15 - 54,80 The motley serie of the tiny-grained and tender grained amphibolitic greenstone with some intercalations of quartz and with some spots of carbonates. Locally are present some little grains of garnet. The total colour of this rock is green and green-gray. From the other minerales are present chlorit,epidot,amphibolit and very scarce biotite too. In 47,75 - 47,90m is present position of white quartz. The average gradient of this schistosity is 60^{0} - 70^{0} round,but locally 20^{0} - 30^{0} too and locally is this rock very strongly fouldéd,in CM and DM amplitude.

54,80 - 56,20 The biotitic-chloritic micaschist without some grains of garnet,with a lot of schliers and pellets of quartz with pell-mell structure and with the phacoidal structure too. The average gradient of this schistosity is 50^{0} about,but this rock has a very strong foulding in CM and DM amplitude.

56,20 - 57,40 The motley serie of the tiny-grained amphiboli-greenstone,with very clear foulding in CM and DM amplitude and with very clear paralel schistose structure. In this rock is present very much the little intercalations,schliers and pellets of quartz. The average gradient of this foliation is 50^{0} - 60^{0} about.

57,40 - 58,10 The strongly chloritic-epidotic,strongly quartzy greenscist with a lot of garnet and with a lot of grains of garnet and with some very poor impregnation of the very little grains of Fe_3O_4. The total structure of this rock is phacoidal-shistose and paralel schistose too. The average gradient of this foliation is 20^{0} - 30^{0} about.

58,10 - 63,40 The motley serie of the strongly chloritic-amphibolitic greenshists and the tiny-grained and tender-grained chloritic-amphibolitic greenstones with some little intercalations,schliers and pellets of quartz,mostly paralel with the total scistosity. Locally is present some more strongly impregnation of FeS_2 and FeS (in example in 61,30 - 61,50m). The average gradient of this schistosity is 50^{0} about.

63,40 - 76,60 The coarse grained and medium-grained amphibolitic greenstone with some chlorite and epidote and with very strong infiltration of the quartz and quartz-feldspar matter. Locally are present some spots and schliers of carbonates,round with some grains of FeS_2. Between 64,10 - 64,80m , 68,20 - 69,50m , 72,80 - 73,10m are present the chloritic quartzite with some very poor impregnation of FeS_2 mostly. The average gradient of this foliation is 50^{0} - 60^{0} about.

76,60 - 84,20 The chloritic-sericitic and biotitic greenschist with some spots and pellets of the quartz and with some spots of carbonate too. Locally is present some the intercalations and pellets of quartz. Between 82,00 - 82,10m is the some position of quartz. The average gradient of this foliation is 50^{0} round

84,20 - 92,50 The strongly biotitic and chloritic,strongly quartzy micaschist,but without some garnet. This rock is foulded locally very strong by CM and DM amplitude mostly. Between 91,80 - 92,00m is this rock very reach by biotite and by more the little intercalations of quartz.

92,50 - 103,50 The biotitic and chloritic strongly quartzy greenschist,which is locally fouldèd by the CM amplitude and has a lot of the intercalations of quartz.. The average gradient of this foliation is 60^{o} - 70^{o} about. The total structure is pell-mell or phacoidal schistose too. Between 96,00 - 96,10m , 95,70-95,80m , 97,90 - 98,00m , 98,80 - 99,10m , 100,70-- 100,80m are present some positions of the intercalations with some poor impregnation of FeS with the some little schliers or little intercalations which are reached by graphitic substance (scarcely with some $CuFeS_2$ and FeS).

1o3,50 - 136,80 The motley serie of the epidotic-chloritic amphibolitic greenstone,tiny-grained and tender-grained with some intercalations of the chloritic-epidotic greenschist and with a lot of intercalations and schliers and pellets of quartz. In 107,90 - 108,10m is present position of the chloritic and little bit biotitic-amphibolitic keratophyre,which has on the both sides some infiltration of quartz and quartz--feldspar matter in the amphibolitic greenstone as well as before. Between 118,10 - 118,20m , 121,20 -- 121,30m , 121,60 - 121,80m are present positions of the white quartz without any impregnation of any sulphides minerales. The average gradient of this foliation is 60^{o} round , but somewhere are present some foulds in CM and DM amplitude (in example in 121,00m round.

136,80 - 138,20 The tiny-grained and tender-grained amphibolitic and chloritic greenstone with some little intercalations of the quartz. The average gradient of this schistosity is 50^{o} round.

138,20 - 158,4o The motley serie of the chloritic-epidotic greenschist with a lot of little intercalations,schliers and pellets of quartz with some micas of biotite and locally with some poor impregnation of FeS_2 only. Between 150,40 - 150,90m and 154,50 - 155,10m are present thr positions of the amphibolitic keratophyre with the rodlike and acicular porphyroblasts of hornblende. The average gradient of this foliation is 40^{o} - 50^{o} round,but somewhere with the foulding in the CM and DM amplitudes.

158,4o - 161,80 The strongly chloritic epidotic greenschist with some little spots of quartz ,but of the carbonates locally too. The average gradient of this foliation is 60^{o} round.

161,80 - 167,20 The chloritic-epidotic greenshist,which is strongly infiltrated by quartz and quartz-feldspar matter with some very poor impregnation of FeS_2. Between 158,55 - 159,70m , 162,90 - 163,00m are present the positions of the white quartz.

167,20 - 174,80 The strongly chloritic and amphibolitic tiny-grained or tender-grained greenstone with a lot of very little paralel intercalations of quartz and scercely with very weak impregnation of FeS and FeS_2.

174,80 - 175,10 The amphibolitic-garnet keratophyre as well as 107,90 - 108,10m.

175,10 - 183,30 The strongly chloritic,amphibolitic and epidotic greenschist with a lot of intercalations,schliers and pellets of quartz and with a lot of grains of garnet. This rock is folded very strongly by the CM and DM amplitude. The general average gradient of this foliation is 60° round.

183,30 - 185,60 The strongly chloritic-epidotic greenschist with a lot of rodlike and acicular porphyroblasts of hornblende and with a lot of intercalations,schliers and pellets of quartz. The average gradient of this foliation is 60° round.

185,60 - 207,10 The chloritic tiny-grained and tender-grained amphibolitic greenstone with some very little intercalations of quartz. The average gradient of this foliations is 70° round.
Between 197,00 - 199,50m is present some position of white quartz without some impregnation (the average thickness of this position is 30-40cm).

207,10 - 211,00 The strongly chloritic and amphibolitic and epidotic greenscist as wellas 175,10 - 183,30m.

211,00 - 215,40 The keratophyre with a lot of very small acicular porphyroblasts of hornblende and with some grains of garnet. Between 214,60 - 214,65m is some impregnation of FeS. The average gradient of not so clear schistosity is 45° about.

215,40 - 232,75 The motley serie of the strongly chloritic and amphibolitic greenschist with a lot of little intercalations,schliers and pellets of quartz and with some thin intercalations of the tender-grained amphibolitic greenstone. Between 221,70 - 221,90m is present the position of keratophyre like in 211,00 - 215,40m. The average gradient of this foliation is 50° round,bud this rock is very strongly foulded by the MM,CM and DM amplitudes.

232,75 - 239,05 The strongly quartzy rock,which commemorate quartzite or metaquartzite with chlorite,some micas of biotite and whith small the acicular porphyroblasts of hornblende and with very poor and weak impregnation of FeS_2 and scarce of FeS. The average gradient of this foliation is 60° about.

239,05 - 275,50 The motley serie of the tiny-grained and tender-grained amphibolitic greenstone with a lot of little intercalations,schliers and pellets and veins of quartz with a lot of spots of the carbonates. The hornblende creat a lot of small crystales,mostly in quartz or quartz-feldspar intercalations. This rock is totally very strongly foulded by CM,MM and DM amplitudes. Locally are present zoisite and epidote. The general average gradient of this rock is 50° - 60° round.

275,50 - 277,15 The keratophyre as well as 211,00 - 215,40m.

277,15 - 284,30 The coarse-grained and medium-grained and chloritic greenstone,which has every strong(impregnation) infiltration of the quartz and quartz-feldspar matter and with some very small veins of the garnet and with a lot of acicular and rodlike crystales of hornblende and somewhere with very small spots of the carbonates. The average gradient of this foliation is 60^{0} - 70^{0} round.

284,30 - 296,50 The tiny-grained and tender-grained amphibolitic greenstone with a lot of very little spots and schliers and pellets of quartz,but of the carbonates too. The average gradient of this foliations is 60^{0} round.

296,50 - 300,20 The chloritic and biotitic greenschist with zoisite-epidote and with some small acicular porphyroblasts of hornblende or aktinolite and with a lot of small grains of the garnet.

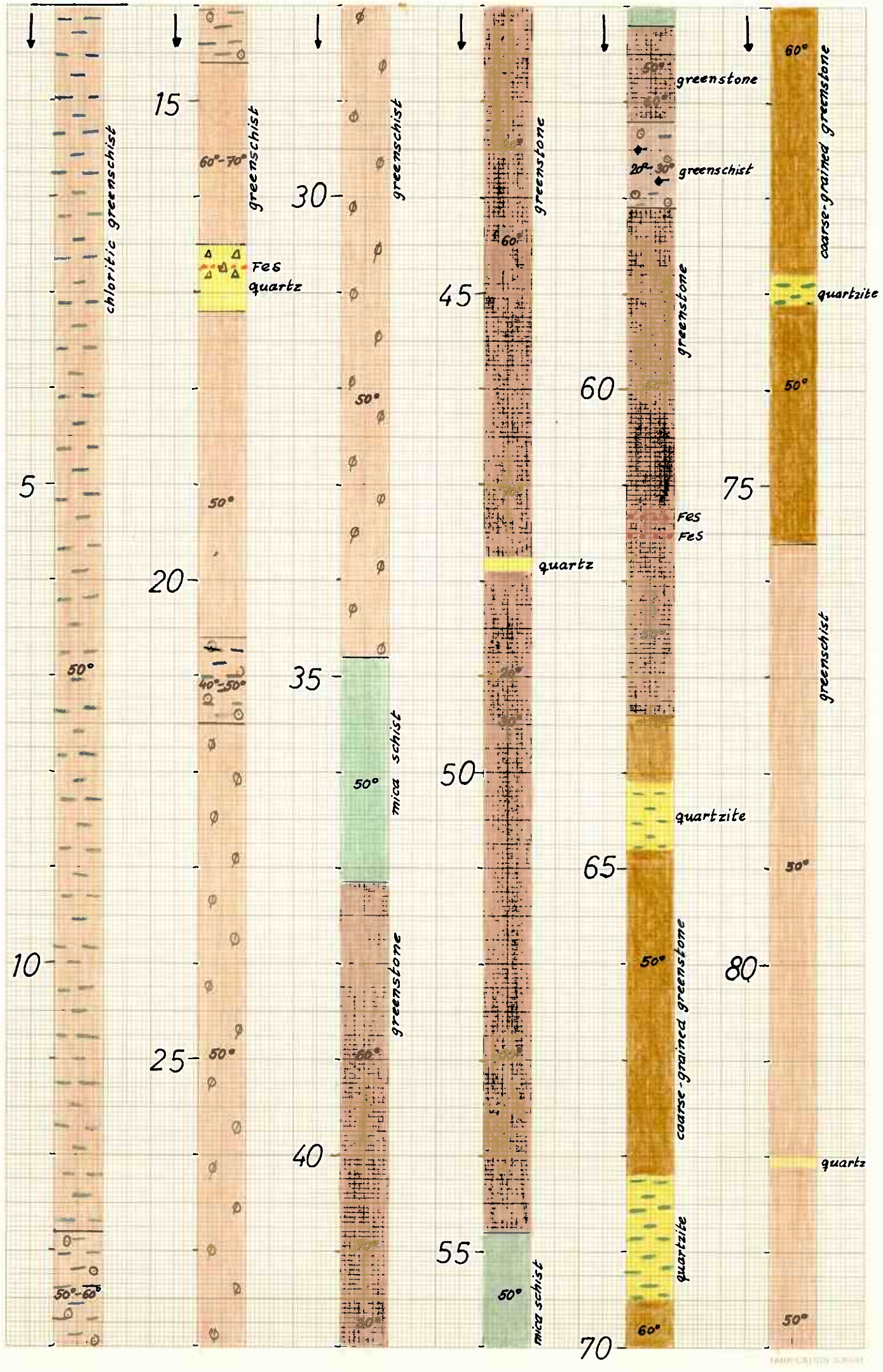
300,20 - 305,50 The coarse-grained and medium-grained amphibolitic and chloritic greenstone with a very strong infiltration of the quartz and quartz-feldspar matter as well as in 275,15 - 283,30m.The average gradient of this rock is 60^{0} about.

305,50 - 311,80 The medium-grained and tiny-grained amphibolitic greenstone as well as 277,15 - 284,30m,but with some micas of the biotite and with some very small grains of Fe_3O_4. The average gradient of this foliation is 60^{0} round.

311,80 - 313,10 The coarse-grained and medium-grained amphibolitic greenstone,which is a very stron infiltrated by quartz and with a lot of acicular and rodlike porphyroblasts of hornblende.

313,10 - 339,40 The chloritic -epidotic greenschist with a lot of schliers and pellets of quartz and somewhere with some the intercalations of the quartz-feldspar matter,locally with some poor and weak impregnation of FeS_2 mostly only. The average gradient of this foliation is 70^{0} about. Between 336,10 - 336,90m is present the position of the sericitic methaquartzite without some impregnation of the sulfides minerales,which commemorate the keratophyre.

This Borehole was finished at 339,4om.


The profile of the borehole nr. 126, Grimsdalengruva
chloritic greenschist
50°-60°
5
10
15
greenschist
60°-70°
Fes
quartz
50°
40°-50°
20
25
30
greenschist
50°
35
mica schist
greenstone
60°
40
45
greenstone
60°
70°
quartz
50
55
mica schist
50°
greenstone
50°
20°-30°
greenschist
60
greenstone
70°
Fes
Fes
65
quartzite
50°
coarse-grained greenstone
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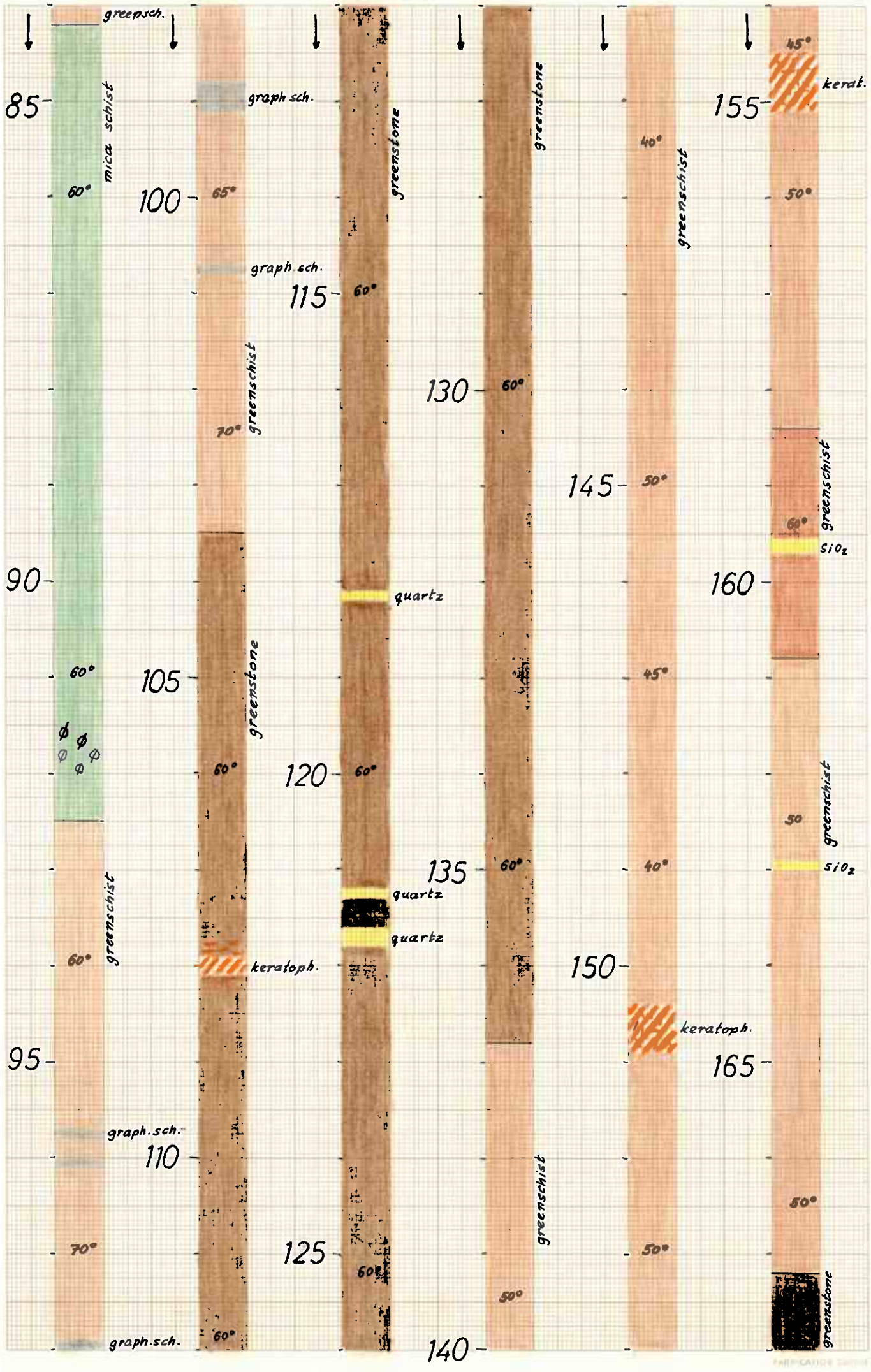
quartzite
50°
80
greenschist
50°
quartz
50°


greensch.
mica schist
60°
graph sch.
65°
greenstone
graph sch.
60°
greenschist
70°
greenstone
60°
keratoph.
graph.sch.
70°
graph.sch.
60°
greenschist
60°
greenstone
60°
quartz
60°
quartz
quartz
60°
greenschist
50°
greenschist
40°
45°
40°
50°
keratoph.
50°
greenschist
45°
kerat.
50°
greenschist
60°
SiO2
50
greenschist
SiO2
50°
50°
greenstone
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90
95
100
105
110
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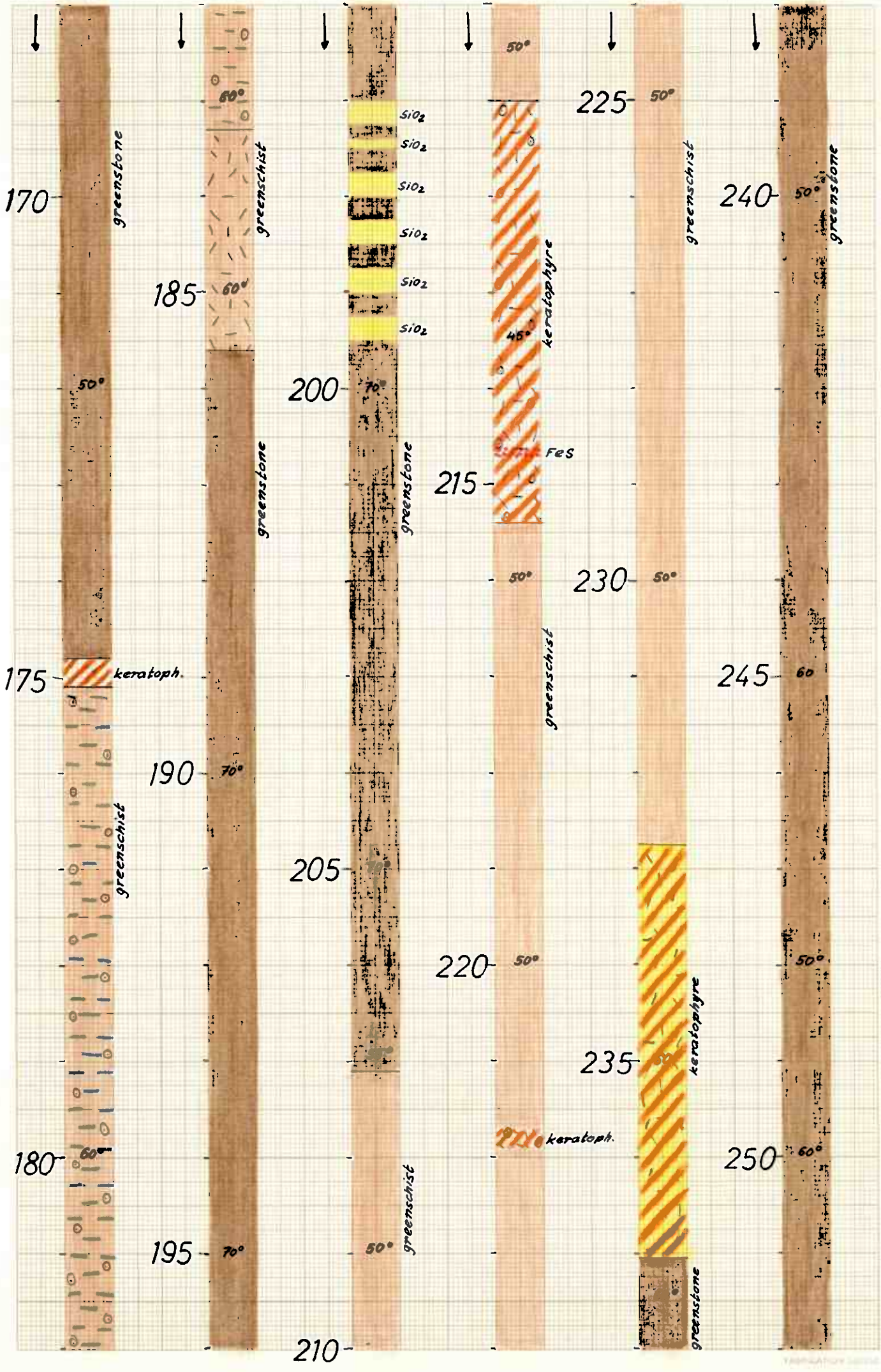
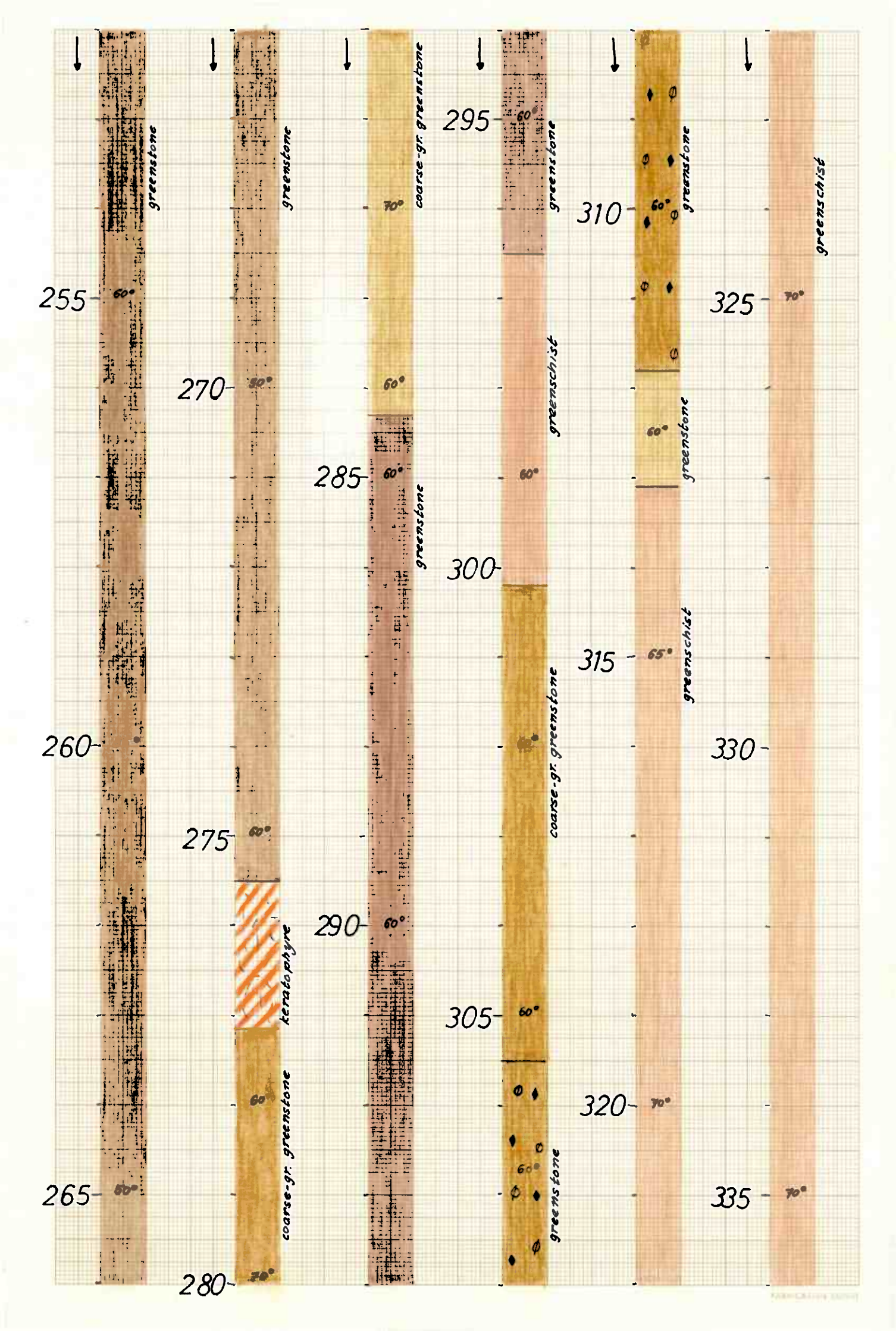
120
125
130
135
140
145
150
155
160
165


170
175
180
185
190
195
200
205
210
215
220
225
230
235
240
245
250
greenstone
greenschist
keratophyre
keratoph.
FeS
SiO_2
50°
60°
70°
45°


greenstone
255
60°
260
265
60°
270
60°
275
60°
keratophyre
coarse-gr. greenstone
60°
280
70°
coarse-gr. greenstone
70°
60°
285
60°
greenstone
290
60°
295
60°
greenstone
greenschist
60°
300
coarse-gr. greenstone
305
60°
60°
greenstone
310
60°
greenstone
60°
greenstone
315
65°
greenschist
320
70°
325
70°
greenschist
330
335
70°

This borehole was finished at 339,40m

THE BOREHOLE NR. 127

Grimsdalsgruva

The borehole no. 141, Grimsdalsgruva.

The brief petrographical description.

372,30 - 372,85	The strongly chloritic greenschist with a lot of little schliers of quartz matrix and with very much hypidiomorphic grains of pyrite. The structure is schistose and phacoidal schistose. The average gradient of this foliation is 55° around. The result of the chemical analyse from this position between 372,00 - 372,440 m is: Cu 0.03% , Zn 0.50% , S 8.00%
372,85 - 373.45	The chloritic and garnet gneissic greenschist with a lot of rodlike and acicular porphyroblasts of hornblende. Locally are present a lot of schliers of quartz or of a quartz-fedlspatic matrix. The structure is schistose and sheeting. The average gradient of this foliation is 60° - 70° about.
373,45 - 373,55 0,10 m	The very strong impregnation of sulphides (pyrite mostly) in a chloritic greenschist. The result of the chemical analyse from this position between 373,45 - 373,55 is: Cu 1.82% , Zn 0.30% , S 28.20%
373.55 - 373,80	The chloritic and biotitic greenschist or gneissic greenschist with some poor impregnation locally only. The structure is fluidial and phacoidal schistose. The average gradient of this foliation is 50°-55° about. The result of the chemical analyse from this position 373,55 - 373,80 is: Cu 0.08%, Zn 0.30% , S 5.90
373,80 - 374,15 0,35 m	The very strong impregnation of sulphides in a quartzite. The structure is massive. The texture is cataclastic. The result of the chemical analyse of this position between 373.80 - 374,15 is: Cu 0.88% , Zn 2.10% , S 38.10%
374,15 - 374,35	The very strong chloritic greenschist as well as in 372,00 - 372,40 m. The average gradient of this foliation is 60°-65° about. Between 374,00 - 374,05 m is present white barren secretion quartz. The result of the chemical analyse from this position between 374,15 - 374,35 m is: Cu 0.17% Zn 0.30% , S 10.20 %
374,35 - 375,50 1,15 m	The very strong impregnation of sulphides (pyrite mostly, but with some little chambres of chalcopyrite too) in quartzite, locally with some inclusions of a chloritic matrix. Between 374,40 - 374,55 m is present quartzite with som oblique joints which are locally filled by chalcopyrite

FOLLDAL VERK A/S

Dk. 141 Grimsdalsgrūva

DRIFTSANALYSER

Tatt 19

Skift:	% Cu	% Zn	% S	% Fe				% H_2O	Sikt	Anmerkning
Rågods, tørt	0.03	0.50	8.-		Fr 2	372.	00	- 372.	40	m
Cu-konsentrat	1.82	0.30	28.20		"	373.	15	- 373.	55	"
Cu-avgang	0.08	0.20	5.90		"	373.	55	- 373.	80	"
Zn-konsentrat	0.88	2.10	38.10		"	373.	80	- 374.	15	"
Zn-avgang	0.17	0.20	10.20		"	374.	15	- 374.	35	"
S-konsentrat	0.86	0.90	32.65		"	374.	35	- 375.	50	"
S-avgang	0.98	0.40	20.-		"	375.	50	- 375.	75	"
Cu-retur										
Zn-retur										
Cu-tørke										
Zn-tørke										
S-tørke I										
S-tørke II										

Folldal Verk 2/9 1970

J. Jensen

A. SÆTHER, HAMAR

with little bit pyrhotite together too. The structure is massive mostly and the texture is cataclastic. The result of the chemical analyse from this position between 374,35 - 375,50 m is: Cu 0.85%, Zn 0.90% , S 32.85%

375,50 - 385,19 The motley serie of a chloritic and weakly biotitic greenschist with a lot of hypidiomorphic grains (idiomorphic scarcely too) of pyrite and of a chloritic and garnet gneissic schist or gneissic greenschist with some small acicular or rodlike porphyroblasts of hornblende. Locally are present some graits of carbonates (ancerite and dolomite). The structure is schistose and phacoidal schistose. Between 380,50 - 381,50 m are present a lot of schliers of white barren secretion quartz. In 385,41 m and in 385,50 m are present positions with a strong impregnation of sulphides (pyrite mostly) (1 cm and 2 cm thickness. The average gradient of this foliation is 70^{o}-80^{o}. The result of the chemical analyse from this position between 375,50 - 375,85 m is: Cu 0.98 , Zn 0.40% , S 20.00%

This borehole no. 141 was stopped at 385,19 m on August 21st 1970 on 15.00 p.m.

(M. Motys).

The Borehole no. 127, Grimsdalsgruva.

The brief petrografical description.

0,00 - 16,30	The tiny-grained and tender grained amphibolitic and chloritic greenstone, with a lot of very little parallel intercalations of schliers of quartz and with some small spots or little schliers of carbonates. The parallel schistose and parallel phacoidal schistose structure is very clear. Locally are present some folds by the mm or cm amplitude. Locally is present more chlorite and epidote too. The average gradient of this foliation is 50°-55° about. Locally are present some spots or grains or weak impregnation of FeS_2 mostly only (in example the dark green or dark gray-green colour in 8,35 m, 8,55 m and 11,25 m. about.
16,30 - 17,05	The amphibolitic rock, which is strongly infiltrated by quartz and quartz feldspar matter, with a lot of rodlike or acicular grains of the porphyroblasts of hornblende, with not much small grains of garnet and locally only with a very poor and scarce impregnation of FeS_2 mostly.
17,05 - 18,20	The motley serie of the tiny and tender grained amphibolitic greenstone as well as in 0,00 - 16,30 m.
18,20 - 18,80	The chloritic-sericitic mica schist with a lot of grains of garnet and with very much mostly irregular grains of magnetite(the average size 1-3 mm but 5 mm locally too). Locally are present some epidote, zoisite-epidote. The total structure of this rock is pell-mell or phacoidal too. The total average gradient of this schistosity is 60° about.
18,80 - 22,00	The medium-grained and coarse-grained amphibolitic greenstone with the very strong infiltration of the quartz and quartz-fedlspar matter, with the rodlike and acicular crystales of hornblende. Some grains of garnet arn't present and some impregnation the sulphides minerals isn't present too. The total structure of this rock is ofitic and irregular.
22,00 - 29,90	The maculose chloritic, garnet-mica schist with a lot of small grains of garnet and with a lot of small spots of quartz, locally of quartz feldspar too. The total structure is maculose mostly or locally phacoidal too. In 25,90 - 25,95 m is present the position of white quartz. Locally are present some small acicular or rodlike porphyroblasts of hornblende and some very poor and weak impregnation of FeS_2 and scarce FeS. The average gradient of this foliation is 60° about.

29,90 - 31,10	The keratophyre rock with a lot of acicular or locally rodlike porphyroblasts of hornblende, locally with a lot of small grains of garnet and locally with some irregular grain of FeS_2 (2-3 mm size in average) and with some very weak and poor impregnation of FeS_2 mostly only. Locally are present zoisite-epidote, chlorite. The basement matter is created by the quartz feldspar matter. The structure is ofitic and irregular too. The average gradient of this foliation is 50° about.
31,10 - 31,60	The strongly chloritic amphibolitic tiny-grained and tender grained greenstone, locally with some spots of carbonates, with some very little irregular intercalations of quartz and with some little schliers and pellets of quartz too. Locally is present very weak and scarce impregnation of FeS_2 mostly and with some more irregular grains of FeS_2 and more of Fe_3O_4 (the size 1-2 mm in average).
31.60 - 32,40	The keratophyre rock, which has the basement matter created by quartz and quartz-feldspar matter, with some acicular and rodlike porphyroblasts of hornblende with some small grains of garnet and locally with some poor impregnation of FeS_2 and with a lot of irregular grains of FeS_2 (the size 2-5 mm in average), locally too in example in 32,30 m round.
32,40 - 36,00	The chloritic and amphibolitic tiny-grained and tender grained greenstone with a lot of very little intercalations or veins (parallel) of quartz, locally with some infiltration of quartz feldspar matter. Some very weak and poor impregnation of FeS_2 is present locally too. This rock has mostly the parallel schistose structure clear enough. Locally is present some folds by mm and cm amplitude. The average gradient of this foliation is 70° about.
36,00 - 37,60	The dolomite quartzy rock, maculose with some chlorite, locally more zoisite and apidote and wit a lot of spots of carbonates. The total structure is maculose mostly. Locally is present some poor and weak impregnation of FeS_2 mostly and with some scarce impregnation of the very little grains of Fe_3O_4.
37,60 - 41,30	The strongly quartzy chloritic and locally zoisite epidotic schist with some micas of biotite locally too, which creat some little schliers or pellets somewhere and with a lot of intercalations, little schliers and pellets of quartz and locally with some strong infiltration of the quartz feldspar matter. Locally is present some poor impregnation of FeS_2 and round 38,40 m are present some irregular streaks of the strong FeS and fewly $CuFeS_2$ mineralisation. In 37,70 - 37,85 m is position of the white quartz. The structure is locally phacoidal, maculose and phacoidal parallel schistose too.

41,30 - 69,20 — The motley serie of the tiny-grained and tender-grained amphibolitic greenstone, with a lot of very little parallel intercalations or streaks of quartz and locally with some small spots of quartz or fewly of carbonates too. The structure is parallel schistose mostly but locally present some maculose and phacoidal schistose structure too. Locally only are present some acicular porphyroblasts of hornblende. Thsi rock is locally folded too by mm and cm folds. In 52,60 - 52,75 m is present the position of white quartz. The average gradient of this foliation is 60° -65° about.

69,20 - 81,60 — The chloritic and amphibolitic, locally epidotic greenschists with a lot of parallel little intercalations or little streaks of quartz and with some positions of the tiny and tender-grained amphibolitic greenstone as well as in 41,30 - 69,20 m. In this greenschist are present a lot of small grains of garnet. Locally this rocks are very strongly folded by mm, cm and dm folds. This rock has mostly the parallel schistose structure. The average gradient of this foliation is 50° about.

81,60 - 84,80 — The chloritic and zoisite epidotic strongly quartzy rock, strongly infiltrated by the quartz feldspar matter with a lot of rodlike and acicular crystales of hornblende and with much grains of garnet too. The structure is ofitic and irregular mostly.

84,80 - 104,90 — The motley serie of the chloritic amphibolitic and little bit epidotic locally greenschists with a lot of very small grains of garnet and with a lot of very little parallel intercalations of quartz or with a lot of schliers and pellets of quartz too. Round 102,10 - 102,50 m is present some poor impregnation of FeS. Locally present some folds by cm and dm, but by mm amplitude too. The total structure is parallel schistose and parallel phacoidal schistose too. The average gradient of this foliation is 50° - 60° about.

104,90 - 112,20 — The strongly biotitic ans chloritic quartzy mica-schist with some small rodlike or acicular porphyroblasts of hornblende, but without garnet, with a lot of schliers and pellets and little intercalations of quartz. The total structure is parallel schistose and phacoidal schistose. The average gradient of this foliation is 55° - 60° about.

112,20 - 112,40 — The white quartz.

112,40 - 122,70 — The motley serie of the tiny- and tender-grained amphibolitic greenstones with some intercalations of greenschists with a lot of very small grains of garnet. Thsi rock just the same as the other as in 41,30 - 69,20 m. The average gradient of this foliation is 50° - 60° about.

122,70 - 124,65 The maculose chloritic greenschist with a lot of little intercalations of and schliers and spots of quartz, but of carbonates too and locally with the very weak and poor impregnation of FeS_2 and FeS. Locally is this rock folded too. The structure is maculose and phacoidal schistose. In 124,10 - 124,40 m is present some positions of white quartz. The average gradient of this foliation is 50° about.

124,65 - 136,60 The motley serie of the tiny and tender grained amphibolitic greenstone with a lot of parallel little intercalations veins of quartz. Thsi rock is locally folded by mm and cm folds. The some grains of garnet isn't present. Locally is present some very poor and weak impregnation of FeS_2 mostly. The parallel schistose structure is clear enough the average gradient of this foliation is 40°-45° about.

136,60 - 142,50 The maculose, medium-grained and tiny-grained amphibolitic greenstone with a lot of spots, irregular schliers and pellets of quartz. Very scarcely is present some poor impregnation of FeS_2 mostly. The total structure is maculose mostly.

142,50 - 142,60 White quartz.

142,60 - 149,40 The tiny-grained and tender-grained amphibolitic biotitic greenstone as well as in 124,65 - 136,60 m. The average gradient of this foliation is 60° - 70° round.

149,40 - 158,60 The maculose medium-grained amphibolitic greenstone with some intercalations of the maculose chloritic and amphibolitic greenschists like in 136,60 - 142,50 m.

158,60 - 165,60 The chloritic and sericitic greenschist with some sericitic and fewly with some micas of biotite, with zoisite epidote and epidote and with some positions or intercalations more quartzy and in 161,10 - 161,40 m and 163,40 - 163,70 m are present some positions of the strongly biotitic schist with some graphitic impregnation in little intercalations (perhaps old myllonitic matter too)

165,60 - 179,10 The chloritic and biotitic quartzy micaschist, without garnet, with a lot of schliers or pellets and irregular lenticles of quartz. The total structure and phacoidal schistose. The average gradient of this foliation is 40° - 50° about. In 168,60 - 168,90 m is present some position of the biotitic and graphitic schliers.

179,10 - 181,30 The keratophyre with a lot of grains of garnet with some little schliers from micas of biotite and with scarcely chlorite and with very small irregular porphyroblasts of hornblende. Locally is present some poor impregnation of FeS_2 mostly (in example round 180,50 - 180,70 m).

181,30 - 200,00 The motley serie of the tiny and tender-grained amphibolitic greenstone as well as in 124,65 - 136,60 m. The average gradient of this foliation is 60° round. Locally is present some strong infiltration of quartz and quartz feldspar matter. In 189,20 - 189,60 m is present the position of white quartz with a lot of small spots or inclusions of carbonates (perhaps breccie).

200,00 - 200,70 The strongly biotitic keratophyre with not so much biotite and scarce with some small rodlike or acicular porphyroblasts of hornblende and scarce with some small grains of garnet. The structure is ofitic irregular.

200,70 - 216,00 The motley serie of the tiny-grained and tender grained amphibolitic greenstone as well as in 41,30 - 69,20 m. The average gradient of this schistosity is 60° - 70° round. In 204,10 - 204,40 m is position of the white quartz.

216,00 - 219,95 The epidotic, zoisite-epidotic and little bit chloritic and sericitic maculose calcarcous schist with a lot of schliers spots and pellets of the carbonates and quartz. Scarce, locally is present some weak impregnation of FeS_2 mostly. The total structure is maculose mostly.

219,95 - 250,70 The motley serie of the chloritic, amphibolitic and epidotic greenschist and greenstones as well as in 124,65 - 136,60 m, but locally with some more strongly impregnation of FeS_2 mostly (in example round 221,20 - 221,90 m about). The average gradient of this foliation is 60° - 70° round.

250,70 - 253,90 The strongly quartzy rock with a lot of small acicular and rodlike porphyroblasts of hornblende with some small grains of garnet with some zoisite-epidote and with strongly infiltration by quartz and quartz-feldspar matter. Locally is present some poor impregnation of FeS (in example round 250,75 m). The parallel schistose and phacoidal schistose structure is little bit clear. The average gradient of this schistosity is 60° round.

253,90 - 255,10 The chloritic an sericitic and zoisite-epidotic maculose calcarcou schist as well as in 216,60 - 219,95 m.

255,10 - 268,90 The motley serie of the amphibolitic and chloritic greenschist and greenstones, medium-grained, locally with some infiltration of quartz and quartz feldspar matter, with a lot of small grains of hornblende and with a lot of small grains of garnet. The parallel schistose structure is little bit clear. The average gradient of this foliation is 45° - 50° about.

268,90 - 271,30	The strongly amphibolitic and garnet keratophyre rock, with a lot of acicular and rodlike porphyroblasts of hornblende, with a lot of small grains of garnet and with the quartz feldspar basement matter. The structure is ofitic and irregular.
271,30 - 293,80	The motley serie of the chloritic and amphibolitic greenschists and tender-grained greenstones with a lot of very small grains of garnet and for the other as well as in 124,65 - 136,60 m. The average gradient of this foliation is 50° round. In 277,50 - 277,70 m and in 278,00 - 278,50 m are present the positions of white quartz.
293,80 - 294,50	The keratophyre with a lot of rodlike and acicular porphyroblasts of hornblende and with a lot of small grains of garnet. The structure of this rock is ofitic and irregular porphyroblastic.
294,50 - 306,00	The motley serie of the chloritic and epidotic amphibolitic greenschists with some intercalations of epidote and chloritic tiny- and tender-grained greenstones with a lot of small, grains of garnet and with a lot of very little intercalations, schliers and pellets of quartz. The total structure of this rock is parallel schistose mostly. With a lot of small irregular grains of Fe_3O_4. Scarce with small scales of biotite. Mostly is this rock folded by folds of the mm, cm and dm amplitude. The average gradient of this foliation is 50° - 60° about.
306,00 - 306,80	The keratophyre rock with a lot of small rodlike and acicular porphyroblasts of hornblende and with chloritic, locally only with some spots of carbonates (small only). Somewhere is this rock folded by the folds of the mm and cm amplitude. The schistosity is locally clear enough. The average gradient of this schistosity is 50° about.
306,80 - 335,50	The strongly chloritic and epidotic and zoisite-epidotic and chloritic-amphibolitic, greenschists with a lot of very little intercalations, little schliers and pellets of quartz, but without grains of garnet. The total structure of this rock is parallel phacoidal schistose and parallel schistose. Locally is present some foldings of the mm and cm amplitude. The average gradient of this foliation is 50° - 60° about. The same impregnation of the sulphides isn't present mostly, but some very poor impregnation of the very small irregular grains of Fe_3O_4 is present and locally is acarcely present some very small scales of biotite.
335,50 - 342,30	The motley serie of the chloritic and epidotic amphibolitic greenschists as well as in 294,50 - 306,00 m. The average gradient of this foliation is 70° about and locally 80°.

342,30 - 343,00 The keratophyre with the very little grains of garnet and with some very poor and weak impregnation of Fe_3O_4 and with not so much very little scales of biotite. The chloritic or very little acicular porphyroblasts of hornblende are present very scarcely only. The total structure is very compact.

343,00 - 349,00 The maculose chloritic and amphibolitic, locally epidotic greenschists with a lot of little intercalations, little schliers and little pellets of quartz and with a lot of spots of carbonates the total structure is maculose and locally phacoidal and phacoidal schistose too. The average gradient of this foliation is 80^{o} about.

349,00 - 358,10 The motley serie of the chloritic and little bit epidotic and sericitic micaschist or greenschist, strongly infiltrated by quartz and quartz feldspar matter with a lot of acicular and rodlike porphyroblasts of hornblende and with a lot of grains garnet. The quartz creat a lot of pellets and schliers mostly with the spots of carbonates. The structure is pell-mell and locally maculose too. The average gradient of this schistosity is 60^{o} - 70^{o} about.

358,10 - 358,90 The keratophyre with a lot of rodlike and acicular porphyroblasts of hornblende and with a lot of spots of carbonates.

358,90 - 374,00 The motley serie of the chloritic epidotic and sericitic greenschists and micaschists as well as in 349,00 - 358,10 m.

374,00 - 377,10 The strongly chloritic, epidotic and amphibolitic greenschists and tender grained amphibolitic and chloritic greenstones, mostly with parallel schistose structure and locally with folding of the mm and cm amplitude. The average gradient of this foliation is 70^{o} about.

377,10 - 380,90 The keratophyre with a lot of acicular and rodlike porphyroblasts of hornblende and with a lot of grains of garnet. The total structure is ofitic and irregular.

380,90 - 382,40 The strongly chloritic and amphibolitic greenschists and greenstones as well as in 374,00 - 377,10 m. The average gradient of this foliation is 80^{o} about.

382,40 - 399,05 The chloritic and amphibolitic keratophyre rock with a lot of grains of garnet as well as in 377,10 - 380,90 m.

399,05 - 400,70 The keratophyre with not so much chlorite and sericitic and with very few very little grains of garnet. The structure is very compact.

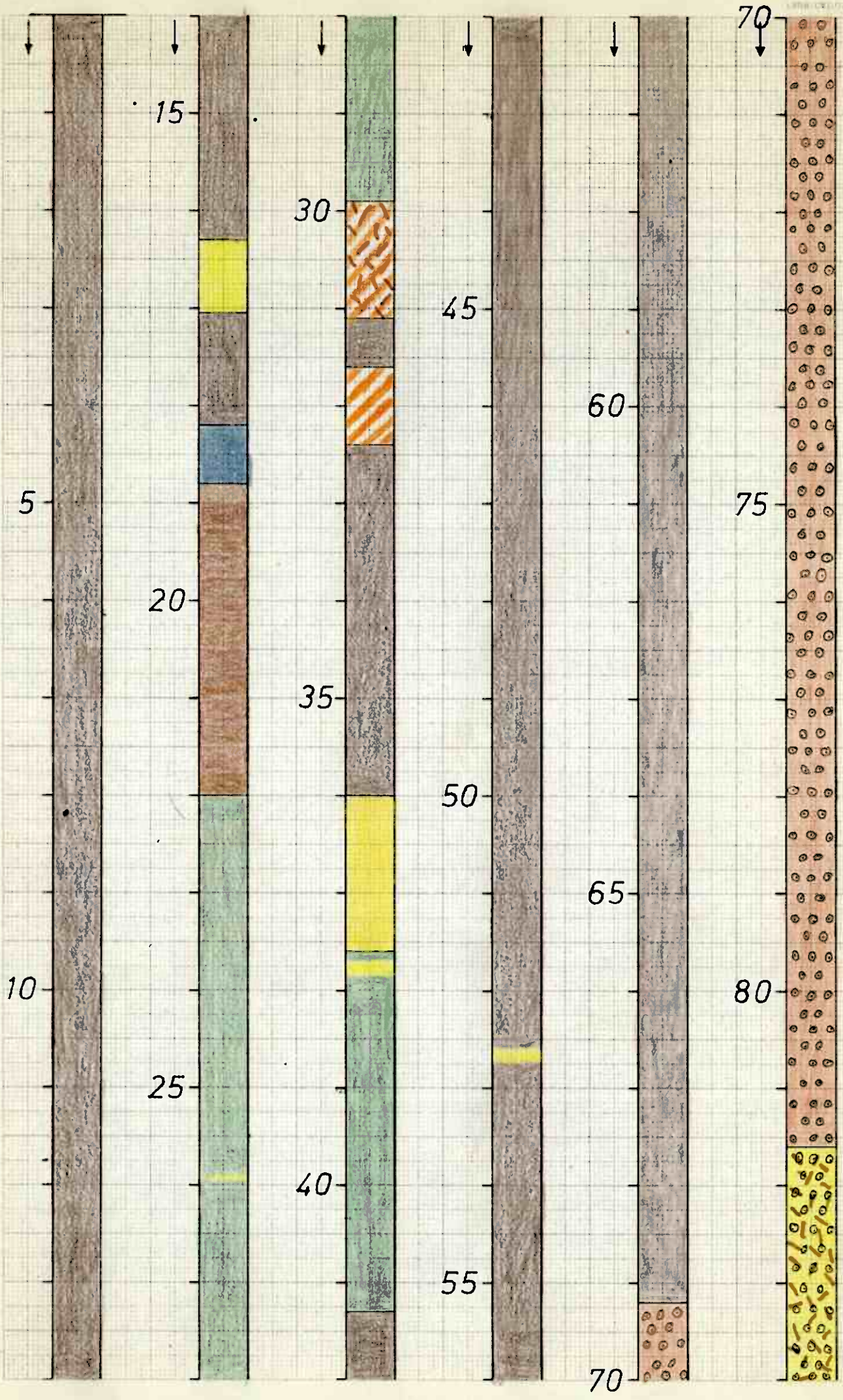
400,70 - 416,10 — The chloritic and amphibolitic keratophyre as well as in 377,10 - 380,90 m but with some thin positions of the keratophyre like in 399,05 - 400,70 m.

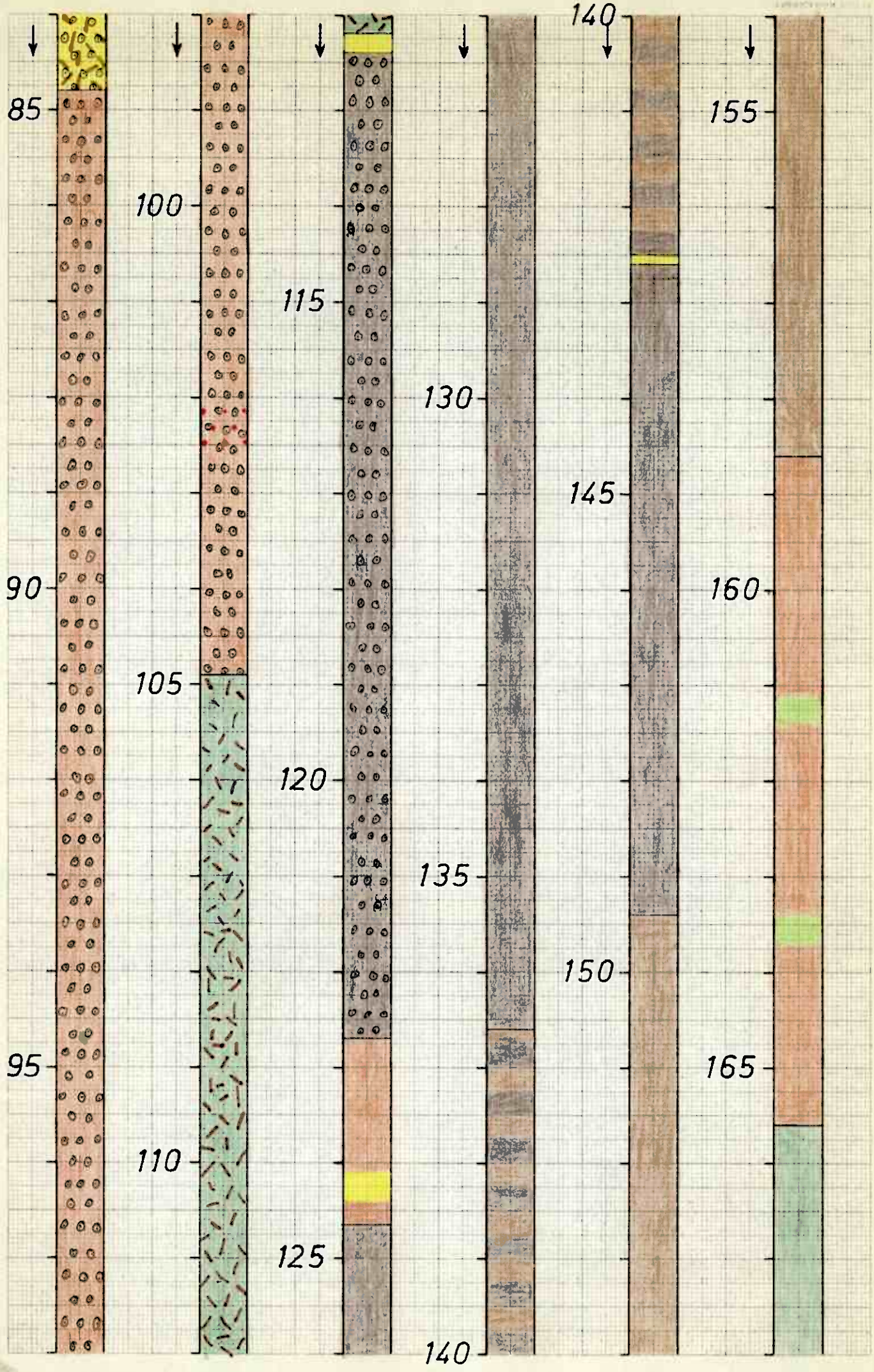
The chloritic, epidotic greenschists with not so much scales of biotite, with a lot of schliers and pellets and spots of quartz or carbonates or feldspar too. Locally is present some very poor impregnation of FeS_2 mostly only.

416,10 - 417,60 — The keratophyre, little bit chloritic and sericitic, with scarcely only with amphibolitic.

417,60 - 432,90 — The strong chloritic greenschists with a lot of grains of garnet a lot of schlier pellets. and spots of quartz and with not much little acicular and rodlike porphyroblasts of hornblende and with a lot of small grains of garnet. The structure is phacoidal schistose. In 429,50 - 430,40 m is position of white quartz. Locally is present poor impregnation of FeS_2 mostly.

The petrografical profile of the borehole nr.

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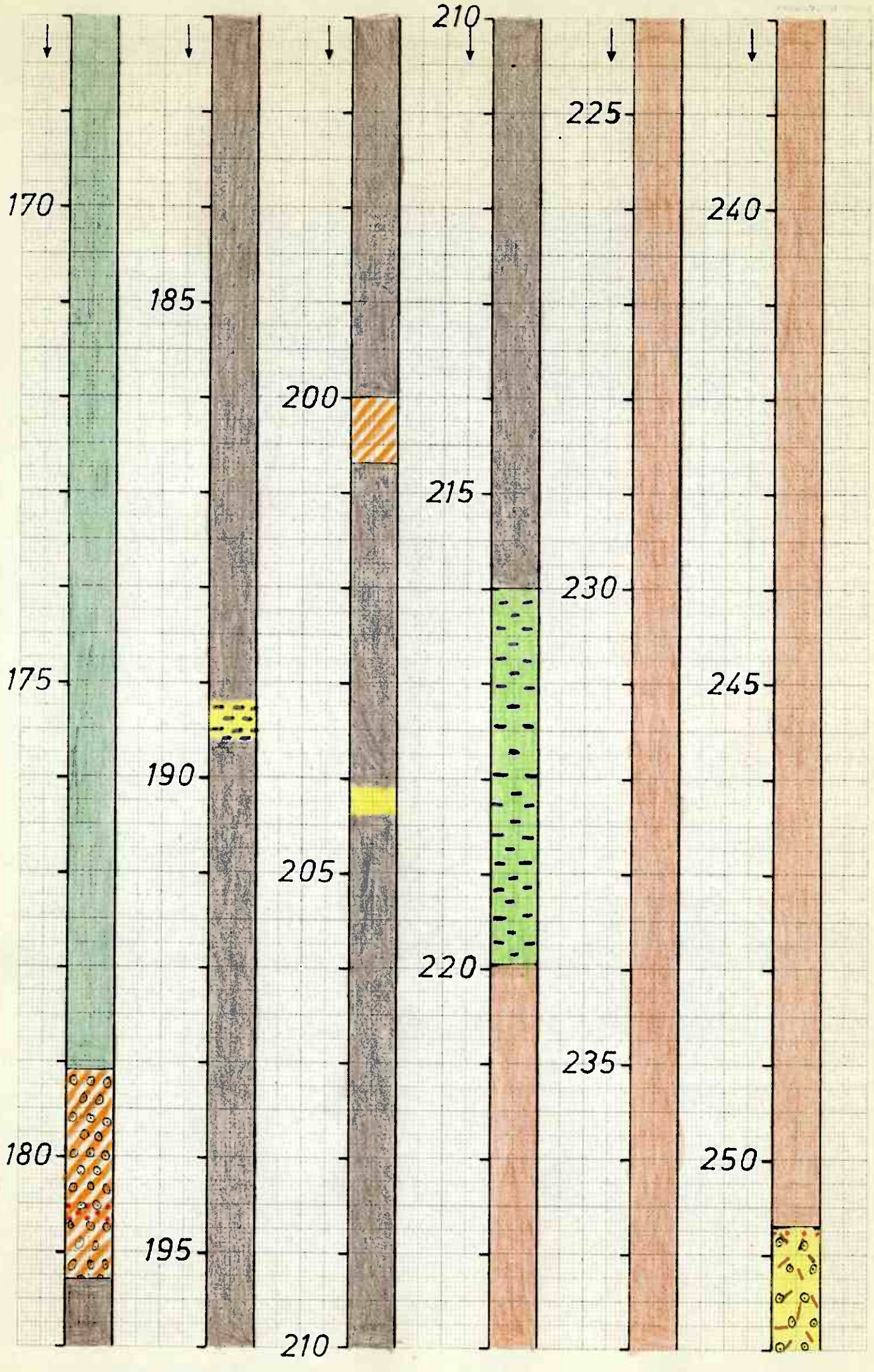
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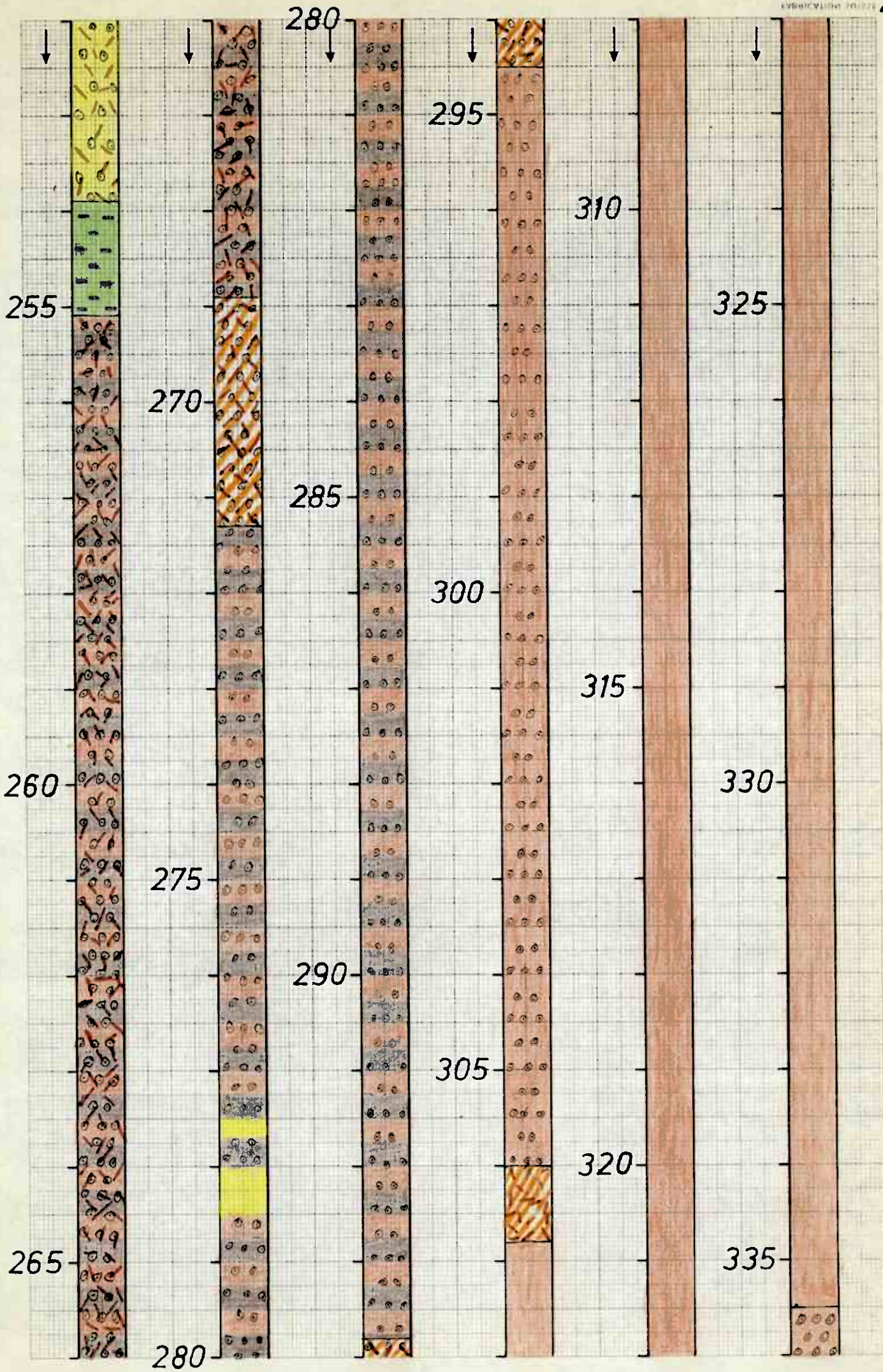
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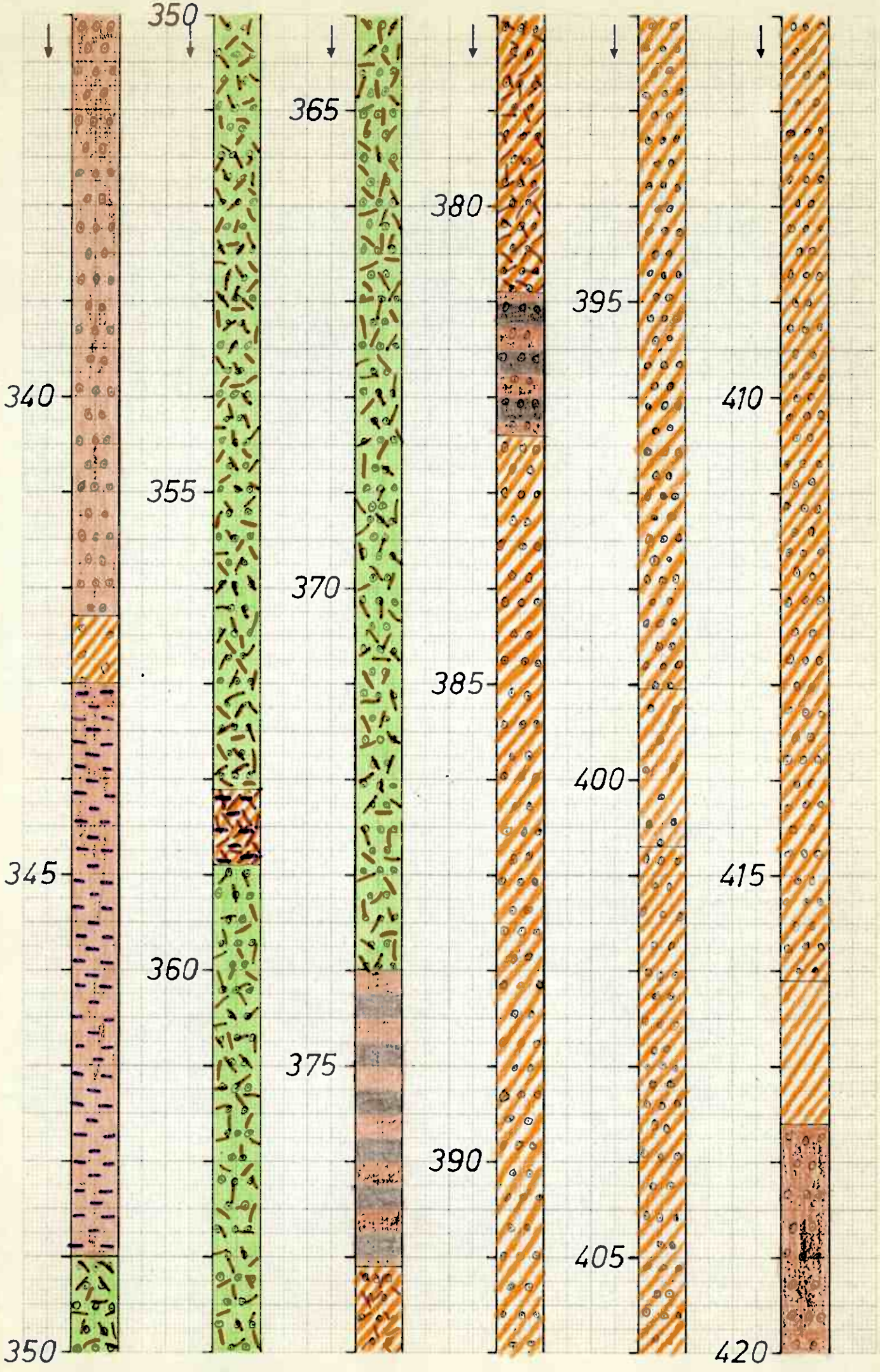
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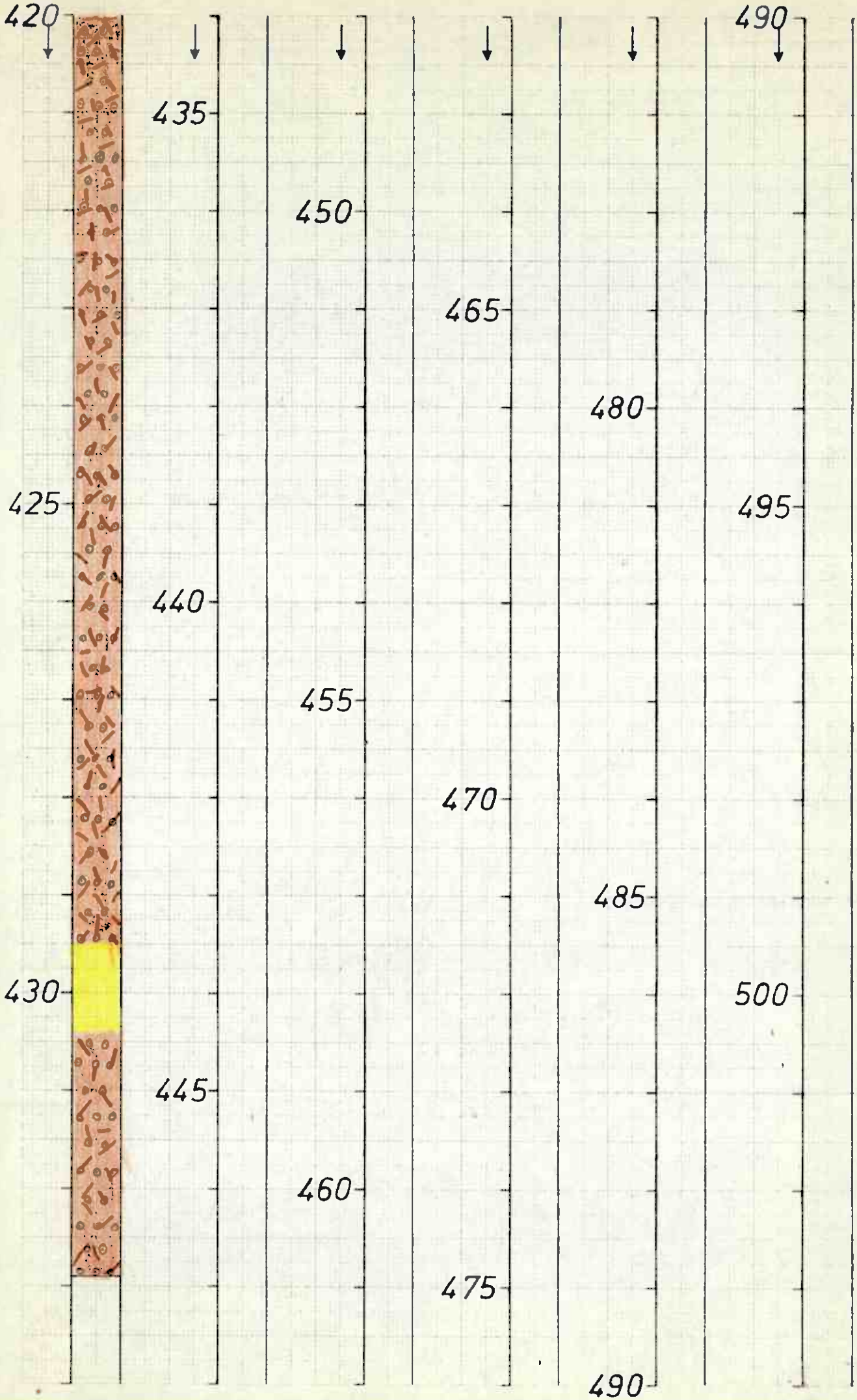
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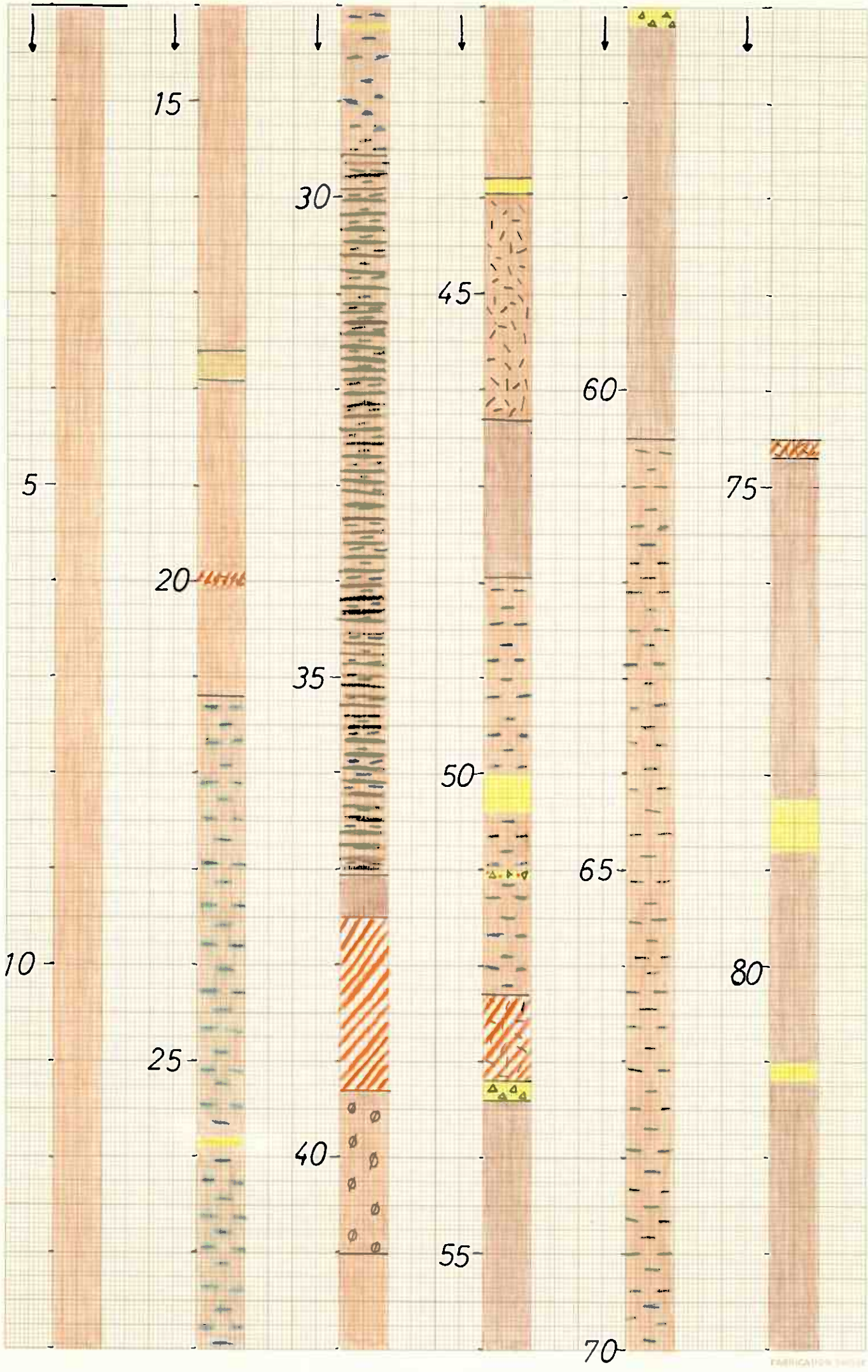
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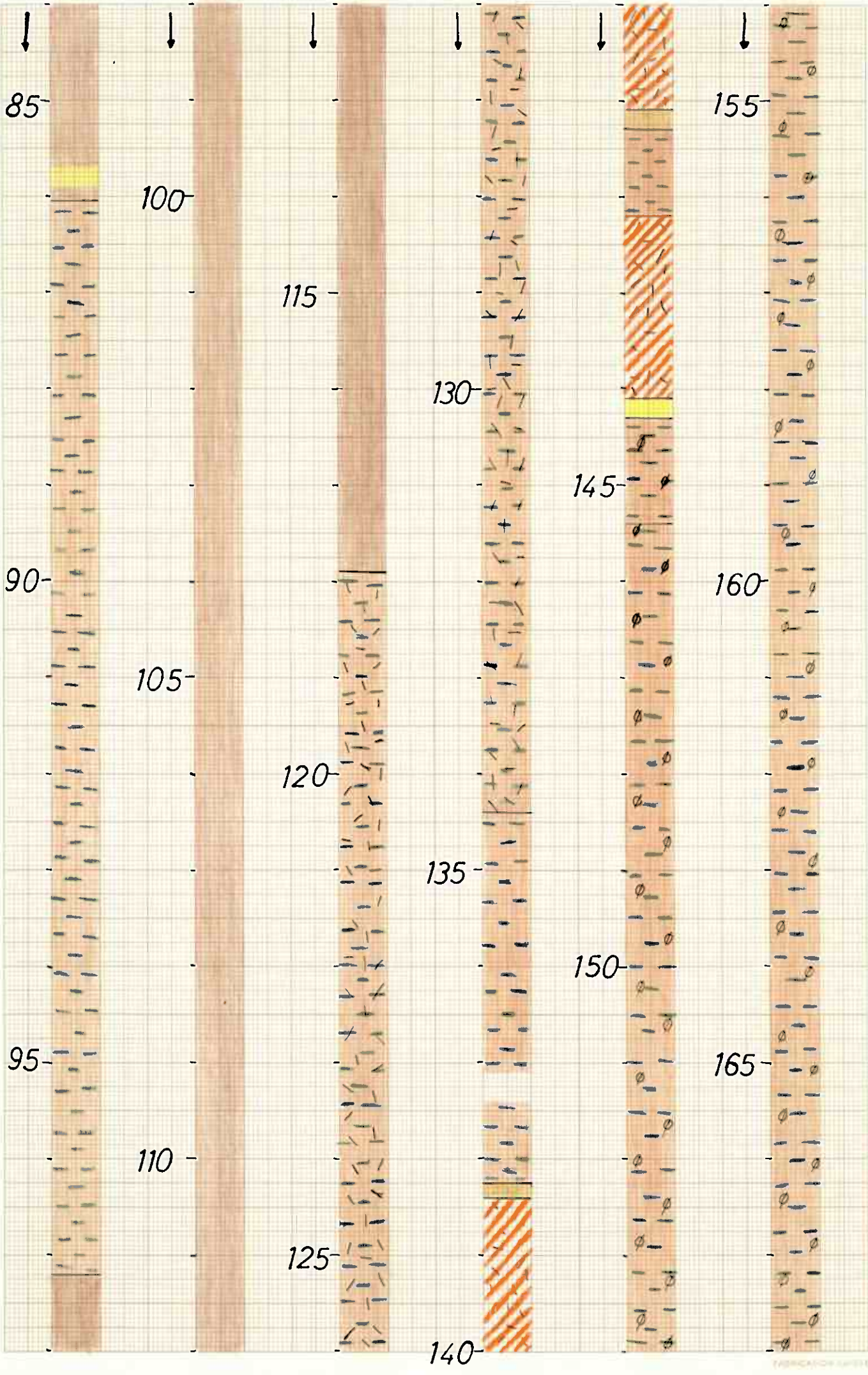
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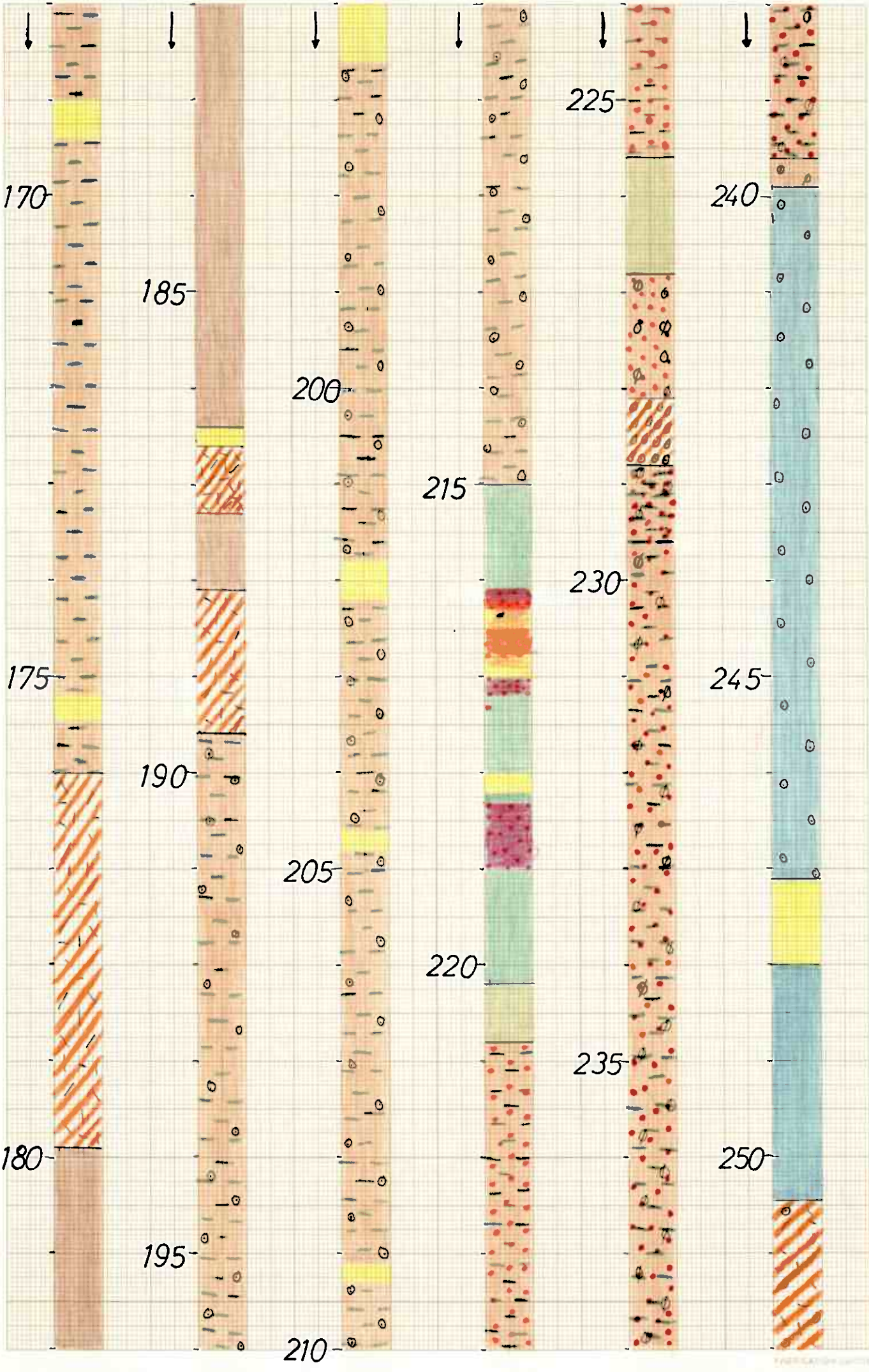
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THE BOREHOLE NR. 140.

Grimsdalsgruva

BOREHOLE NO. 140, GRIMSDALSGRUVA.

The petrografical description.

0,00 - 25,80	The tender-grained chloritic, amphibolitic epidotic greenstone with some very little intercalations, little schliers and pellets of quartz, with some very little spots of quartz, quartz-feldspar and of carbonates locally too. Very scarce are present some little, mostly irregular grains of Fe_3O_2 and very weak and poor impregnation of FeS_2 mostly. The total structure is mostly parallel phacoidal schistose. The total colon of this rock is dark green or dark green gray too. The average gradient of this foliation is 45° - 50° around. In 9,00 - 9,10 m, in 11,70 - 11,85 m, in 16,90 - 17,00 m are present some positions of white quartz.
25,80 - 29,60	The strongly chloritic, little bit zoisite-epidotic greenschists with a lot of parallel very little intercalations, schliers etc. of quartz and with a lot of small grains of garnet. Thsi rock has parallel phacoidal schistose and parallel schistose structure. Mostly are present a lot of folds of the mm and cm amplitude. The some ore minerals impregnation isn't present. The average gradient of this foliation is 40° about.
29,60 - 32,90	The sericitic and little bit biotitic (mostly deprification) quartzy mica schist, locally with some spots, pellets and schliers and intercalations of quartz. The some ore, mineralisation isn't present. The structure of this rock is phacoidal and phacoidal schistose. The total colour of this rock is white or very bright gray. The average gradient of this foliation is 60° about.
39,20 - 63,40	The motley serie of the chloritic-amphibolitic tiny- and tender-grained greenstones and of the chloritic and epidotic and chloritic amphibolitic greenschists with a lot of little parallel intercalations, schliers also of quartz, scarcely with some spots of quartz-feldspar or carbonates. Mostly are present the scales of biotite, which are concentrated to some little intercalations or little schliers or which creat some irregular cover on the foliations plates. This rock has the parallel phacoidal schistose structure or parallel schistose structure mostly and is folded locally by the folds of the mm, cm and somewhere dm amplitude. The same ore

mineralisation isn't present mostly. The average gradient of this foliation is 60° about. Between 54,20 - 54,60 m and 55,00 - 55,20 m are present some positions of white quartz.

63,40 - 70,30 — The biotitic and chloritic schist with some zoisit-epidote and with a lot of acicular and rodlike porphyroblasts of hornblende and with some small grains of garnet, which is strongly infiltrated by quartz and quartz feldspar matter. The total schitosity is little bit clear. The total colour of this rock is bright green-grey. The average gradient of this foliation is 60° about.

70,30 - 76,20 — The motley serie of the tender-grained chloritic-amphibolitic greenstones and greenschists as well as in 39,20 - 63,40 m. Between 71,90 - 72,05 m is present position of white quartz. The average gradient of this foliation is 50° - 55° about.

76,20 - 77,40 — The maculose chloritic and sericitic and little bit biotitic amphibolitic greenschists with a lot of spots schliers and pellets of quartz, but quartz-feldspar and scarcely carbonates too and with a lot of little intercalations or schliers of quartz with some spots of carbonates. The total structure is maculose or phacoidal. The average gradient of this schistosity is 45° - 50° about.

77,40 - 80,30 — The motley serie of the tender-grained chloritic-amphibolitic greenstones and greenschists as well as in 39,20 - 63,40 m, between 78,60 - 78,75 m is present the position of the white quartz. The average gradient of this foliation is 70° and locally 80° about.

80,30 - 86,70 — The amphibolitic and little bit chloritic schist, strongly infiltrated by quartz and quartz-feldspatic matter, with a lot of rodlike and acicular porphyroblasts of hornblende, but without garnet. The structure is pell-mell and ofitic mostly. The total colour of this rock is green-gray. Locally some small irregular grains of FeS_2 and FeS.

86,70 - 101,50 — The strongly chloritic and biotitic motley serie of the greenstones and little bit greenschists with a lot of little intercalataions of quartz and quartzite, locally with a lot of schliers and pellets of quartz and with not so much spots of carbonates or quartz-feldspar. Locally is this rock folded by folds of the mm and cm amplitude. Locally are present some

very small rodlike or acicular porphyroblasts of hornblende, but without grains of garnet. The total structure of this rock is parallel schistose and parallel phacoidal schistose. The average gradient of this foliation is 60°-70° about.

101,50 - 108,20 The motley serie of the sericitic and chloritic epidotic and sericitic-epidotic schist, strongly infiltrated by quartz and quartz feldspar matter with a lot of small rodlike and acicular porphyroblasts of hornblende and with some small grains of garnet. The total structure is ofitic phacoidal or phacoidal schistose too. The quartz creat a lot of parallel intercalations or positions. Between 105,40 - 105,60 m is present some more thick position of white quartz. The average gradient of this foliation is 70° round.

108,20 - 117,60 The motley serie of the strongly chloritic and biotitic greenschists as well as in 86,70 - 101,50 m. The average gradient of this foliation is 55°-60° about.

117,60 - 122,30 The amphibolitic and little bit chloritic schist as well as in 80,30 - 86,70 m.

122,30 - 122,60 The position of the white quartz.

122,60 - 123,90 The little bit biotitic and scarcely chloritic keratophyre with some grains of garnet (the size is 1-3 mm in average). The colour is bright gray. The total structure is more compact.

123,90 - 127,00 The motley serie of the strongly chloritic and biotitic greenschists as well as in 86,70 - 101,50 m. The average gradient of this foliation is 50° round.

127,00 - 129,10 The amphibolitic and little bit chloritic schist as well as in 80,30 - 86,70 m.

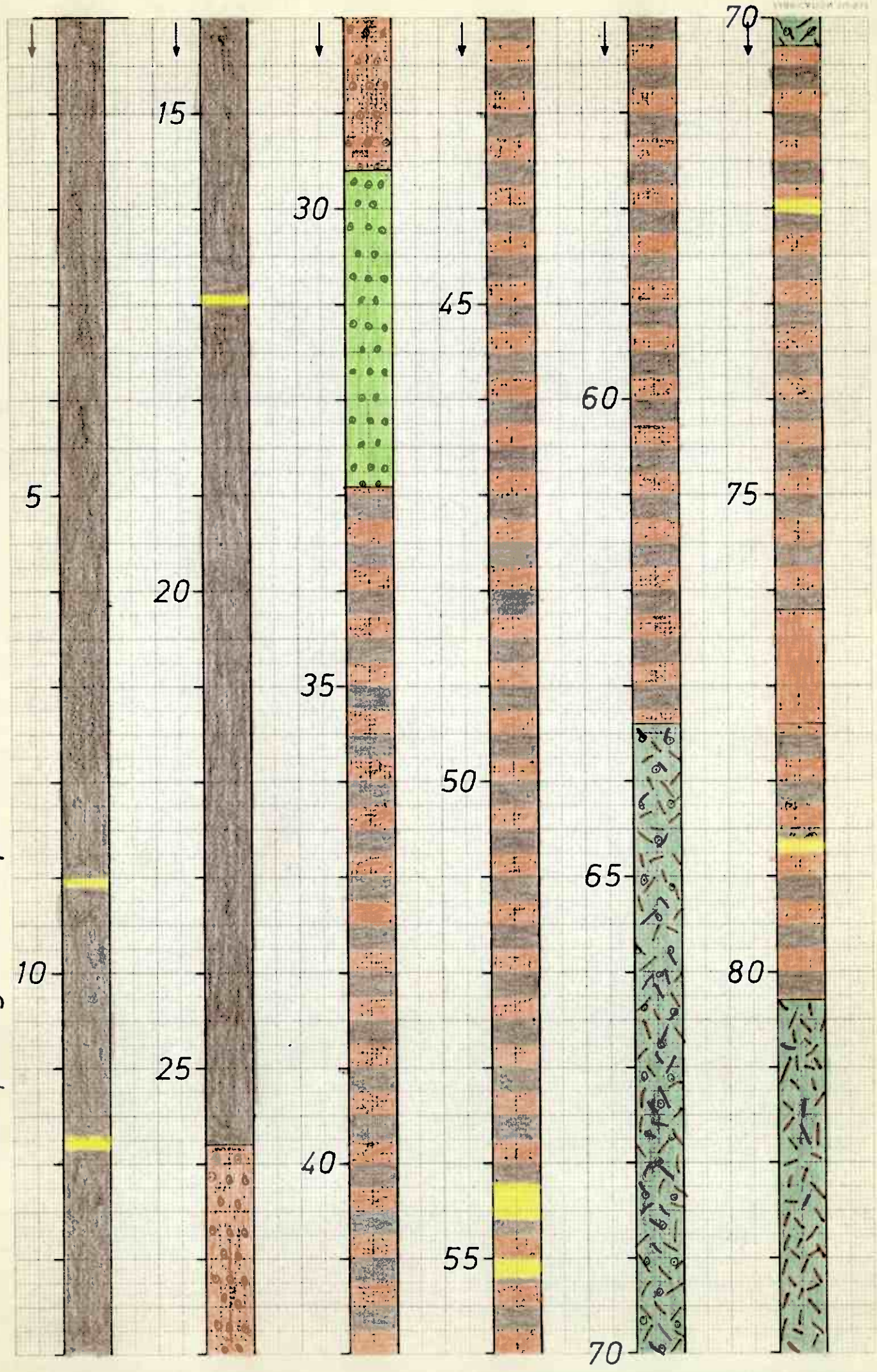
129,10 - 134,70 The biotitic and sericitic and little bit chloritic keratophyre with a lot of grains of garnet. Very compact structure. Bright gray colour. Between 131,70 - 132,30 m is present the quartz, tectonic breccie with a lot of small inclusion of chloritic amphibolitic greenschists and with some spots or schliers of carbonates.

134,70 - 145,20 The motley serie of the keratophyre rocks with some intercalations of chloritic amphibolitic rock, strongly infiltrated by quartz-feldspar matter and with some grains of garnet. Between 136,70 - 136,85 m and 137,10 - 137,40 m are present some positions of white quartz. The total schistosity is little bit clear. The total structure is phacoidal schistose and pell-mell. The average gradient of this foliation is 60°-65° about.

145,20 - 150,00	The chloritic-sericitic, epidotic and zoisite-epidotic schist as well as in 101,50 - 108,20 m. The average gradient of this schistosity is 70° about.
150,00 - 150,90	The keratophyre rock as well as in 129,10 - 134,70 m.
150,90 - 169,00	The chloritic-sericitic, epidotic and zoisite-epidotic schist as well as in 101,50 - 108,20 m. The average gradient of this schistosity is 60°-70° about.
169,00 - 173,60	The motley serie of the strongly chloritic and biotitic greenschists as well as in 86,70 - 101,50 m, but with more carbonates spots and with some poor impregnation of the sulphides ore minerals, mostly FeS_2. The average gradient of this foliation is 70° about.
173,60 - 178,80	The chloritic and sericitic micaschist without garnet and without some porphyroblasts of hornblende and with not so much schliers and pellets or irregular intercalations of quartz, but with some more strongly impregnation of FeS_2 mostly. The total structure is a phacoidal schistose and the total colour of this rock is very bright grenn-gray. The average gradient of this foliation is 70° round.
178,80 - 183,30	The chloritic-sericitic, epidotic and zoisite-epidotic schist as well as in 101,50 - 108,20 m. The average gradient of this schistosity is 80° around.
183,30 - 199,00	The keratophyre rock, sericitic, locally with some thin intercalations of more strongly biotitic and sericitic keratophyre. The grains of garnet are present but not so much. The schistose structure is locally clear. The average gradient of this foliation is 70° about.
199,00 - 210,80	The strongly sericitic, biotitic quartzy keratophyre rock with a lot of big grains of garnet (3-5 mm in average) and locally with not so much acicular or rodlike porphyroblasts of hornblende. The structure is pell-mell, more compact.
210,80 - 220,75	The sericitic, scarce sericitic chloritic keratophyre rock very compact, locally scarce with small acicular porphyroblasts of hornblende. The total colour of this rock is white-gray mostly.

This borehole was finished at 220,75 m.

(Milosh Motys).


The petrografical profile of the borehole nr.
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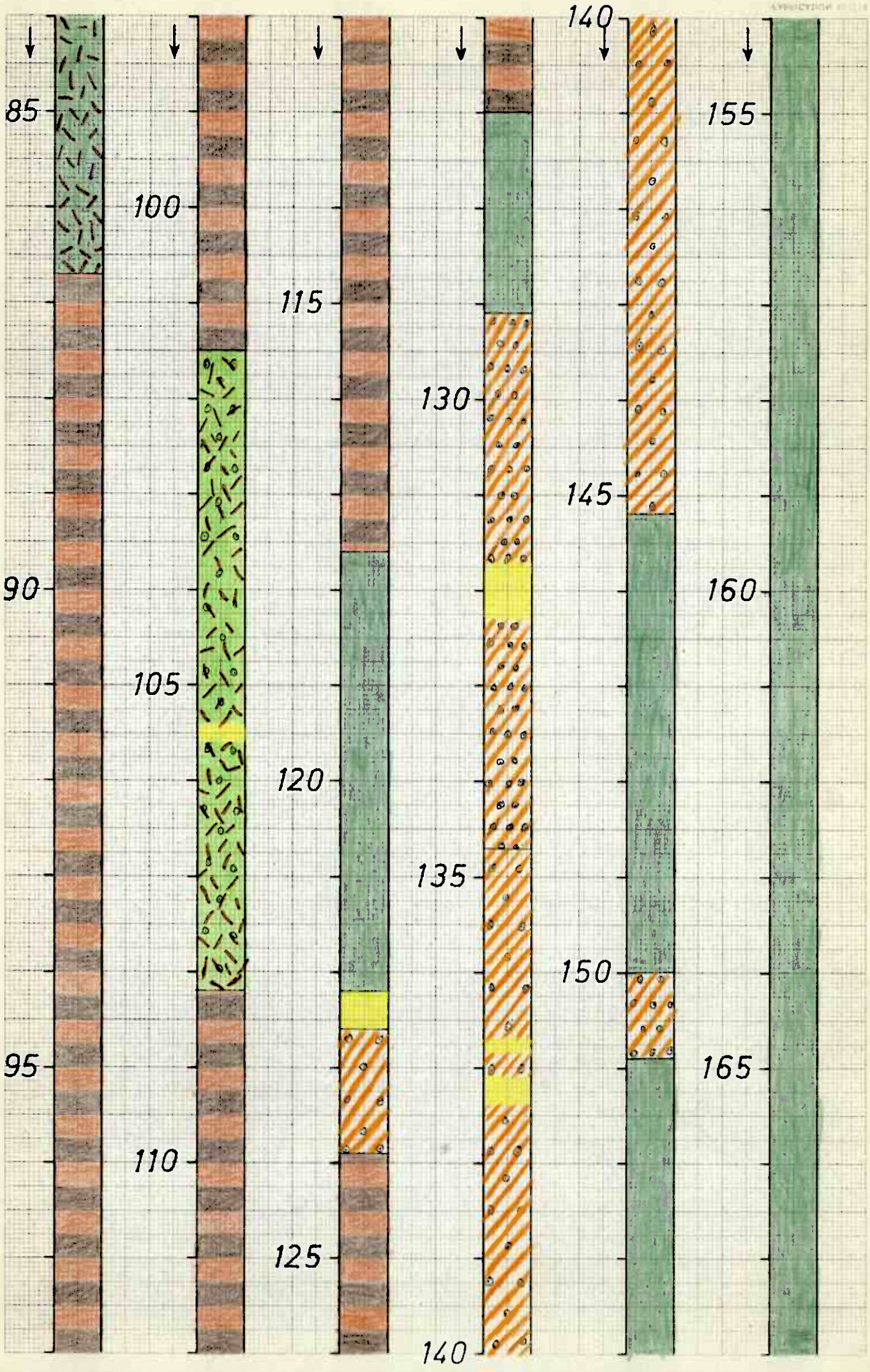
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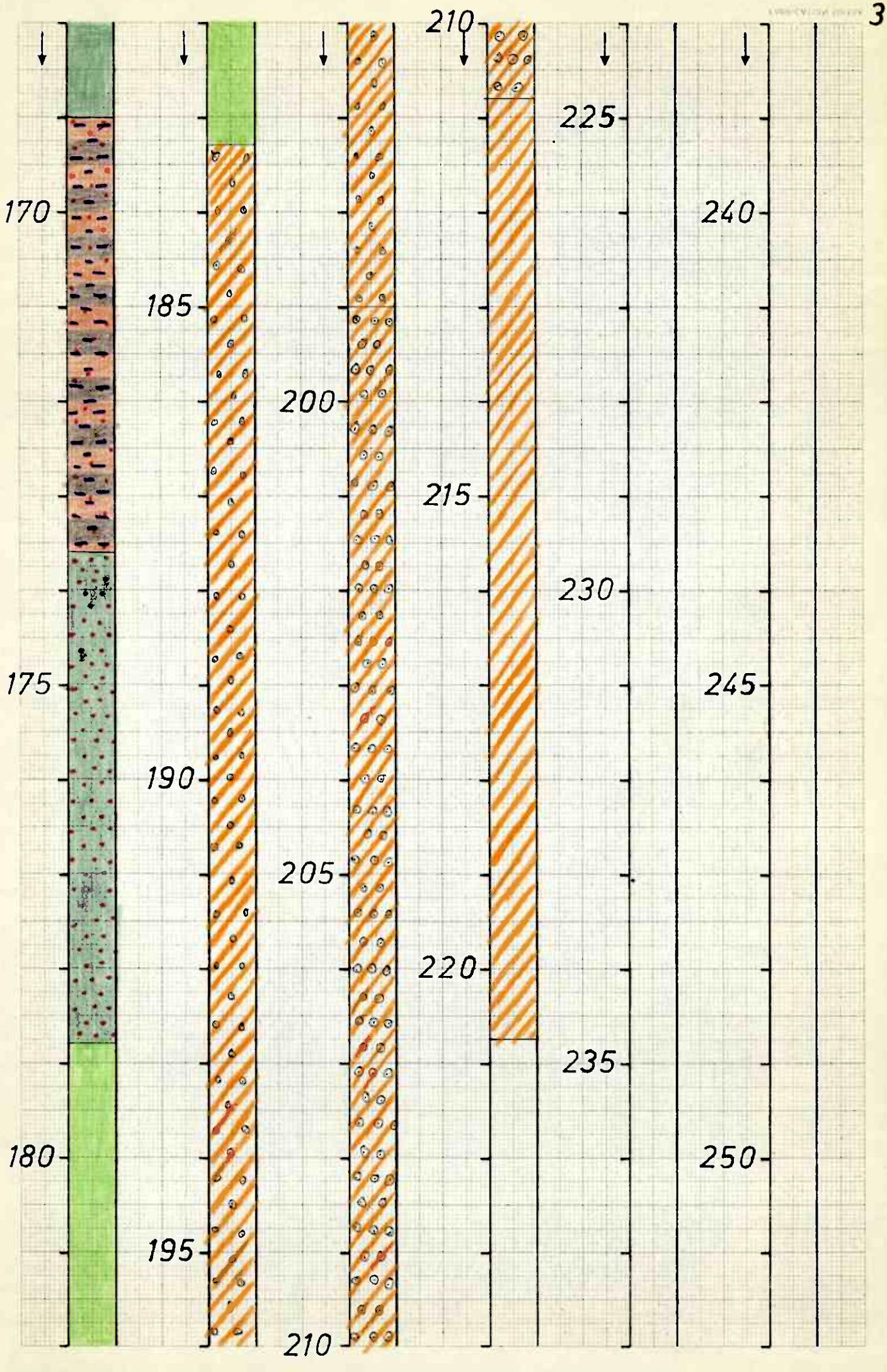
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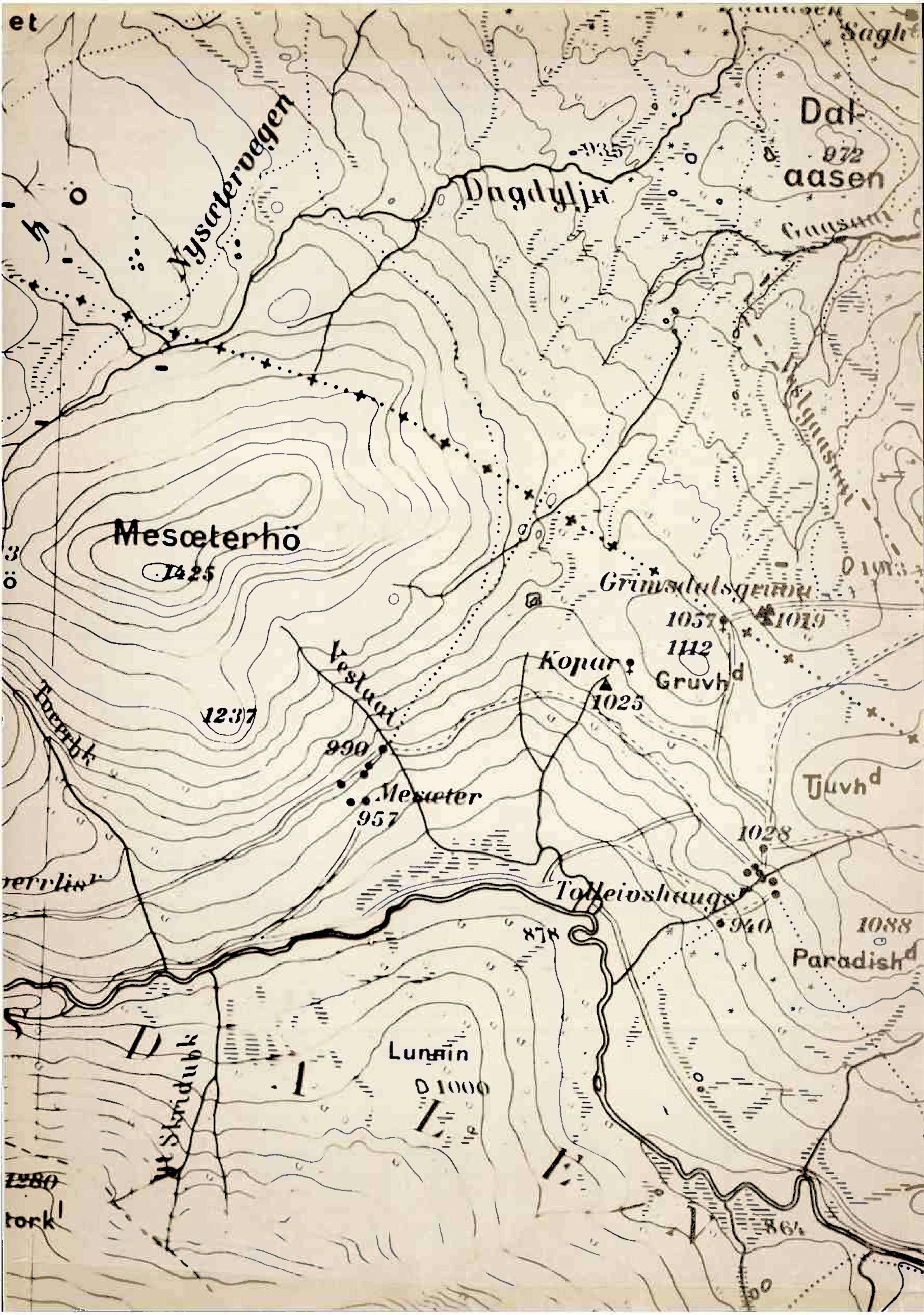
THE BOREHOLE NR. 143., Grimsdalsgruva



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THE BOREHOLE nr. 143 , Grimsdalsgruva

The petrografical description.

0,00 - 21,00 The sericitic,chloritic quartzy micaschist,locally with some small scales of biotite too (deferificated mostly) and scarcely with the little acicular porphyroblasts of aktinolite. The quartz creat some schliers and pellets and little intercalations,irregular mostly. The some little spots of carbonates are present scarce,but locally are present the thin positions or little intercalations with the little bit strongly impregnation of the graphitic micro-substance (the maximally thickness 2-3cm only),in example at 8,70m round. The total structure of this rock is parallel phacoidal schistose and thin banded schistose. The total colour of this rock is gray. The average gradient of this foliation is 40° - 45° about.

21,00 - 38,60 The cloritic and biotitic quartzy mica schist,locally more calcarcose. The quartz creat some schliers,pellets and the carbonates creat the spots and pellets. Locally is present some very poor and weak impragnation of FeS_2 mostly only. The total structure of this rock is phacoidal,phacoidal schistose and maculose. Locally is this rock strongly folded by the DM,CM and MM amplitude. The total colour of this rock is green-gray or bright green-gray too. The average gradient of the foliation of this rock is 40°-45° about,but locally 25° and 30° round too.

38,60 - 60,80 The motley serie of the chloritic,biotitic and the chloritic,sericitic and little bit biotitic quartzy and locally more strongly calcarcose mica schist. The carbonates (dolomite,ankerite or magnesite too locally) creat a lot of spots,pallets and idiomorf. or hypidiomorf. small grains (the average size 0,5-1mm,maximally 2mm). The quartz creates some schliers and pellets mostly. The biotite is mostly little bit or more deferificated. Scarcely are present some hypidiomorfic and more xenomorfic little grains or very poor and weak impregnation of FeS_2 mostly only. The total structure of this rock is maculose or phacoidal too,but with little bit clear schistosity too. The total colour of this rock is gray,green-gray and bright green-gray too. The average gradient of this foliation is 55° - 60° about,but locally only 40° round too.

60,80 - 75,20 The strongly calcarcose,chloritic and little bit biotitic (deferificated oftenly) and sericitic too mica schist,scarce with some little acicular or rodlike porphyroblasts of aktinolite or hornblende(?). The carbonates creat a lot of spots or idiomorfic and hypidiomorfic grains (dolomite,magnesite and more ankerite). Scarce are present some little scales or hypidiomorfic and more xenomorfic grains of FeS_2. The total structure of this rock is maculose and phacoidal,but with little bit clear the total schistosity. The total colour of this rock is green-gray or bright green-gray too. The average gradient of this foliation is 60° - 65° round.

75,20 - 83,40 The strongly quartzy chloritic and little bit sericitic mica schist, with not much little scales of biotite (deferificated) and locally with some small spots,schliers or pellets of carbonates and quartz too. The some sulphides impregnation isn't present mostly. The total structure of this rock is phacoidal schistose mostly. The total colour of this rock is bright green-gray. The average gradient of this foliation is 60° - 65° round.
Between 76,00 - 76,40m and bwtween 77,10 - 77,30m are present some positions of the white quartz without some mineralisation of the sulphidic minerales.

83,40 - 95,90 The chloritic and biotitic keratophyre rock,with the quartzy-feldspar basement matter and with some spots,schliers or pellets of quartz or carbonates too (ankerite,dolomite). The total structure is phacoidal and irregular too. The total colour of this rock is very bright gray or white gray. The schistosity isn't so clear everywhere,but the total foliation is 60°- 70°round.

95,90 - 98,35 The fewly chloritic and sericitic keratophyre,locally with some irregular intercalations of the chloritic,sericitic and little bit biotitic schist and locally only with some schliers of quartz too. Some very weak impregnation of FeS_2mostly only creat some thin schliers,which are very thin only and irregular mostly and which are present locally only. The total average foliation is 60°- 70°about. The total colour is white gray and the total average structure is banded and locally only phacoidal too.

98,35 - 110,10 The strongly quartzy chloritic and sericitic schist,with a lot of schliers and pellets of quartz and locally with poor and weak impregnation of FeS_2mostly only. The total average structure is phacoidal mostly,but the total schistosity is little bit clear too. The total colour of this rock is bright green-gray or bright gray. The average gradient of this foliation is 70°round. Between 108,10 -108,40m is present the position of white quartz.

110,10 - 121,90 The motley serie of the tiny-grained,chloritic amphibolitic greenstone and with some thin intercalations of the chloritic,amphibolitic greenschist. In both of them are present the little acicular porphyroblasts of aktinolite. In this types of rock are present a lot of little intercalatios,little schliers and pellets of quartz,more scarce some little spots or little pellets of some carbonates too. These both types of rocks are locally folded by the flat or more dip folds of the DM,CM and MM amplitude. The total structure of this rock is thin banded schistose mostly. The total colour of both types of these rocks is dark green or dark green-gray. Very scarce only is present some very poor and weak impregnation of FeS_2 mostly (some little scales or hypidiomorfic little grains). The average gradient of this foliation is 60°-65°round.

121,90 - 122,40 The strongly quartzy keratophyre rock(metaquartzite),with not much chlorite and with a lot of little rodlike or acicular prphyroblasts of hornblende. Locally is present some very poor impregnation of FeS_2mostly only. The total structure is porphyroblastic mostly. The some grain clongation isn't so clear. The total colour of this rock is bright gray or very bright green-gray too. Locally are present some schliers or pellets of quartz.

122,40 -124,80 The motley serie of the chloritic,tiny or tender-grained amphibolitic greenstone and of the strongly chloritic,amphibolitic greenschists as well as in 110,10 -121,90m,strongly folded too. The average gradient of this foliation is 45°- 55°round.

124,80 - 126,1o The keratophyre with a lot of little acicular and little bit rodlike porphyroblasts of hornblende,with not much chlorite,biotite(deferifikated oftenly) and sericite and locally with some small grains of garnet too. Locally are present some small,mostly idiomorfic grains of $FeO+Fe_2O_3$(in example round 125,20 - 125,70m.Some schliers and pellets of quartz and locally only some pellet or spots of carbonates are present too. The total colour of this rock is very bright gray mostly. The some grain clongation isn't clear enough andthe total structure is porphyroblastic mostly.

126,1o - 140,10 The strongly chloritic and little bit amphibolitic,strongly quartzy greenschist with some infiltration of quartz,quartz-feldspar and carbonatic matter,which creat mostly a lot of little intercalations schliers and pellets,followed the total paralel schistosity of this

rock. Locally is this rock very strongly folded by folds of the DM CM and MM amplitude. Somewhere is present very poor and weak impregnation of FeS_2 mostly but scarcely FeS too. The total structure of this rock the thin banded and parallel-phacoidal schistose too. The total colour of this rock is green-gray or dark green-gray. The average gradient of this schistosity is 60° round.

140,10 - 143,50 The chloritic,amphibolitic greenshist as well as at 126,10 - 140,10m,but with more strongly infiltration of quartz,quartz-feldspar and carbonates matter and strong folded too. The average gradient of this foliation is 65° - 70° about.

143,50 - 144,90 The keratophyre as well as in 124,80 - 126,10m.The average gradient of this not so clear foliation of this rock is 55° round.

144,90 - 146,80 The amphibolitic,zoisite-epidotic and little bit chloritic keratophyre rock with a lot of rodlike and acicular porphyroblasts of hornblende and with much,mostly irregular grains of garnet. The basement matter of this rock is quartz-feldspar mostly,locally with some schliers or pellets of quartz and scarcely with some spots or pellets of carbonates too. The grain-clongation isn't clear and typical structure of this rock is ofitic-porphyroblastic. The some mineralisation of the sulphidic minerales is present scarcely only. The total colour of this rock is bright and very bright green-gray. The average gradient of this foliation,alomed some not clear average grain-clongation is 70° about.

146,80 - 160,20 The motley serie of the strongly chloritic and amphibolitic, locally more quartzy too greenschists and of tiny-grained chloritic greenstones,locally infiltrated more by quartz,carbonate or little bit quartz feldspar matter and strngly folded mostly as well as in 110,10 - 121,90m and in 126,10 - 140,10m too. The average gradient of this foliation is 50° about.

160,20 - 162,00 The chloritic,sericitic,strongly calcarcose and little bit quartzy too mica schist,with the total and average phacoidal and phacoidal schistose structure,locally with maculose structure too. The carbonates creat mostly spots os pellets,but locally some small idiomorfic or hypidiomorfic grains too. Mostly is preseny some poor and weak impregnation of FeS_2 mostly. The total colour of this rock is bright green-gray. The average gradient of this foliation is 50° - 55° about.

162,00 - 166,10 The chloritic,sericitic,strongly calcarcose mica schist,little bit quartzy too as well as in 160,20 - 162,00m,but with more strongly impregnation of FeS_2,but this one is very poor and weak in totally too. The average gradient of this foliation is 70° and 75° about.

166,10 - 170,30 The strongly calcarcose,chloritic and biotitic and quartzy mica schist,with the phacoidal,maculose and locally with the phacoidal schistose structure too. The carbonates and quartz too creat a lot of schliers,pellets,spots or lenticles,irregular mostly. The some por and weak impregnation of FeS_2 mostly, but of FeS scarcely locally too, is clear in this rock. The total colour of this rock is green-gray and bright green-gay. The average gradient of this foliation is 50° round.

170,30 - 205,10 The strongly chloritic,little bit calcarcose,quartzy greenschist,with some intercalations of the strongly chloritic, biotitic,quartzy mica schist,little bit calcarcose too. This rock has phacoidal paralel schistose or thin banded schistose structure. Locally is this rock also strongly folded,by the folds of the DM,CM and MM amplitude. Scarce are present some

the scales of FeS_2 mostly, but wiyh FeS too. The total colour of this rock is bright green-gray or green-gray. The average gradient of this foliation is 70° - 75° round.

205,10 - 209,45 The strongly chloritic, quartzy mica schist, with biotite and with some small grains of the garnet. The scales of biotite are mostly acumulated in some little schliers, the quartz creat a lot of schliers and pellets. The some little acicular or rodlike porphyroblasts or aktinolite porphyroblasts are presentscarcely too mostly with the very clear grain clongation. The total structure of this rock is phacoidal schistose mostly. The total colour of this is green-gray. The average gradient of this foliation is 60° - 70° round, but mostly is this rock strongly folded by the folds of the DM, CM and MM amplitude. Some mineralisation of the sulphides minerales is very scarce only.

209,45 - 213,60 The sericitic and little bit chloritic keratophyre, locally more quartzy - metaquartzite, with chlorite, sericite and with very poor and weak impregnation of FeS_2 mostly. The structure of both types of these rocks is thin banded and locally phacoidal paralell schistose. The total colour of these rocks is very bright gray and little bit bright green-gray too. The average gradient of this foliation is 65° about mostly.

213,60 - 248,00 The strongly chloritic, little bit quartzy and locally little bit calcarcose phylitic mica schist, locally with some small spots of carbonates, locally more with the little veins or schliers of quartz, mostly parallel with the total foliation and with very poor and weak impregnation of the allotriomorfic grains of $FeO+Fe_2O_3$ and of the hypidiomorfic, scarcely only idiomorfic grains or scales of FeS_2 and scarce with some little scales of FeS too. The total structure of this rock is parallel phacoidal schistose and thin banded too, more strongly folded by the folds of the DM, CM, and MM amplitude. The average total colour of this rock is dark green-gray and green-gray. The average gradient of this schistosity is 50° - 55° and 60° round.

248,00 - 249,50 The strongly chloritic, little bit quartzy phyllitic mica schist as well as in 213,60 - 248,00m, but strongly calcarcose, with a lot of spots or pellets of carbonates and locally with some small scales of biotite. The average gradient of this foliation is 60° about.

249,50 - 276,75 The strongly chloritic and little bit calcarcose phyllitic mica schit, little bit quartzy too, with some little schliers and little pellets of quartz and with some spots and pellets of carbonates. Scarcelly are present some very little acicular or rodlike porphyroblasts of hornblende and aktinolite. Some mineralisation of FeS_2 mostly is present scarce only (hypidiomorfic, scarcely auto morfic grains or little scales). The total, average structure of this rock is phacoidal parallel schistose locally and thin banded and parallel schistose. The total colour of this rock is bright and very bright green-gray. This average gradient of this foliation is 55° - 60° about.

276,75 - 297,60 The strongly chloritic, quartzy, little bit sericitic phyllitic schist, with the phacoidal parallel schistose structure and with phacoidal structure and locally with some thin irregular intercalations of the grphitic, chloritic quartzy phyllitic schists, which have oftenly some very poor and weak impregnation of the little scales of FeS mostly and scarcely FeS_2 too. Locally are present some schliers, pellets and little, mostly irregular intercalations of quartz and scarcely with some spots or pellets of some carbonates too. Locally only is this rock mostly flat folded. The total

(the graphitic intercalations are present in 288,30 - 288,70m, in 289,30 -289,50m and in 290,10 - 290,55m round).
colour of this rock is green-gray and dark green-gray. The average gradient of this foliation is 50° - 55° and locally 70° round.

297,60 - 301,10 The strongly chloritic and little bit sericitic,quartzy phyllitic mica schit as wellas in 249,50 - 276,75m. The average gradient of this foliation is 60° about.

3o1,10 - 304,00 The strongly chloritic,quartzy,little bit sericitic,phyllitic schist,with a lot of mostly irregular thin intercalations of the chloritic,graphitic phyllitic schists as well as in 276,75 - - 297,60m. The average gradient of this foliation is 70° - 75° round. The graphitic intercalations are present in 302,o0m and 303,60m round.

304,00 - 309,40 The strongly chloritic,quartzy and locally little bit calcarcose(dolomite,magnesite ?) phyllitic schists,locally and scarcelly with some small scales of FeS mostly on the foliations plates. The total average structure of this rock is parallel phacoidal schistose and thin banded too. The total colour of this rock is green-gray and dark green-gray. The average gradient of this foliation is 75° - 80° about.

309,40 - 313,60 The chloritic and biotitic and scarcely sericitic keratophyre rock,locally more quartzy with a lot of mostly irregular grains of the garnet,scarcely with very little acicular porphyroblasts of hornblende. Some impregnation of the sulphides isn't present mostly. This rock has mostly the parallel phacoidal schistose structure. The total colour of this rock is bright and very bright green-gray. The average gradient of this foliation is 70° round.

313,60 - 345,5o The strongly chloritic and biotitic garnet mica schist,vry strongly folded by the very detail folds of the CM and MM amplitude. Very scarcely are present some very little acicular porphyroblasts of the hornblende. Some sulphidic mineralisation isn't present mostly. The total structure of this rock is parallel schistose and locally parallel phacoidal schistose too. The total colour of this rock is mostly dark green-gray and green-gray. The average gradient of thi foliation is 70° about.

345,50 - 381,10 The strongly chloritic and little bit amphibolitic,strongly quartzy greenschist as well as in 126,10 - 14o,10m. The average gradient of this foliation is 50° - 60° round and mostly mere flat folded by the folts of the DM and CM or MM amplitude. Scarcely are present some spots of some carbonates.The impregnation of FeS_2 mostly and of not much FeS too (the small scales and locally some idiomorfic or hypidiomorfic grins of FeS_2) is more strongly,but in the total very poor and weak only.

381,10 - 383,30 The strongly chloritic,little bit amphibolitic and biotitic, quartzy greenschist with a lot of mostly parallel little veins or little intercalations of quartz,locally with quartz-feldspar matter and locally are present in this rock some spots or little pellets of the carbonates. Some mineralisation of the sulphides isn't present mostly.. The total structure of this rock is thin banded or parallel schistose or parallel phacoidal schistose too locally. The total colour of this rock is green-gray and little bit bright green-gray. The average gradient of this foliation is 55° - 60° round,but all rock is strongly folded.

383,30 - 384,00 The keratophyre with a lot of rodlike and acicular porphyroblasts of hornblede with very clear the total grain clongation,locally with some small grains of the garnet,with not much clorite,sericite and biotite too and locally only with some scales of FeS and FeS_2. The total structure of this rock is porphyroblastic

mostly. The total average colour of this rock is white-gray. The average gradient of this foliation is 50° round (allong grain clongation).

384,00 - 419,10 The motley serie of the chloritic and amphibolitic greenshists, with some thin intercalations of the chloritic tiny-grained amphibolitic greenstones, locally little bit biotitic too. In both of the types of these rocks are present a lot of little veins or little intercalations or schliers of quartz and locally of quartz-feldspar matter and locally are present some spots and pellets of carbonates. The total structure of this rock is paralel schistost and banded, but everywhere very strongly folded by the folds of the DM, CM and MM amplitude. Some sulphidic mineralisation is present very scarcely only. The total colour of this rock is green-gray. The average gradient of this foliation is 60° round.

419,1o - 426,15 The strongly chloritic, quartzy mica schist, scarcely with some scales of biotite (deferificated locally) and with a lot of very little veins or intercalations of quartz, fewly with spots or pellets of carbonates. Some mineralisation of the sulphides is present very scarcely only. This rock has thin banded structure or parelel schistose structure too, but very strongly folded. The total colour of this rock is green-gray. The average gradient of this foliation is 60° or 65° about.

426,15 - 48o,20 The strongly chloritic, quartzy mica schist as well as in 419,10 - 426,15m, but with more biotite and locally with more spots or pellets of carbonetes. The average gradient of this foliation is 65° - - 75° about.
Between 454,00 - 454,20m, 460,30 - 460,60m, 473,15 - 473,45m, 477,2o - - 477,50m and between 480,00 - 480,15m is present some positions of barrend quartz (white).

480,20 - 482,30 The amphibolitic and biotitic gnasic schist with a lot of grains of garnet and with strong infiltration of the quartz and quartz--feldspar matter. The chlorite, sericite and zoisit-epidote are present too, but more accesoric. The hornblende creat a lot of acicular and rodlike porphyroblasts, wchich have clear grainclongation. Some sulphidic mineralisation is present very scarcely only. The total structure of this rock is ofitic-porphyroblastic. The total colour of this rock is gray and little bit green-gray. The average gradient of this foliation is 70° - 80° round.

482,30 - 487,60 The keratophyre with very little scales of biotite, with very little acicular porphyroblasts of hornblende and with a lot of little grains of the garnet. The sericite and chlorite is present too, but mostly like accesoric minerales. Locally is present some very weak impregnation of the mostly hypidiomorfic grain of $FeO+Fe_2O_3$. The total structure of this rock is granoblastic. The total colour of this rock is very bright or white-gray.

487,60 - 493,70 The amphibolitic and biotitic gnasic schist with a lot of grains of garnet as well as in 480,20 - 482,3om. The average gradient of this foliation is 75° about.

493,70 - 497 80 The keratophyre as well as in 124,80 - 126,10m.

497,80 - 522,60 The strongly chloritic, fewly biotitic and amphibolitic greenschit, locally more quartzy, with a lot of little intercalations of quartz, schliers, which are parallel with the total foliation of this rock and locally with some spots or pellets of the carbonates. This rock has some very poor impregnation of the little irregular grains of $FeO+Fe_2O_3$. The total structure is parallel phacoidal schistose, but this rock is very strongly folded by the folds of the DM, CM and MM amplitude. The total colour of this rock is

green-gray. The average gradient of this foliation is 75°- 80° about.

522,60 - 539,20 The amphibolitic and biotitic gnasic schist,with a lot of grains of the garnet as well as in 480,20 - 482,30m. The average gradient of this foliation is 85° and 80° round.

539,20 - 541,00 The chloritic and little bit sericitic metaquartzite with not much small grains of the garnet,scarcely with the aciculer very little porphyroblasts of hornblende. In this rock are present more few the biotite and sericite and some very weak and poor impregnation of FeS_2 and little bit of FeS too(mostly little scales or allotriomorfic grains). Locally are present some little intercalations or schliers of quartz. The total structure of this rock is granoblastic and nematoblastic. The total colour of this rock is gray mostly. The average gradient of this foliation is 80° round.

541,00 - 551,65 The strongly chloritic,locally only more quartzy,garnet-mica schist,with some little acicular and rodlike porphyroblasts of hornblende and scarcely of aktinolite too.The garnet creat in this rock a lot of small,mostly irregular grains and some slices or scales of biotite are present too. A lot of irregular intercalations and schliers are created by quartz. The total structure of this rock is phacoidal schistose mostly and locally is this rock very strongly folded by the folds of the DM,CM and MM amplitude. Locally only and very scarce is present some very poor and weak impregnation of FeS_2 mostly,but FeS is present too. The total colour of this rock is green-gray and little bit more dark geen-gray. The average foliation of this rock is 55°- 6o° round.

551,65 - 551,75 The carbonatic,quartzy tectonic breccie(old one),with some irregular inclusions of the strongly chloritic schists and with some schliers and pellets of carbonates(ankerite,dolomite or magnesite). The other bassement matter is created by quartz(white or white--gray barren quartz).

551,75 - 551,80 The strongly chloritic green-mica schist as well as in 419,10 -- 426,15m. The average gradient of this foliation is 70° about.

551,80 - 551,86 The keratophyre as well as in 124,80 - 126,1om.

551,86 - 553,00 The strongly chloritic,quartzy green-mica schist as well as in 419,10 - 426,15m. The average gradient of this foliation is 70° about.

553,00 - 553,50 The amphibolitic,chloritic and scarcely biotitic gnasic mica schist or gnasic schist as well as in 48o,20 - 482,30m,but locally with the more spots or pellets of some carbonates. The average gradient of this foliation is 75°- 80° round.

553,50 - 554,65 The keratophyre as well as in 124,80 - 126,10m and in 383,30 - 384,00m.

554,65 - 555,10 The strongly chloritic,locally more quartzy,garnet mica schist as wellas in 541,00 - 551,65m,but locally little bit infiltrated by quartz and quartz-feldspar matter and locally wits much more spots or pellets of the some carbonates. The average gradient of this foliation is 80°- 85° and locally 75° about.

555,1o - 558,40 The very strong impregnation of FeS_2 mostly in the gray metaquartzite,locally with some small irregular intercalations or schliers or pellets of quartz and with some thin intercalation of the keratophyre(this keratophyre as well as in 383,30 - 384,00m).
The pyrite creat mostly hypidiomorfic grains or allotriomorfic grains in the quartzite bassement matter,with some very irregular allotriomorfic graints,filling of some little joints round or in grains of pyrite of sphalerite and chalkopyrite mostly,scar-

3,80 m

cely of pyrhotine too.(the look in the picture I.on the page 9.). The chemical analyse of this position : Cu = 0,59% , Zn = 1,50% , and S = 40,71% .

558,40 - 558,90 The strongly chloritic quartzy schist,locally mere strong carbonatic(with some small spots and pellets of ankerite,dolomite atc. A lot of the other schliers and pellets are created by quartz. Some very poor and weak impregnation of the some sulphides,mostly FeS_2 is present scarcely only. The total structure of this rock is phacoidal schistose mostly. The total colour of this rock is green-gray or gray-green. The average gradient of t this foliation is 80°-85° about.
Between 558,43 - 558,47m are present some very thin and irregular positions of the white quartz,with some reach impregnation of FeS_2 mostly.
The resultate of the chemical analyse of this rock : Cu = 0,05% , Zn = 0,25% , S = 4,00%.

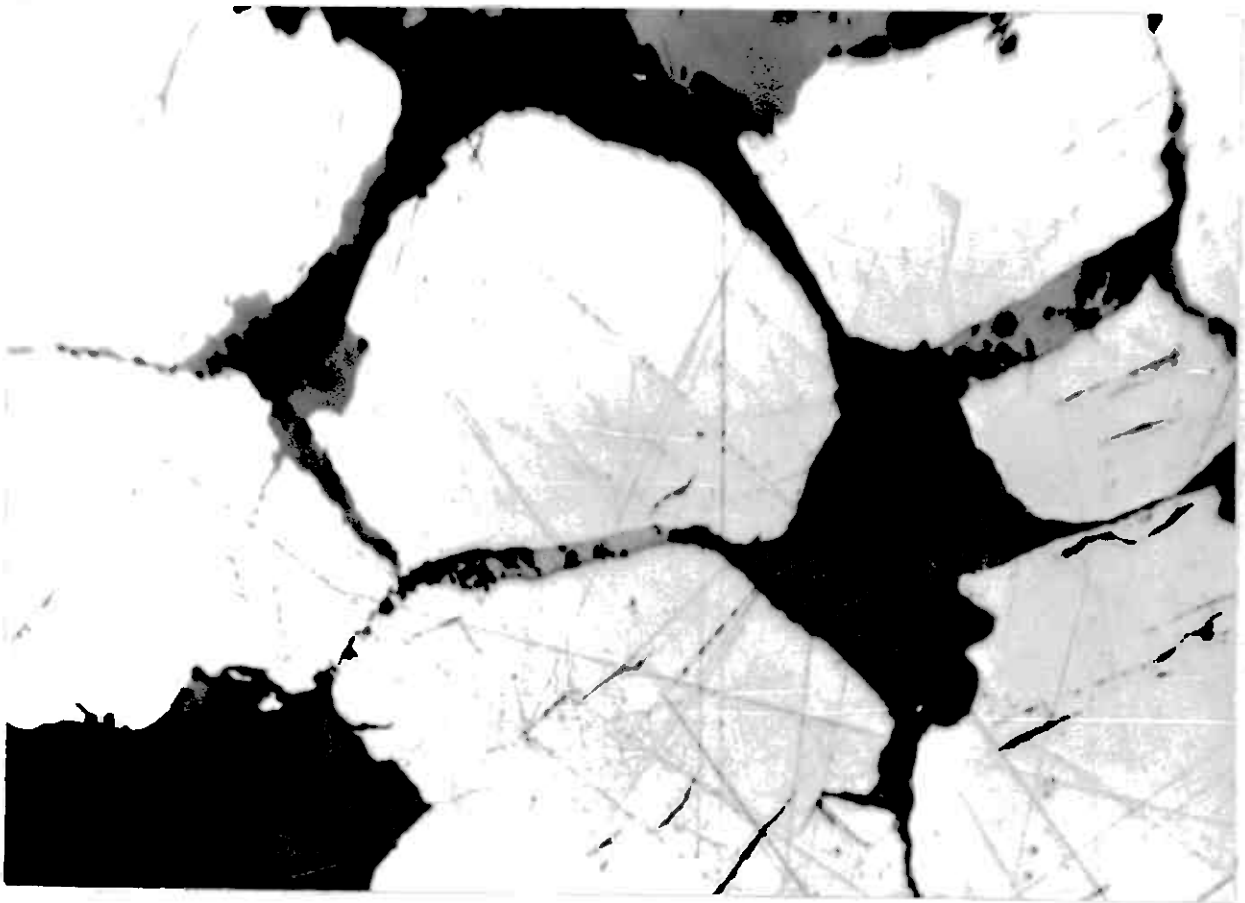
558,90 - 560,38 The very strong impregnation of FeS_2 mostly in the gray metaquartzite. Locally with some small schliers of chlorite and with some rodlike and acicular porphyroblasts of hornblende,mostly between 560,1o - 560,38m. Between 560,26 - 560,28m are present some two irrgular thin positions of $FeO+Fe_2O_3$ (the average thickness is 1 - 2 mm maximally)
1,48 m
The pyrite creat mostly allotriomorfic or locally hypidiomorfic grains in the bassement quartzite matter,round with some little irregular grains or with the filling of some little joints round or in pyritic grains of sphalerite and chalkopyrite and scarcely with pyrhotine too.(the lookon the picture II.on the page 10.). The resultate of the chemical analyse of this ore position : Cu = 1,32% , Zn = 0,40% , S = 41,53%.

560,38 - 560,62 The strongly chloritic,strongly quartzy shist,with some impregnation of FeS_2 mostly,with some small rodlike and acicular porphyroblasts of hornblende and with some thin quartz veins also with some impregnation of FeS_2 mostly. This rock has mostly phacoidal and phacoidal schistose structure. The total colour of this rock is green-gray. The average gradient of this foliation is 80° - 90° about. (Cu = 0,27%, Zn = 0,40% , S = 23,28%).

560,62 - 561,90 The strongly chloritic,locally only more quartzy,garnet mice schist as well as in 541,00 - 551,65m,but with some little bit clear impregnation of FeS_2 mostly. The average gradient of this foliation is 85° about. The chemical's analyse resultat from this rock : Cu= 0,08, Zn = 0,25% , S = 2,00%.

561,90 - 571,80 The strongly chloritic,locally more quartzy,garnet mica schist as well as in 541,00 - 551,65m,but more strongly quartzy and locally wth more clear impregnation of FeS_2,totally poor and very weak only.The average gradient of this foliation is 85° round.

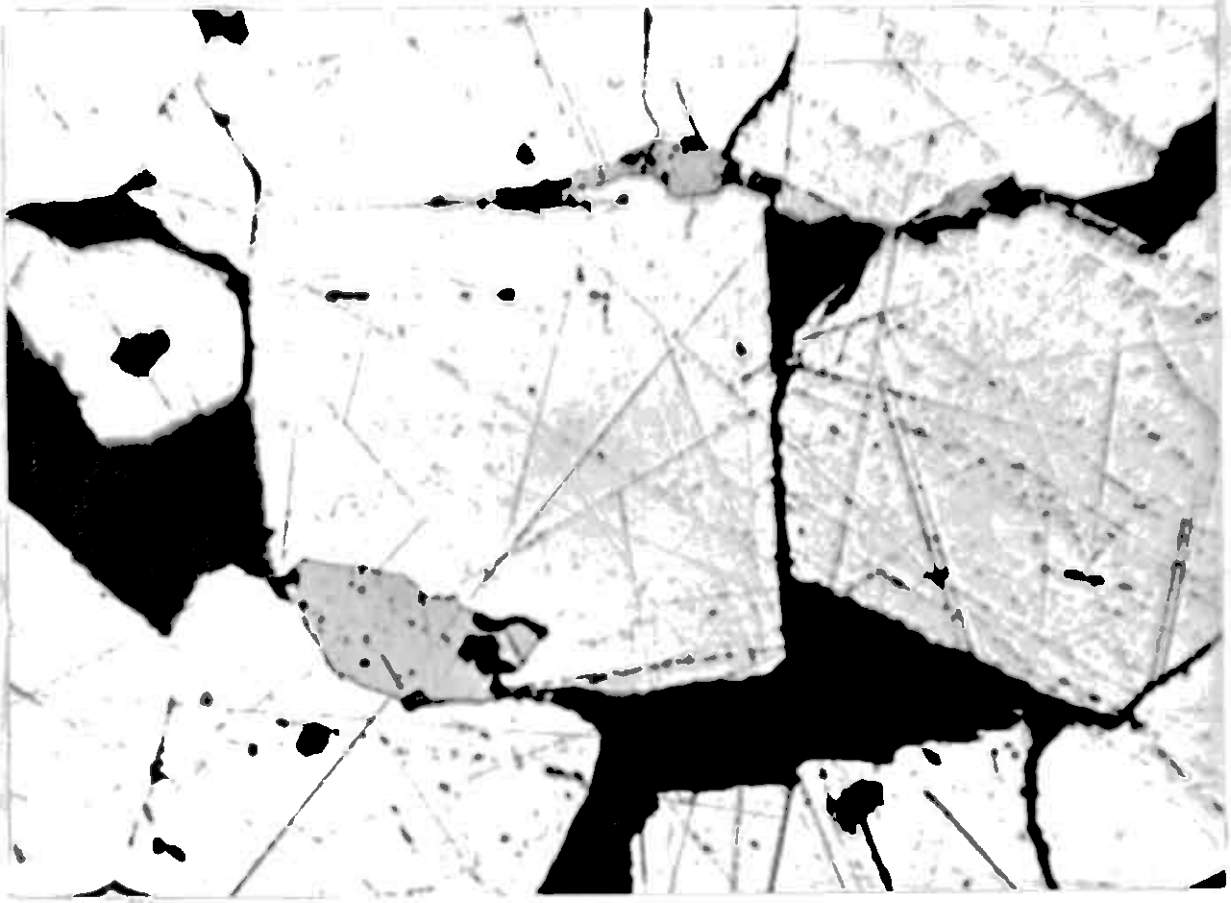
This borehole nr. 143 was finished at 571,80 m.



The photo-picture nr.II.

The detail from the polish section from the ore position from the borehole nr.143.,Grimsdalsgruva from 560,00 m.
The magnification of this picture = 240 : 1

The legende of this picture :
a) the joints in the minerales : the black lines
b) the gaps in the plate of this polish section : : the black spots
c) the quartz : black gray or very dark gray
d) the pyrite : white
e) the sphalerite : little bit more dark gray
f) the chalcopyrite : little bit bright gray

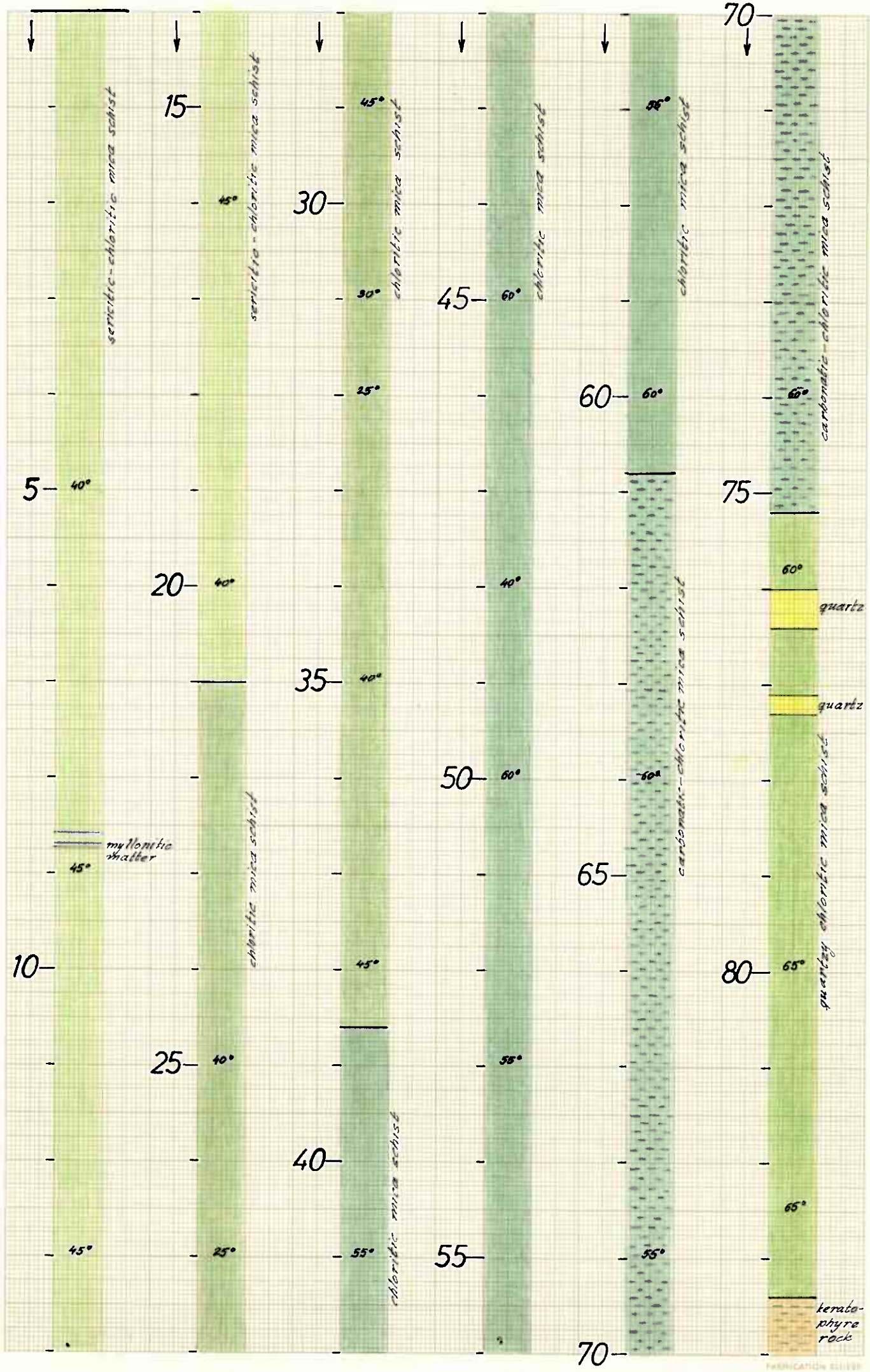


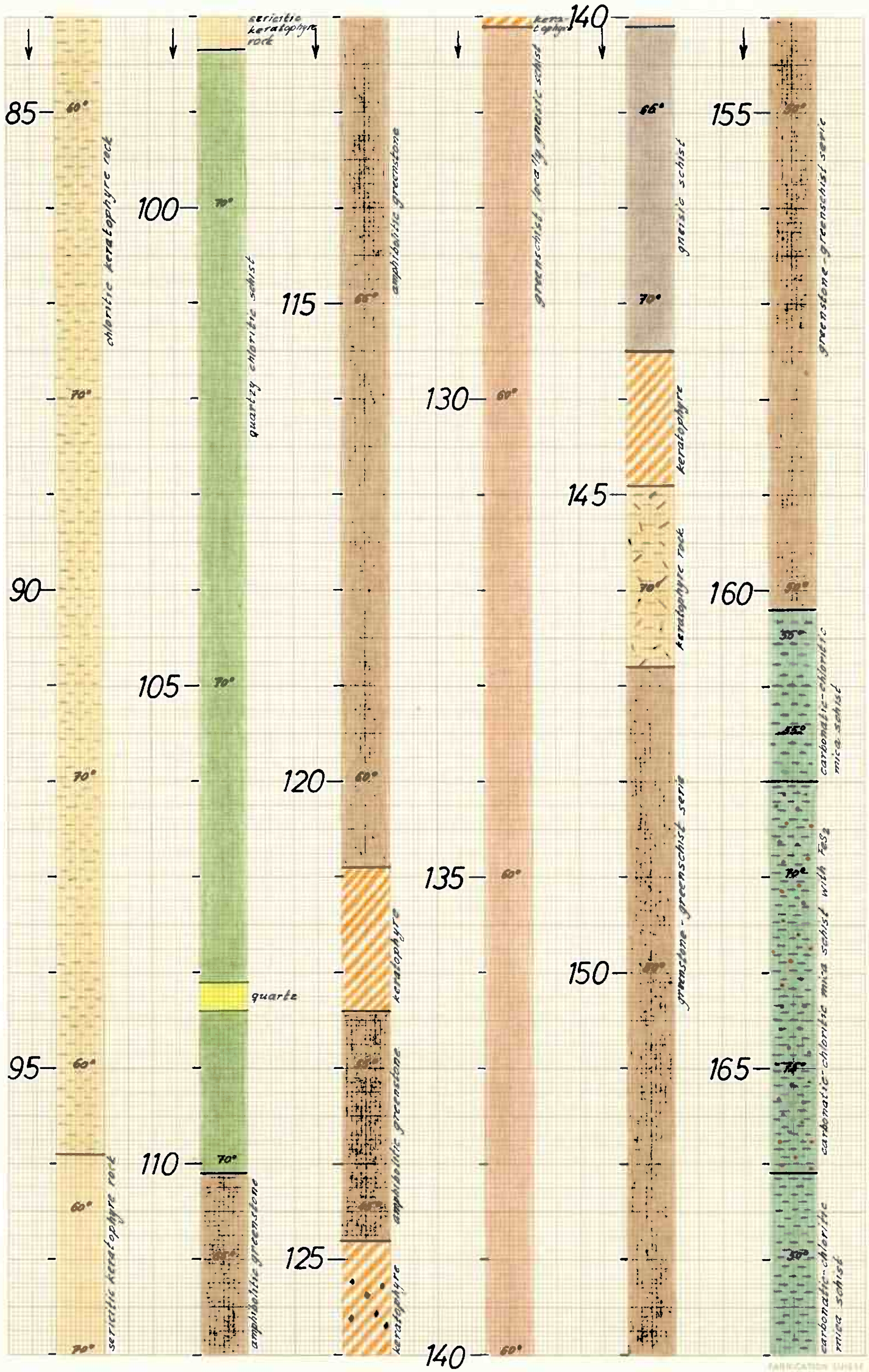
The photo picture nr. I.

The detail from the polish section from the ore position from the borehole nr. 143.,Grimsdalsgruva from 555,50 m.
The magnification of this picture = 240 : 1

The legende of this picture :
a) the joints in the minerales = the black line
b) the gaps in the plate of this polish section = = the black spots
c) the quartz = black gray or dark gray
d) the pyrite = white or little bit gray-white
e) the chalcopyrite = bright gray

The petrografical profile of the borehole nr. 143., Grimsdalsgruva

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90
95
chloritic keratophyre rock
sericitic keratophyre rock
sericitic keratophyre rock
100
105
110
quartzy chloritic schist
quartz
amphibolitic greenstone
115
120
125
amphibolitic greenstone
keratophyre
amphibolitic greenstone
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130
135
140
greenschist locally gneissic schist
140
145
150
gneissic schist
keratophyre
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greenstone-greenschist serie
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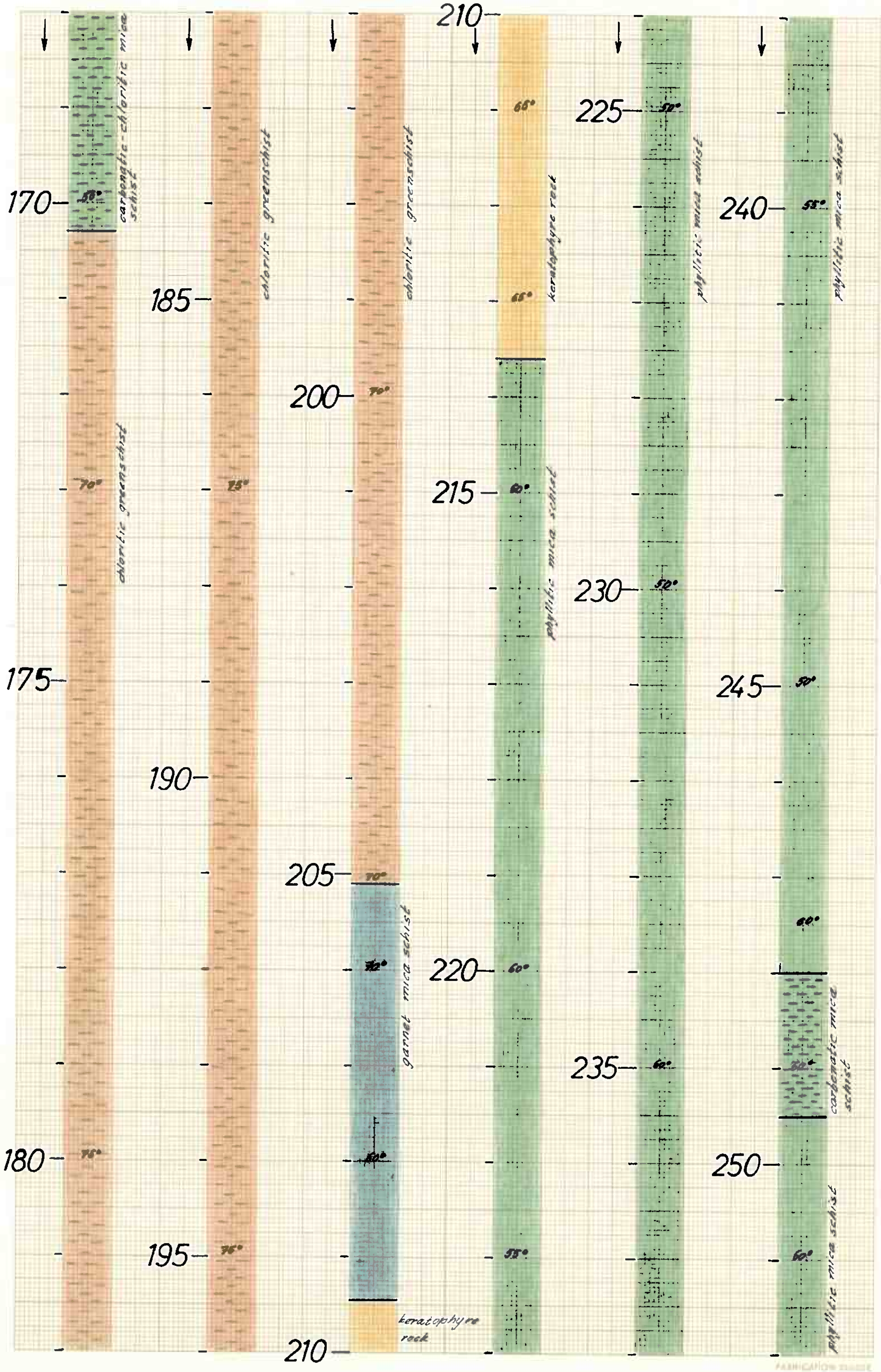
165
greenstone-greenschist serie
carbonatic-chloritic mica-schist
carbonatic-chloritic mica schist with FeS2
carbonatic-chloritic mica schist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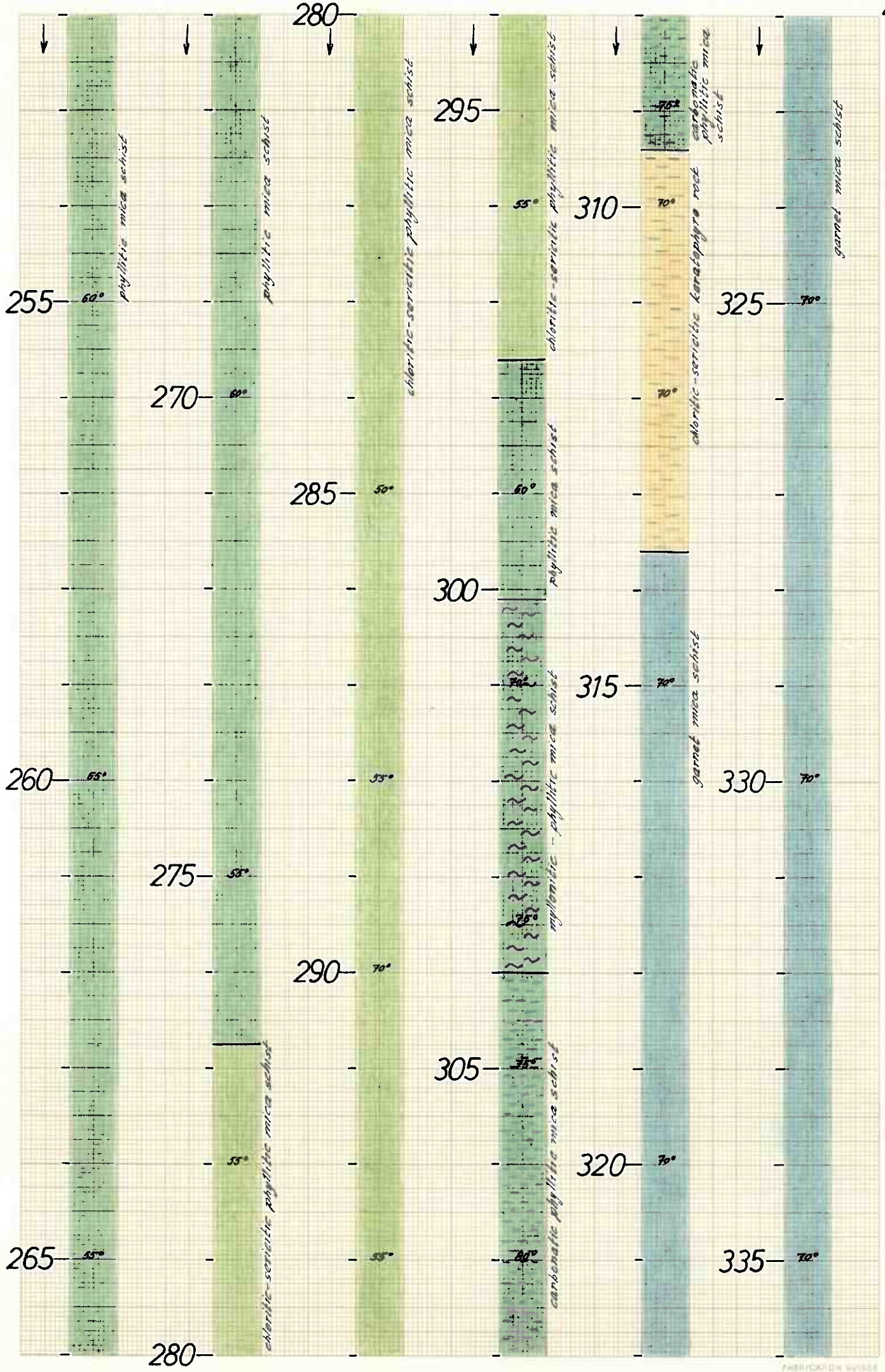
carbonatic-chloritic mica schist
chloritic greenschist
chloritic greenschist
chloritic greenschist
garnet mica schist
keratophyre rock
keratophyre rock
phyllitic mica schist
phyllitic mica schist
phyllitic mica schist
carbonatic mica schist
phyllitic mica schist
70°
75°
65°
60°
55°
50°


280
295
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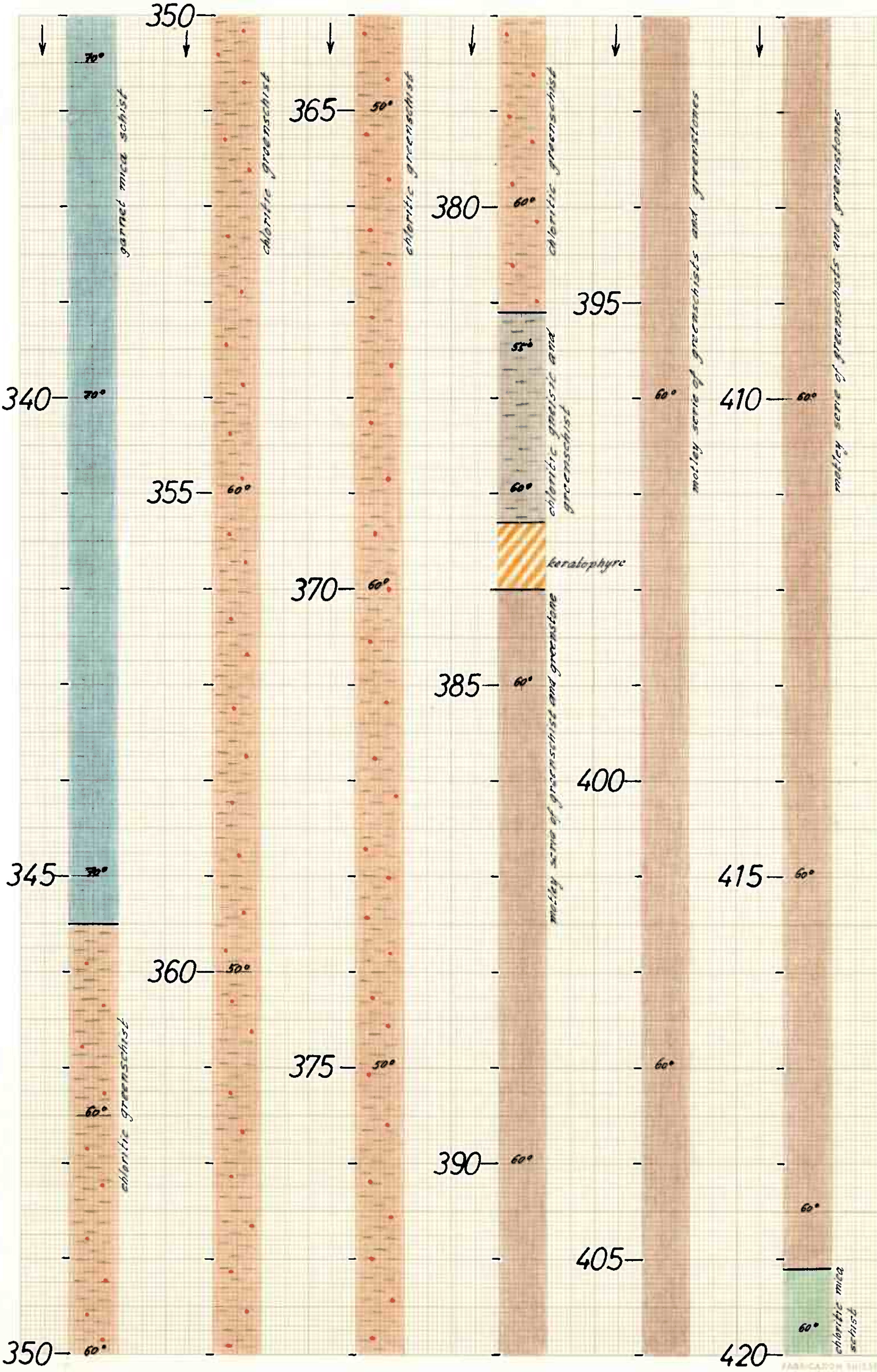
265
280
phyllitic mica schist
chloritic-sericitic phyllitic mica schist
chloritic-sericitic phyllitic mica schist
carbonatic phyllitic mica schist
chloritic-sericitic kenotaphyre rock
garnet mica schist
chloritic-sericitic phyllitic mica schist
amphibolitic - phyllitic mica schist
carbonatic phyllitic mica schist
garnet mica schist



350
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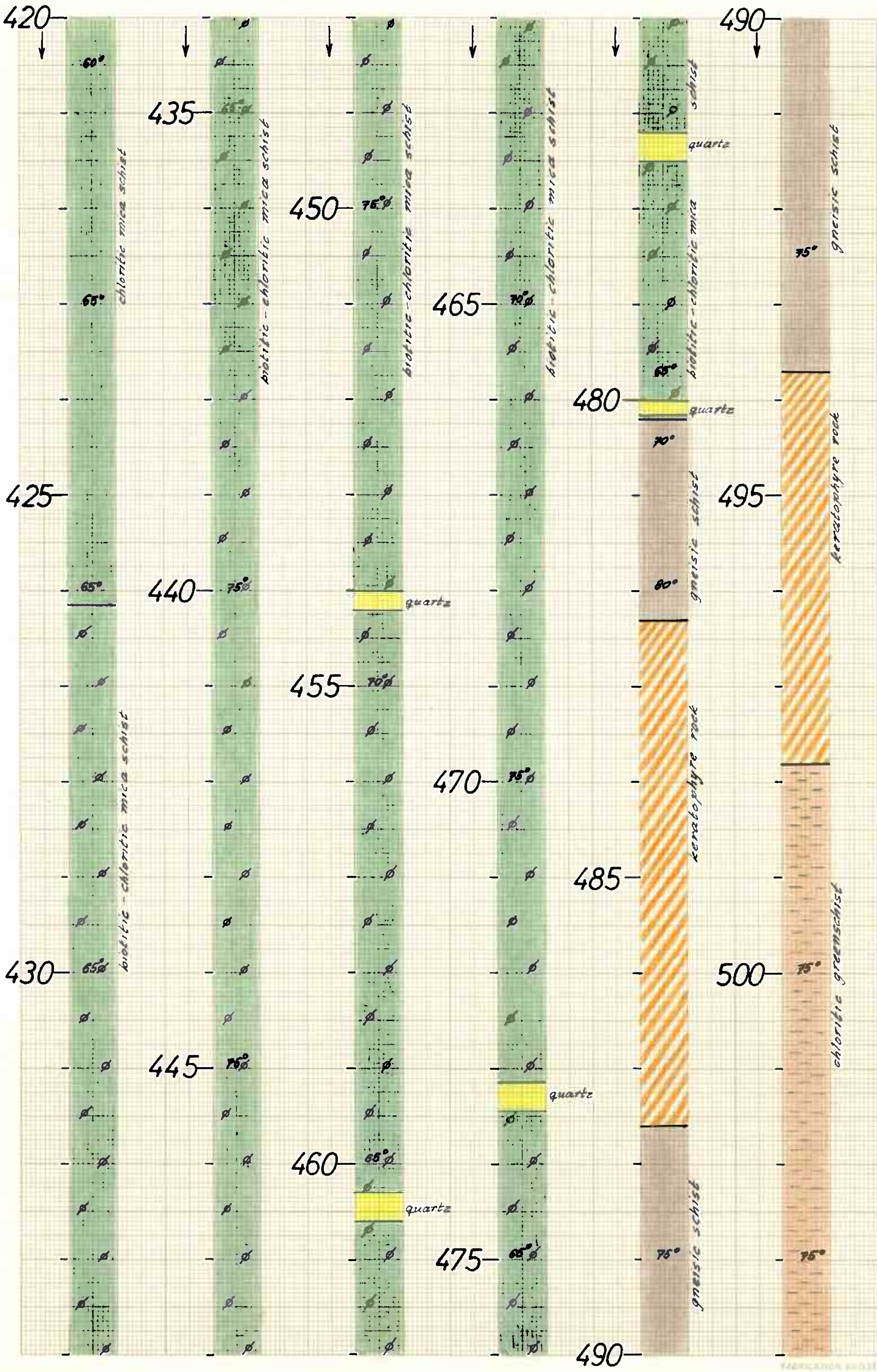
345
garnet mica schist
chloritic greenschist
chloritic greenschist
chloritic greenschist
chloritic greenschist
chloritic gneisic and greenschist
keratophyre
motley serie of greenschists and greenstone
motley serie of greenschists and greenstones
motley serie of greenschists and greenstones
chloritic mica schist
70°
60°
50°


420
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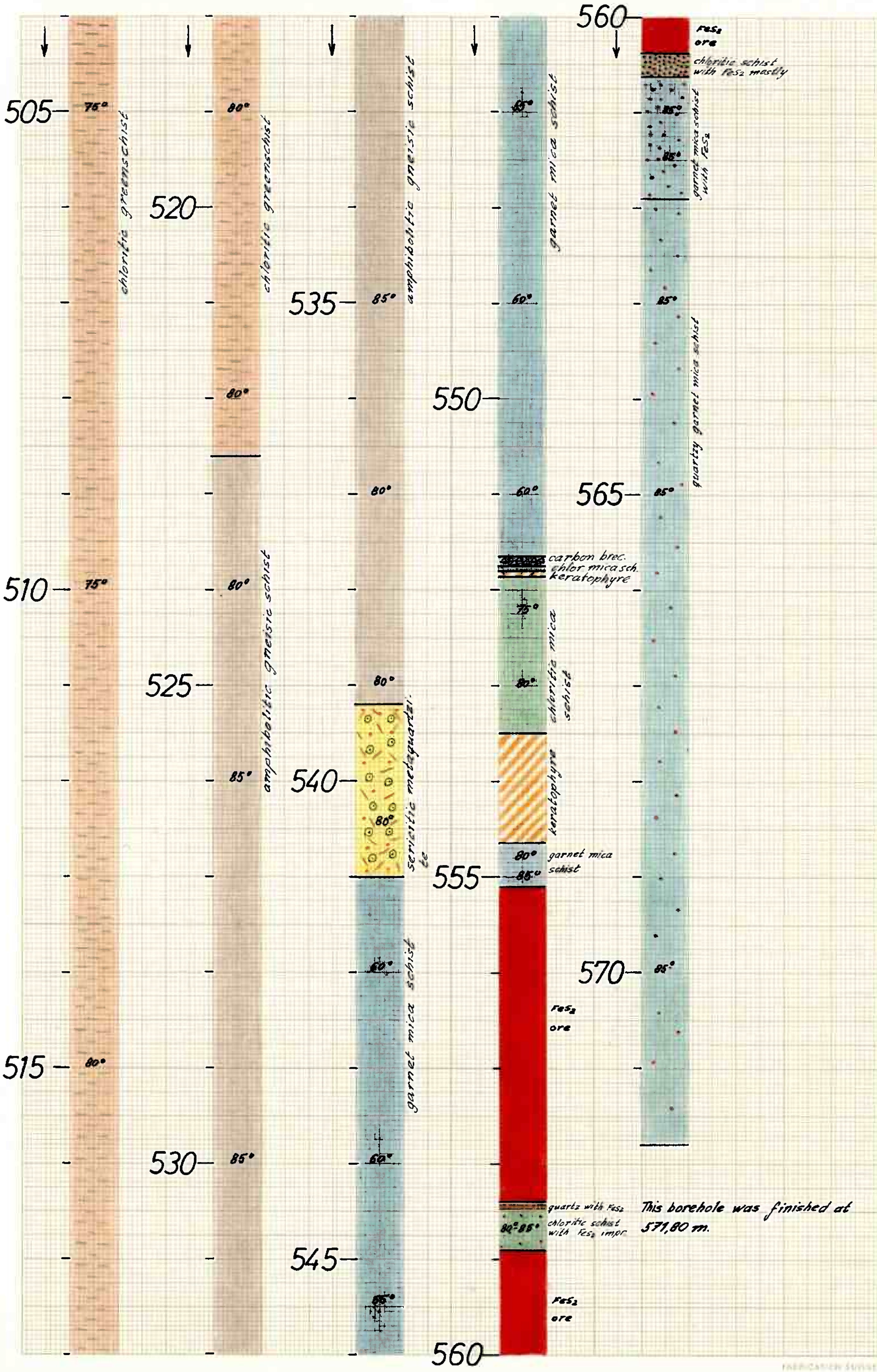
chloritic mica schist
biotitic - chloritic mica schist
biotitic - chloritic mica schist
biotitic - chloritic mica schist
biotitic - chloritic mica schist
biotitic - chloritic mica schist
quartz
quartz
quartz
quartz
quartz
gneisic schist
keratophyre rock
gneisic schist
gneisic schist
keratophyre rock
chloritic greenschist


505
510
515
75°
75°
80°
chloritic greenschist
520
525
530
80°
80°
80°
85°
85°
chloritic greenschist
amphibolitic gneisic schist
535
540
545
85°
80°
80°
80°
60°
60°
85°
amphibolitic gneisic schist
sericitic metaquartzite
garnet mica schist
550
555
560
60°
60°
60°
75°
80°
80°
85°
80°-85°
garnet mica schist
carbon brec.
chlor mica sch.
keratophyre
chloritic mica schist
keratophyre
garnet mica schist
FeS_2 ore
quartz with FeS_2
chloritic schist with FeS_2 impr.
FeS_2 ore
560
565
570
85°
85°
85°
85°
85°
FeS_2 ore
chloritic schist with FeS_2 mostly
garnet mica schist with FeS_2
quartzy garnet mica schist
This borehole was finished at 571,80 m.