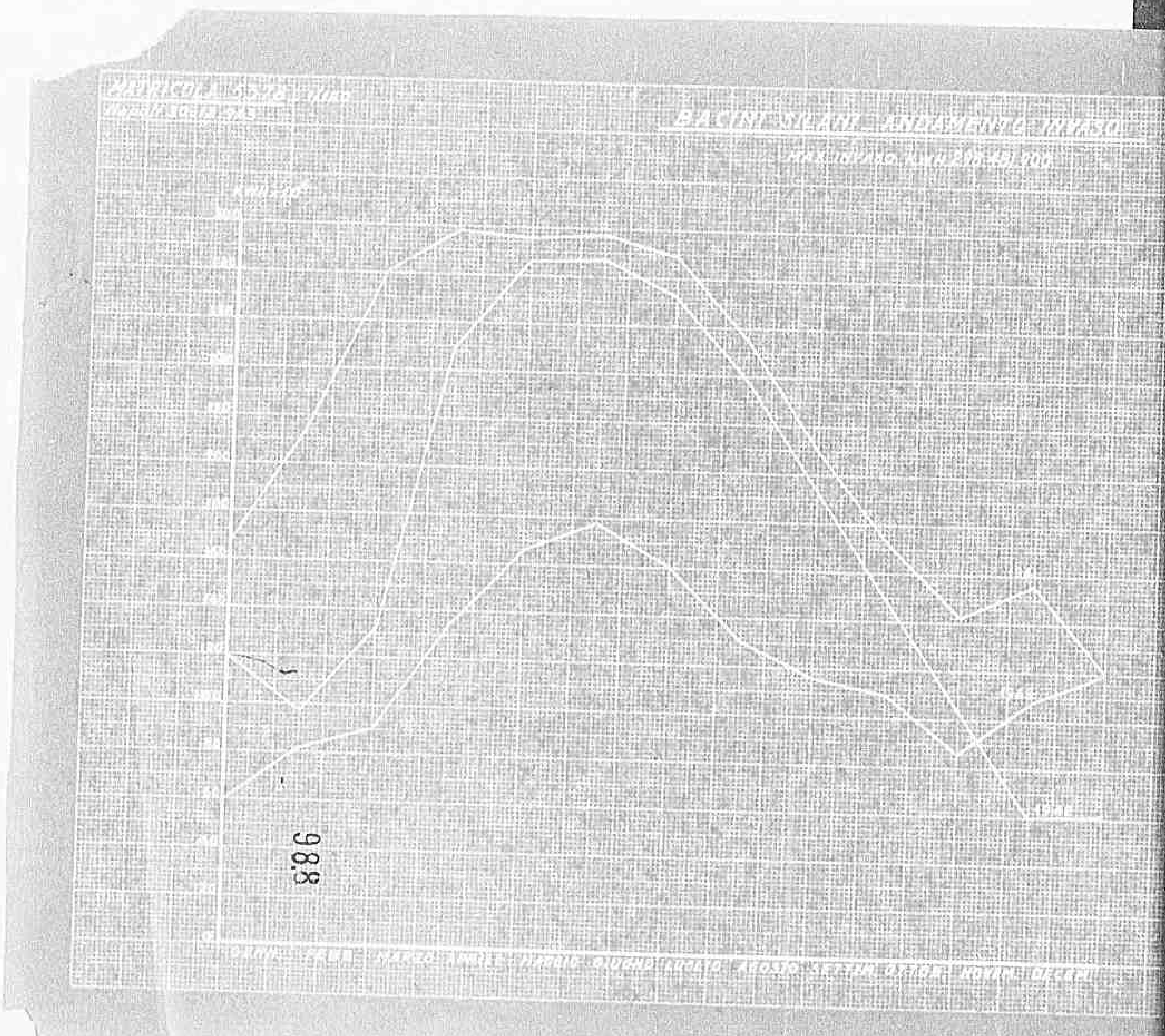
ACC CEB/20/1

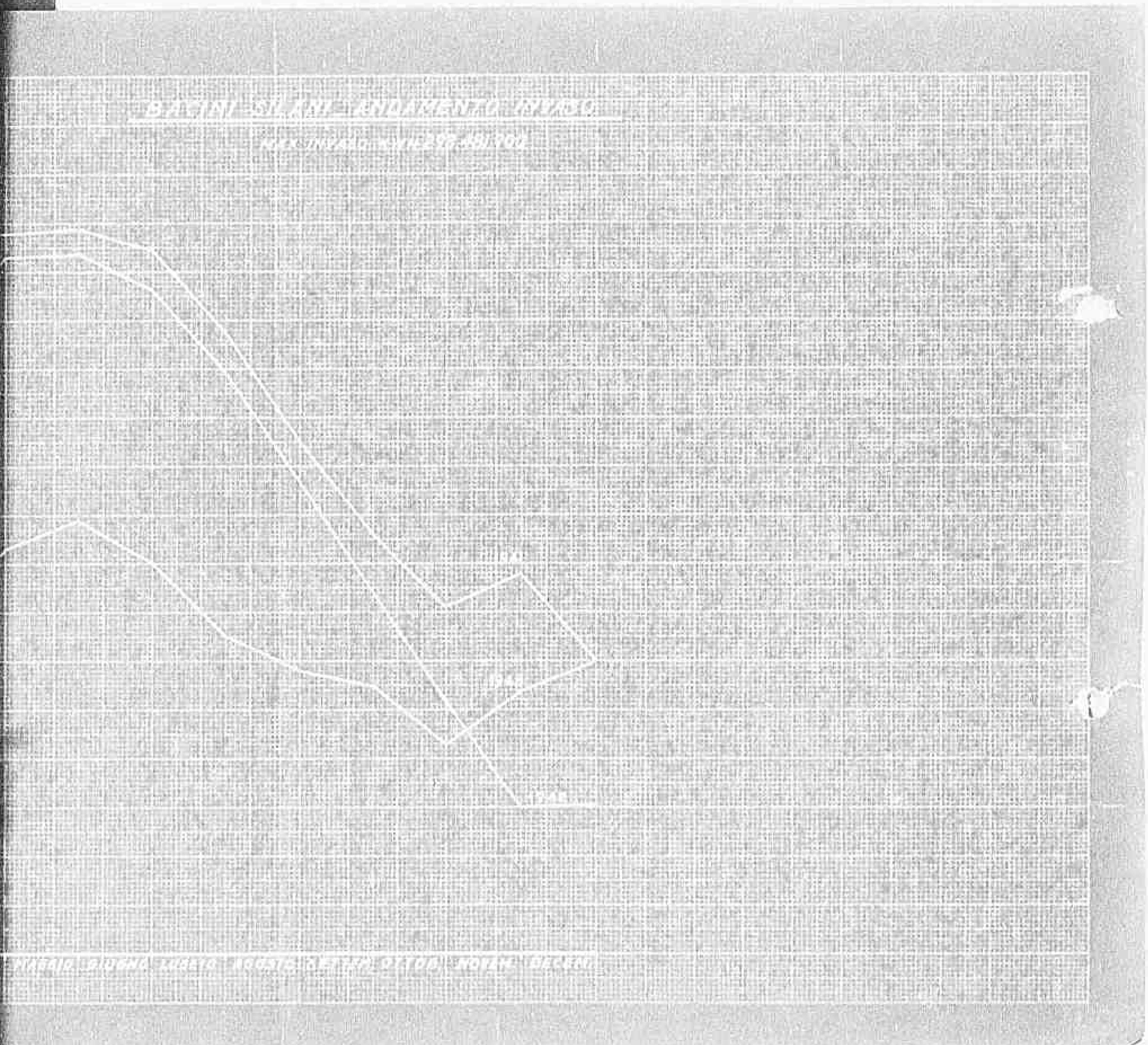
10000/150/735

TECH
DEC.

10000/150/735

TECHNICAL DATA BOOKLETS
DEC. 1943 – MAR. 1944


BACINI SILANI ANDAMENTO INVASO
MAX INVASO KWH
GENN. FEBBR. MARZO APRILE MAGGIO GIUGNO LUGLIO AGOSTO SETTEM. OTTOB. NOVEM. DECEM.


BACINI SILANI - ANDAMENTO INVASO
MAGGIO GIUGNO LUGLIO AGOSTO SETTEM OTTOB NOVEM DECEMB

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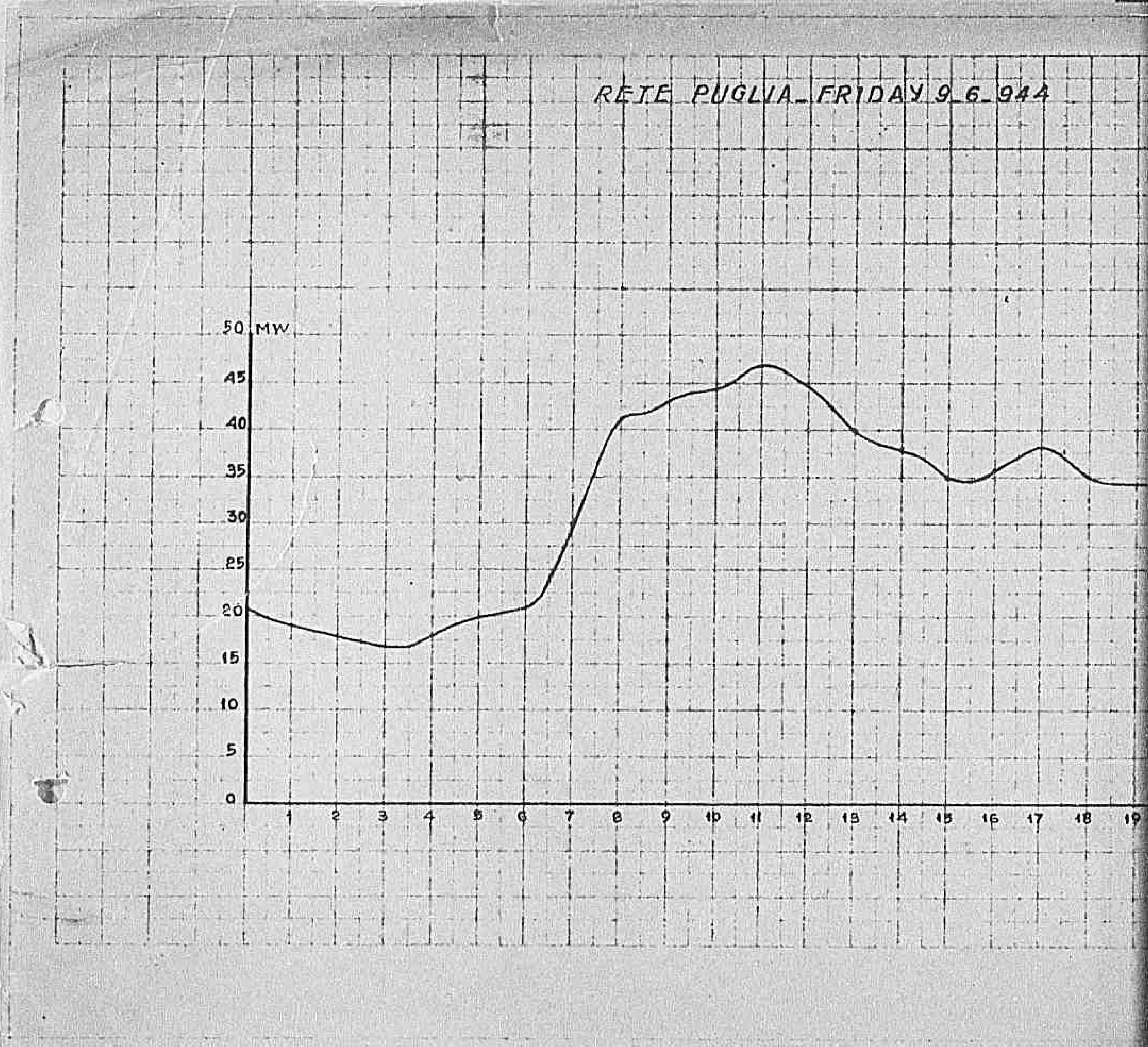
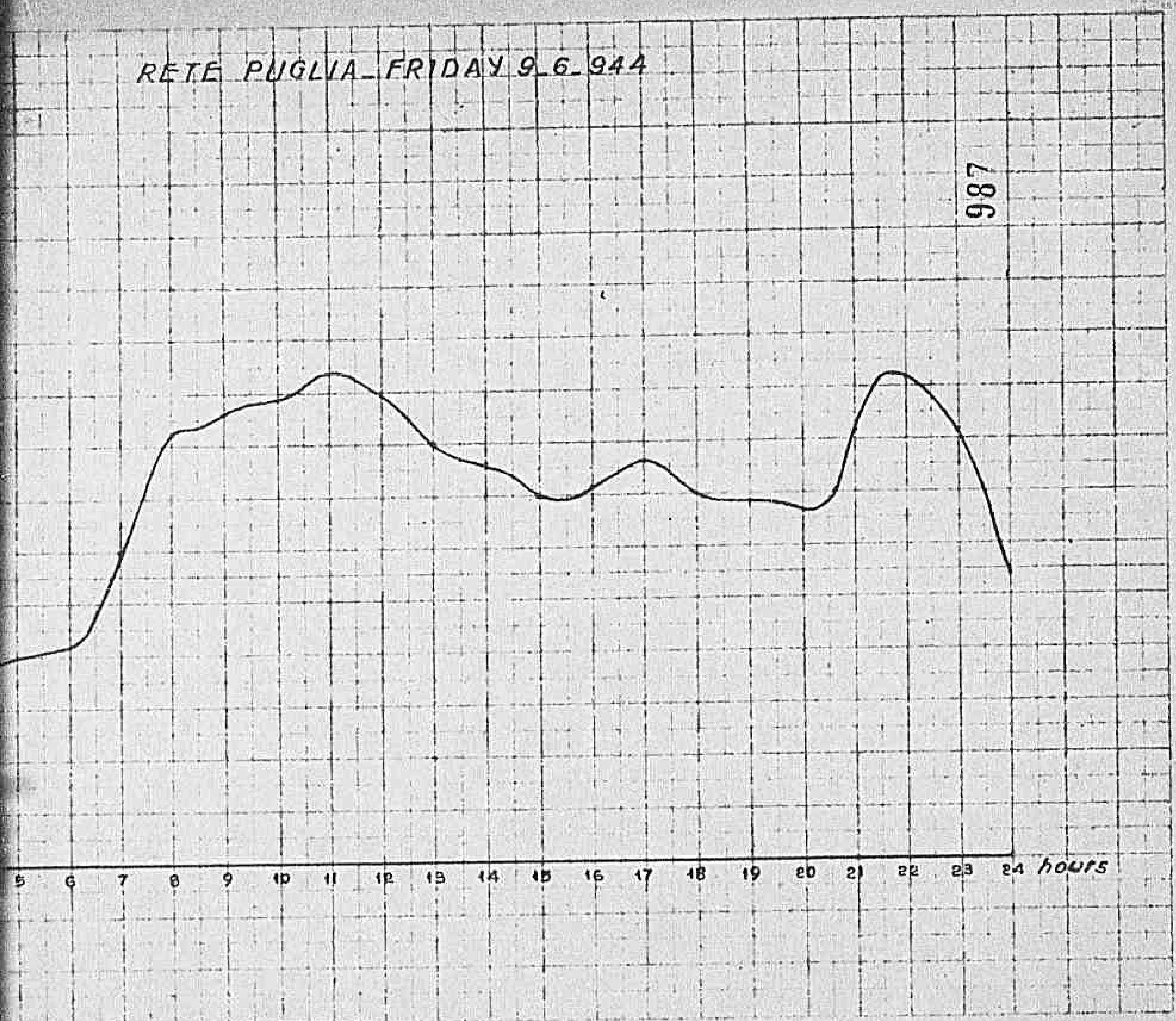
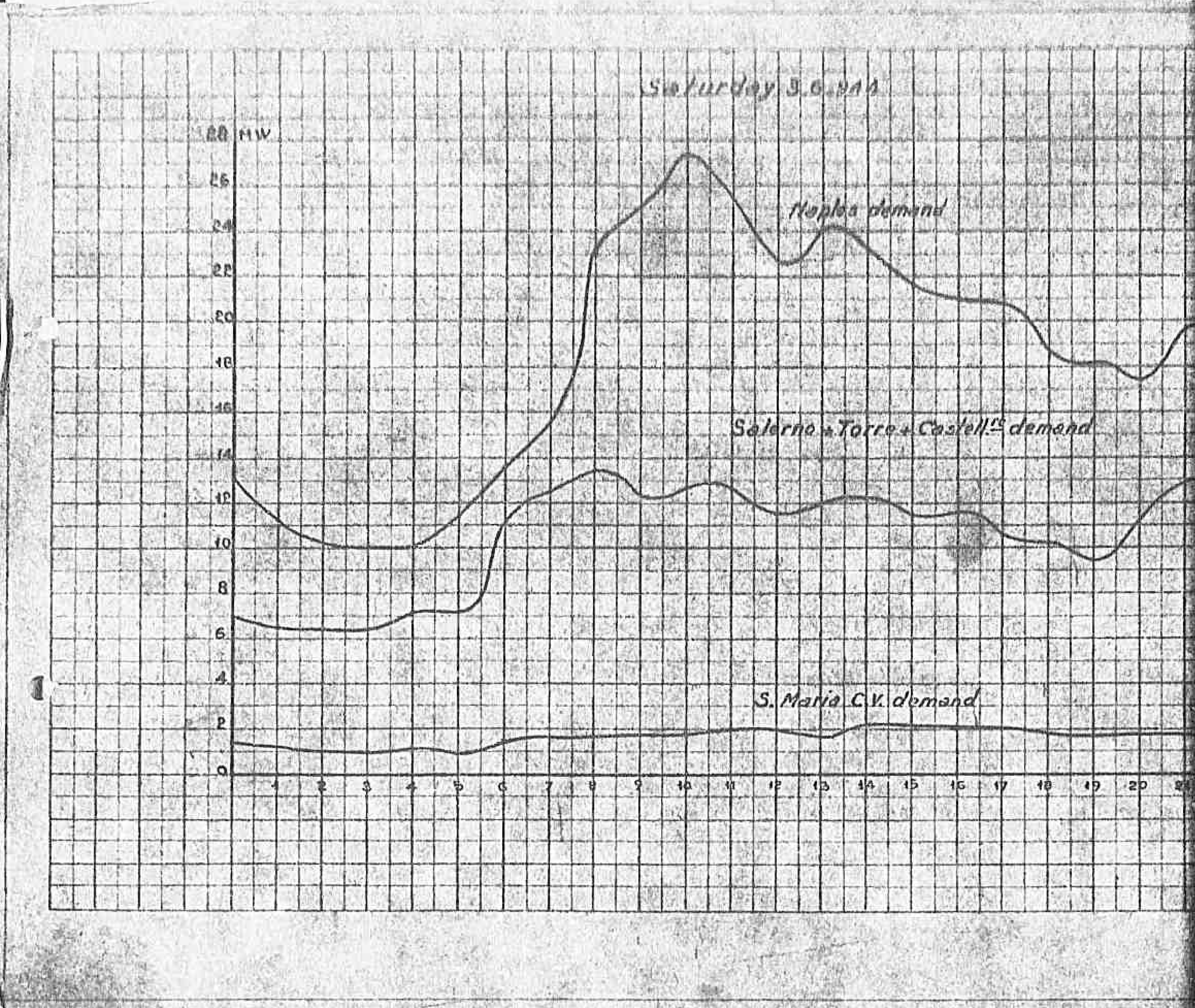
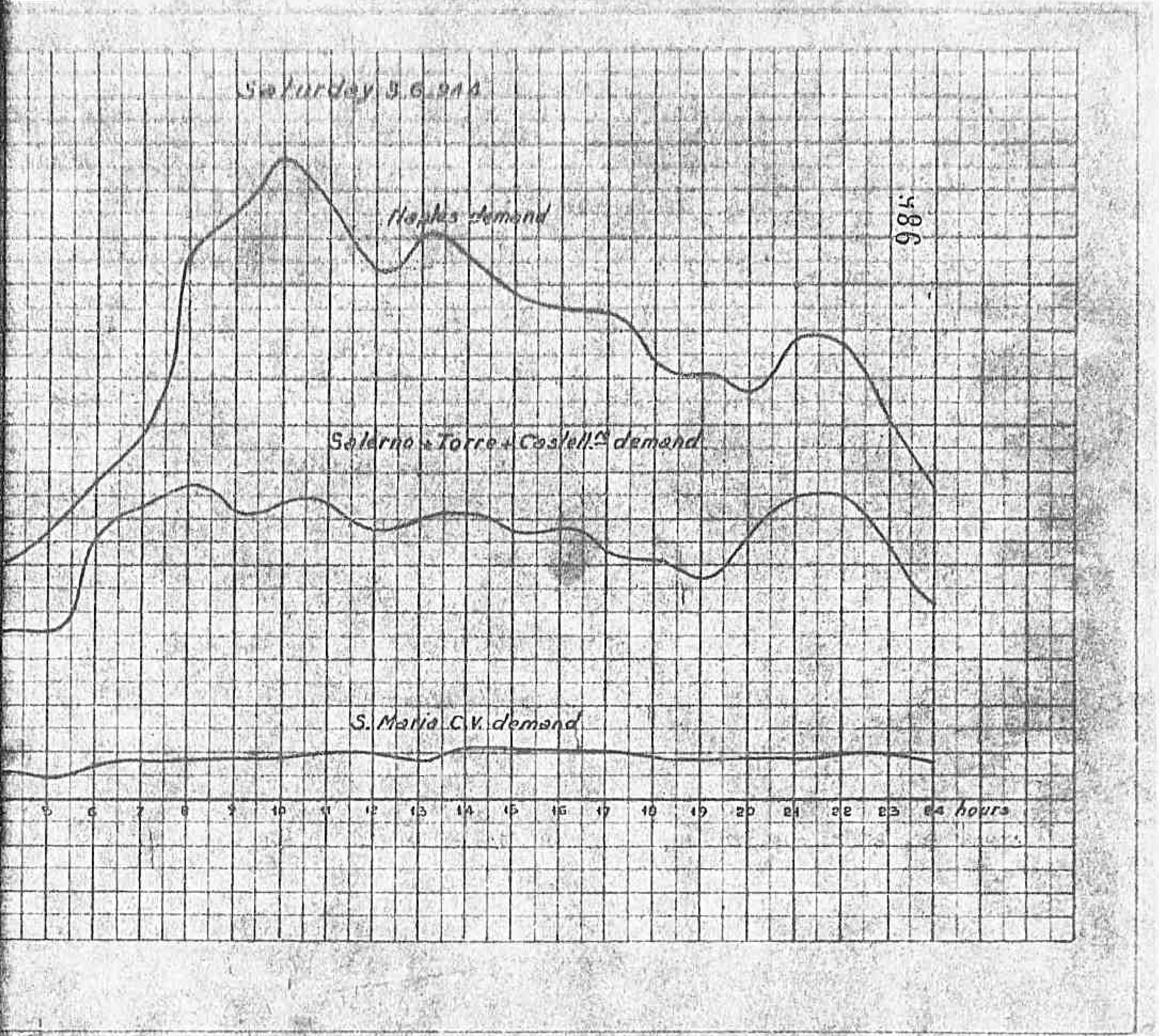


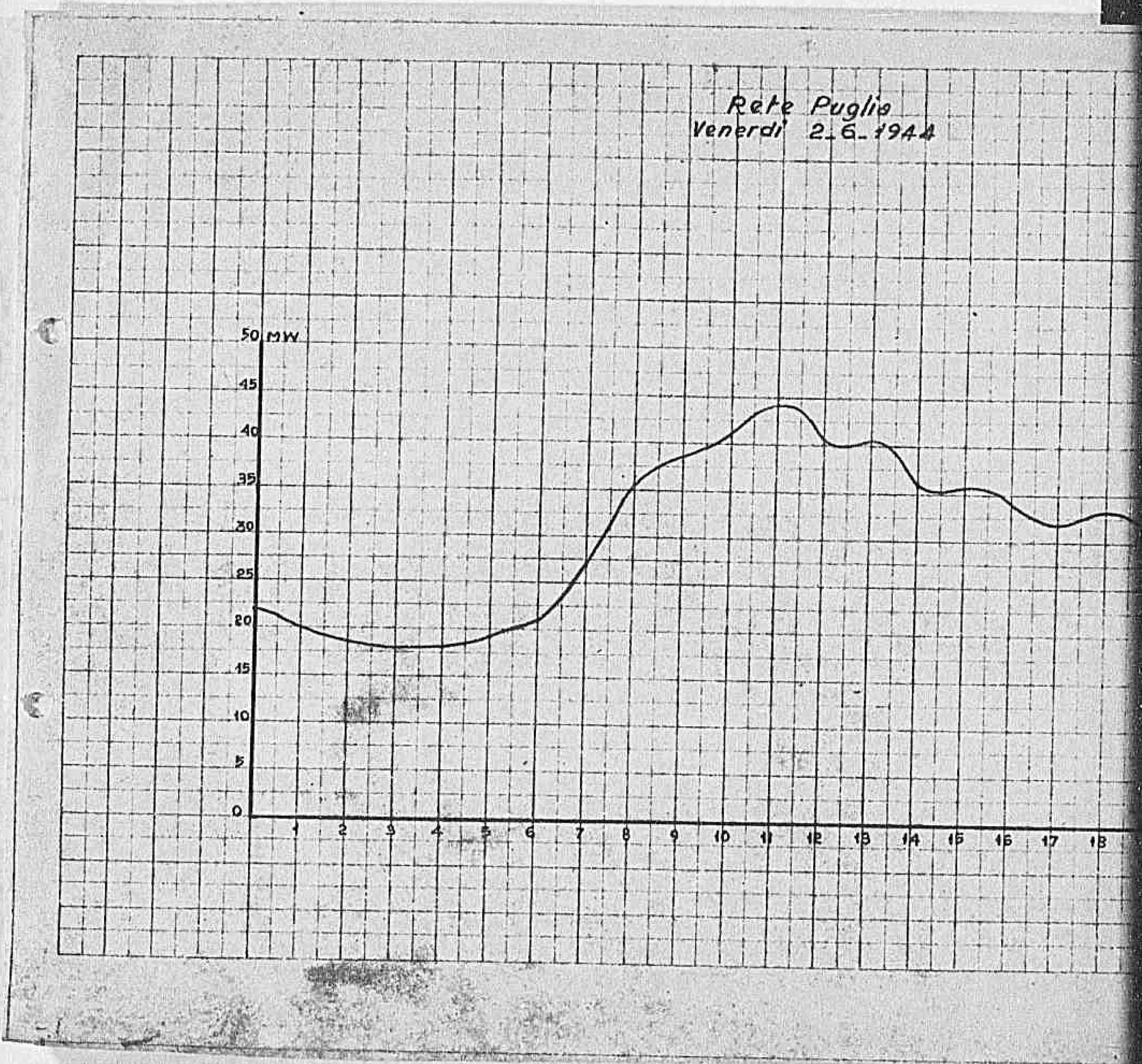

RETE PUGLIA_FRIDAY 9_6_944
5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 hours

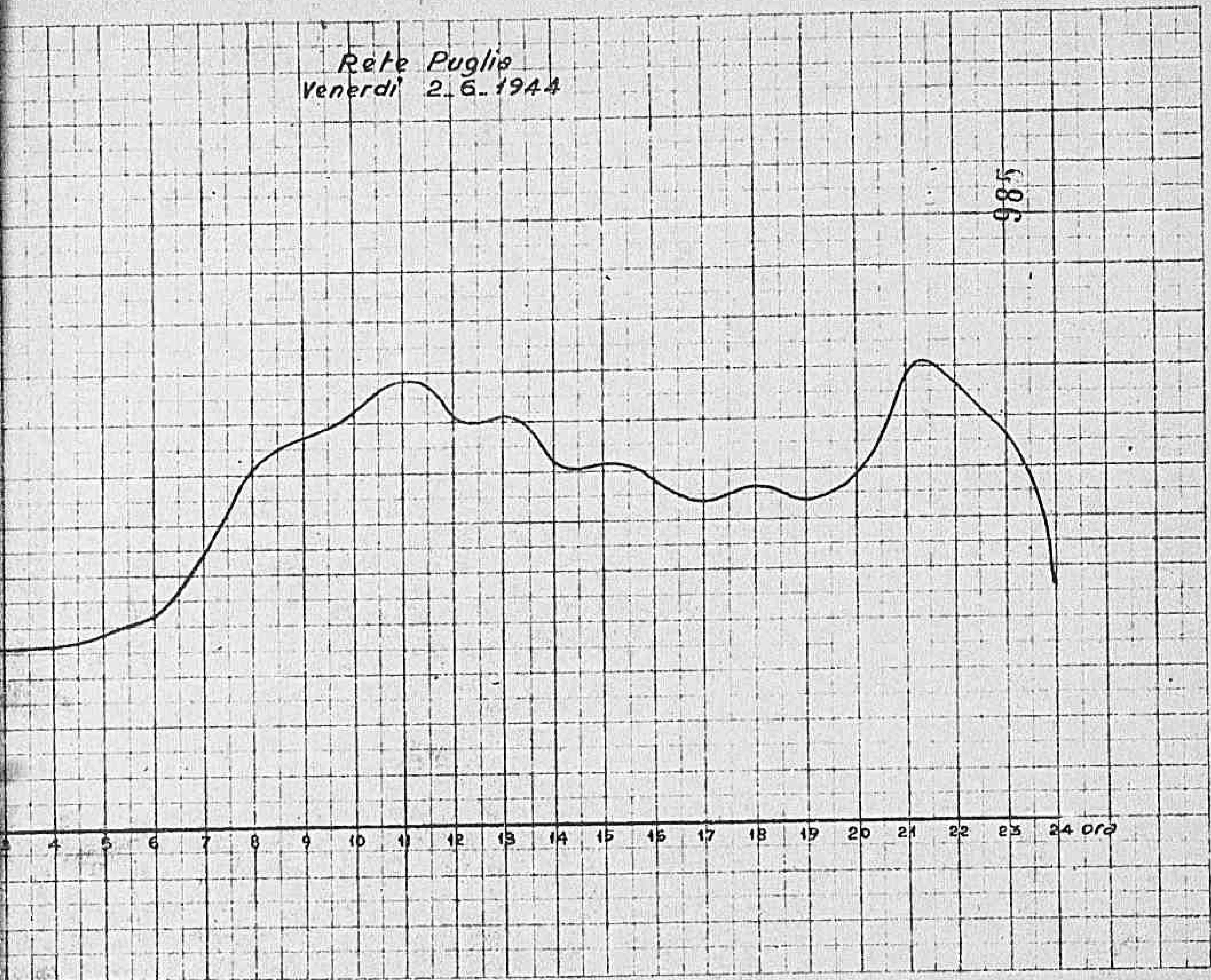
987

BEST COPY POSSIBLE

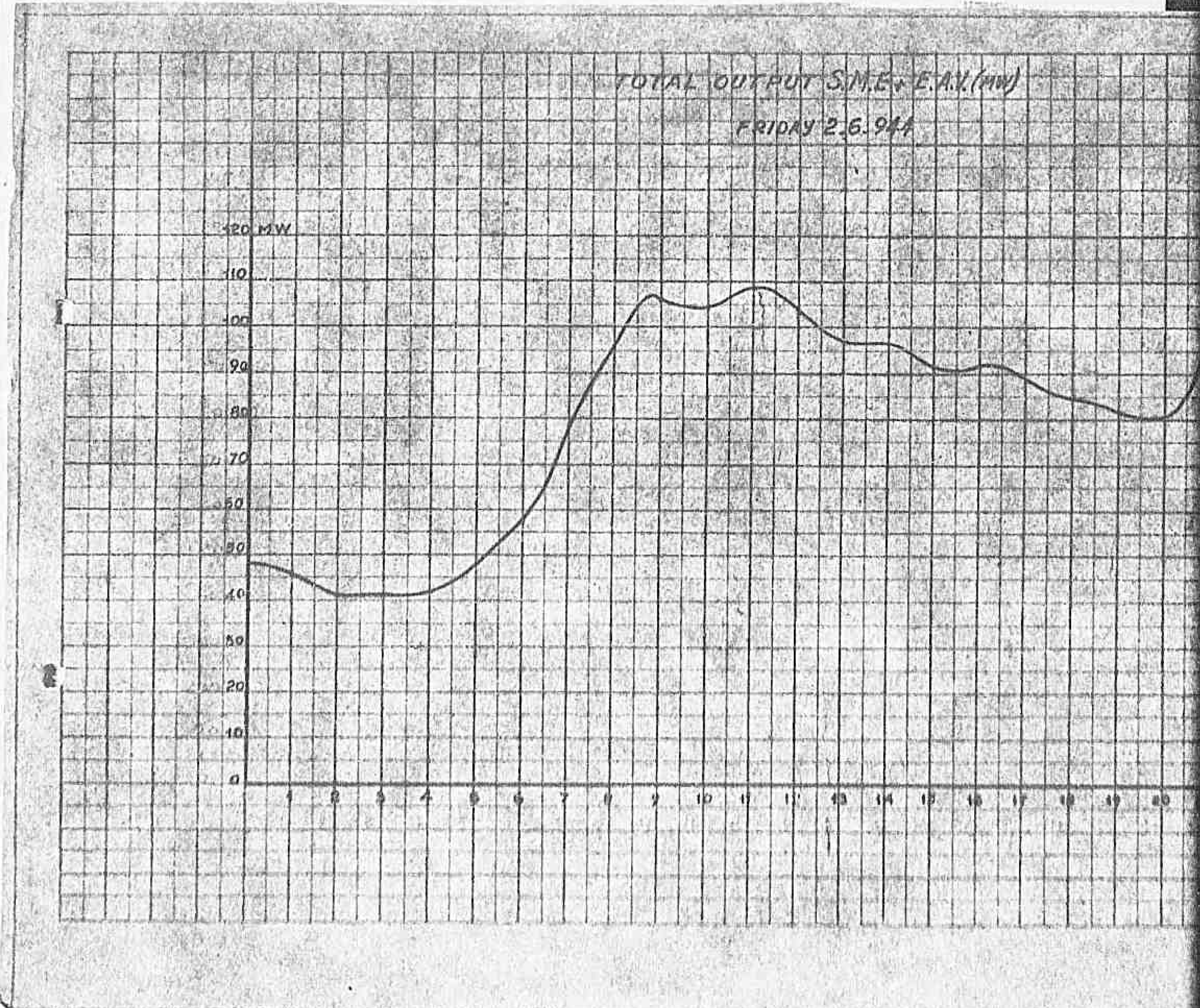

Saturday 3.6.944
28 MW
26
24
22
20
18
16
14
12
10
8
6
4
2
0
Naples demand
Salerno + Torre + Castell.re demand
S. Maria C.V. demand
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20

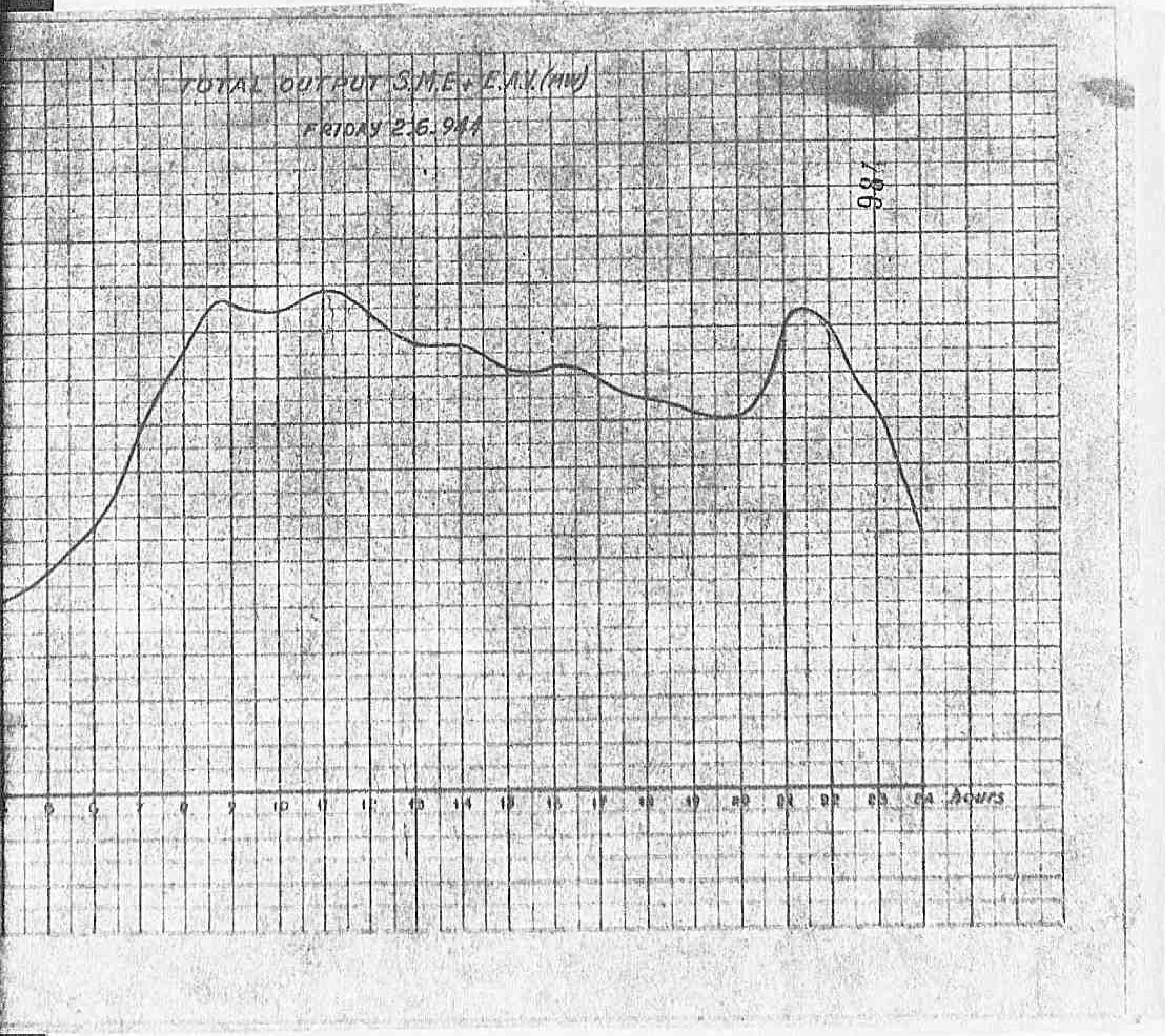

Saturday 3.6.944
Naples demand
986
Salerno + Torre + Castell.re demand
S. Maria C.V. demand
5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 hours

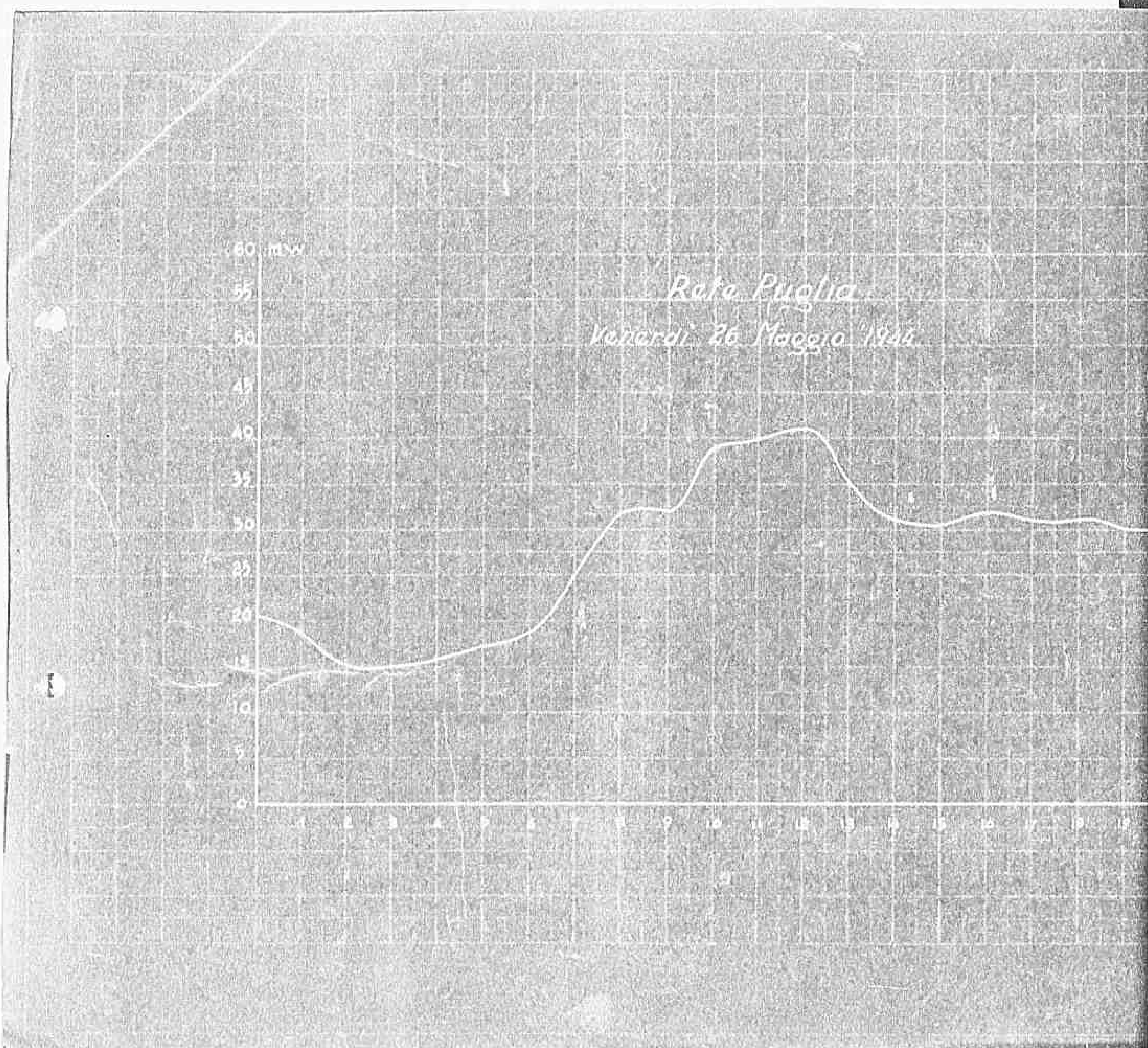

Rete Puglia
Venerdì 2-6-1944
50 MW
45
40
35
30
25
20
15
10
5
0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18

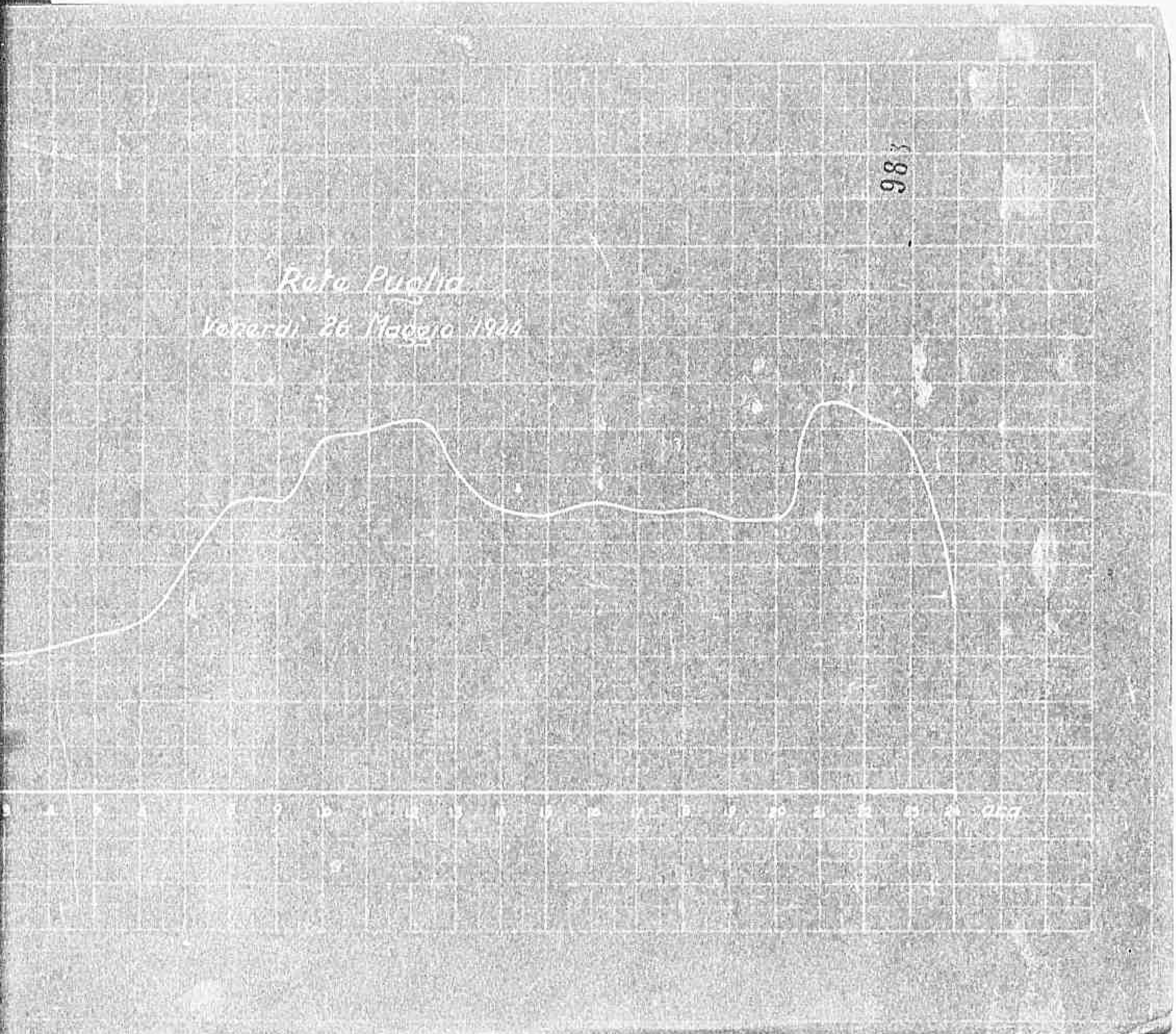

Rete Puglia
Venerdì 2-6-1944
4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 ora

985

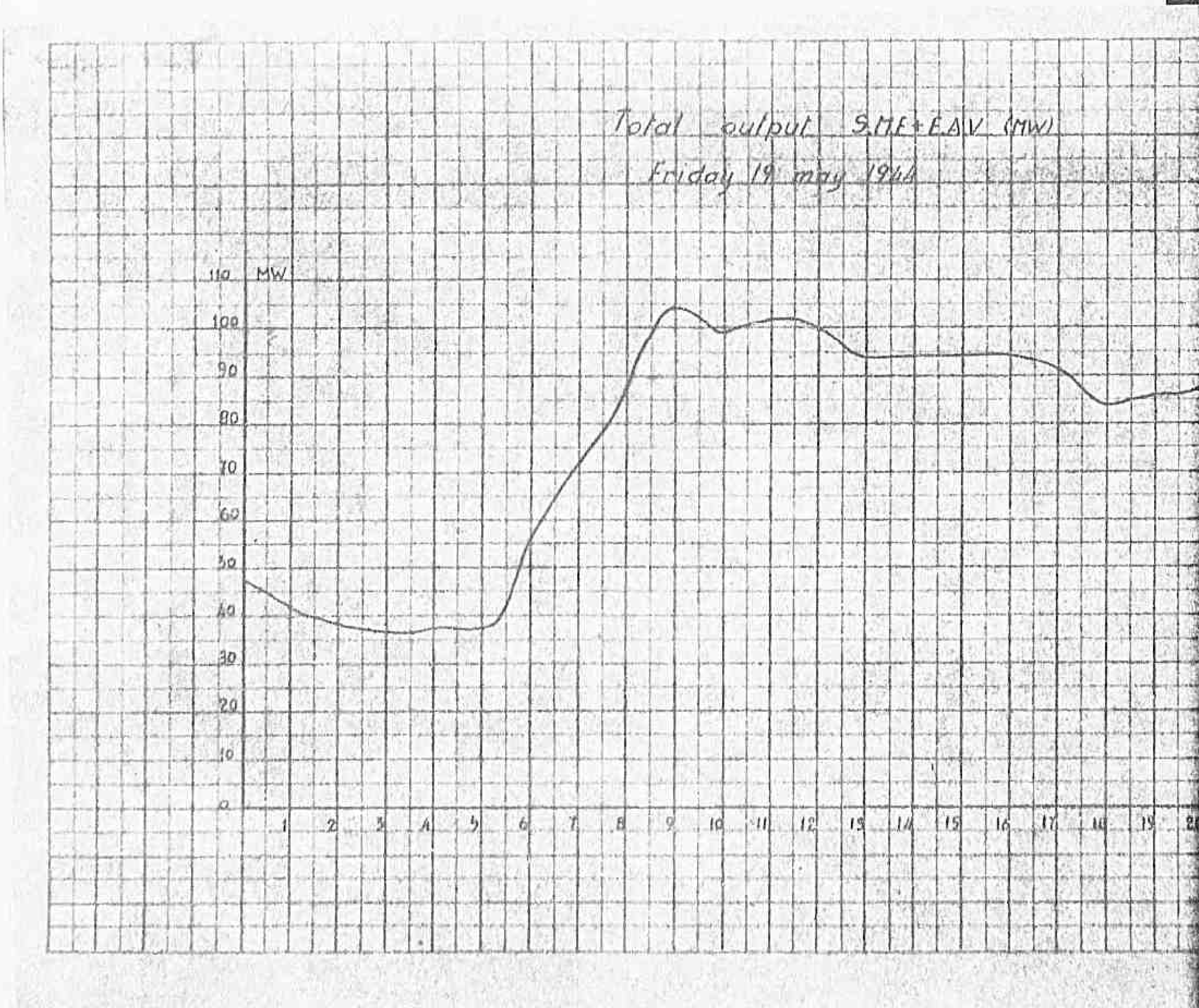

TOTAL OUTPUT S.M.E. + E.A.V. (MW)
FRIDAY 2.6.944
120 MW
110
100
90
80
70
60
50
40
30
20
10
0
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20


TOTAL OUTPUT S.M.E + E.A.V. (MW)
FRIDAY 2.6.944
10
11
hours


Rete Puglia
Venerdi 26 Maggio 1944
60 MW
55
50
45
40
35
30
25
20
15
10
5
0
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19



Rete Puglia
Venerdì 26 Maggio 1944
983
ore


Total output S.M.E + E.A.V (MW)
Friday 19 may 1944
110 MW
100
90
80
70
60
50
40
30
20
10
0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20

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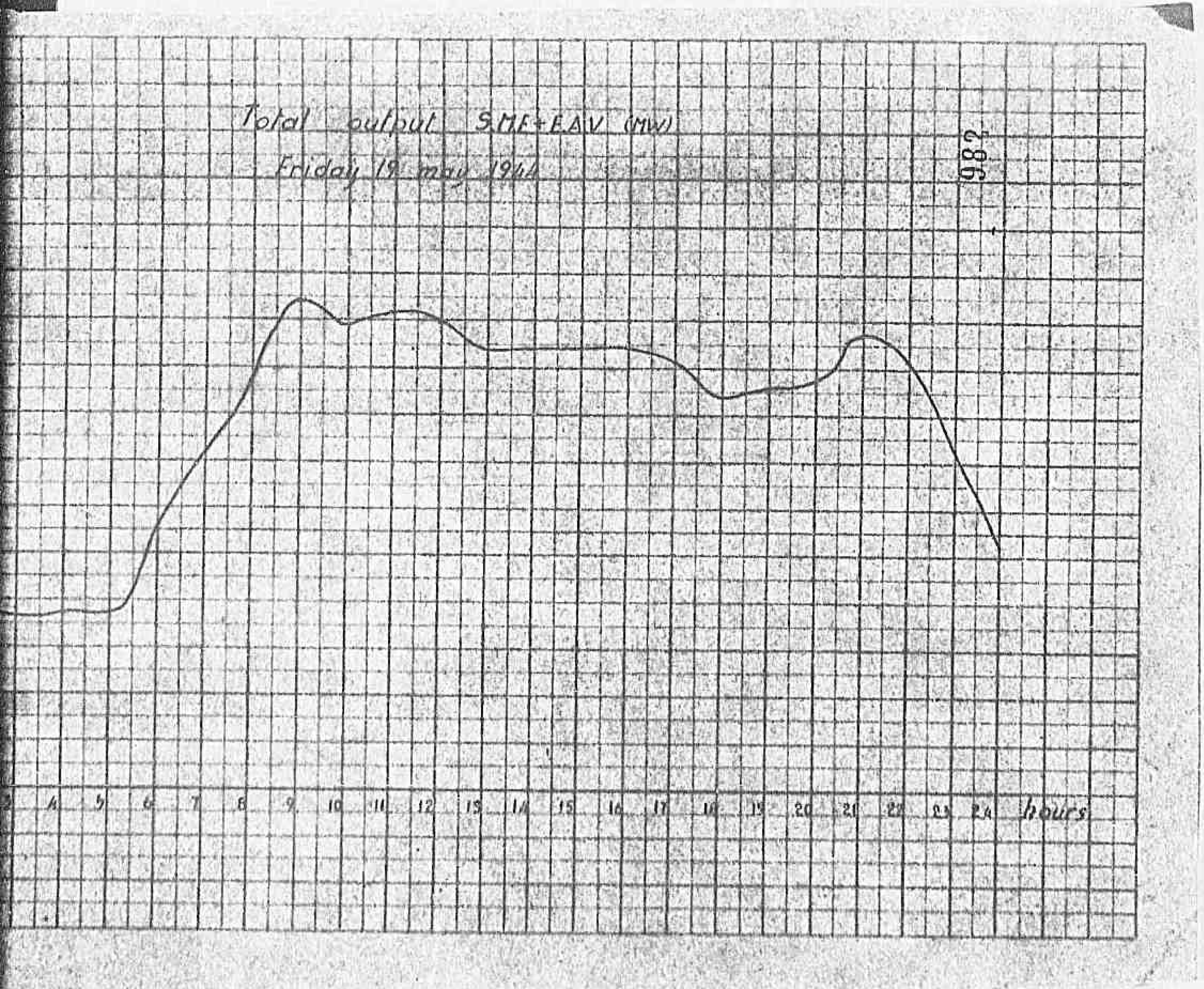
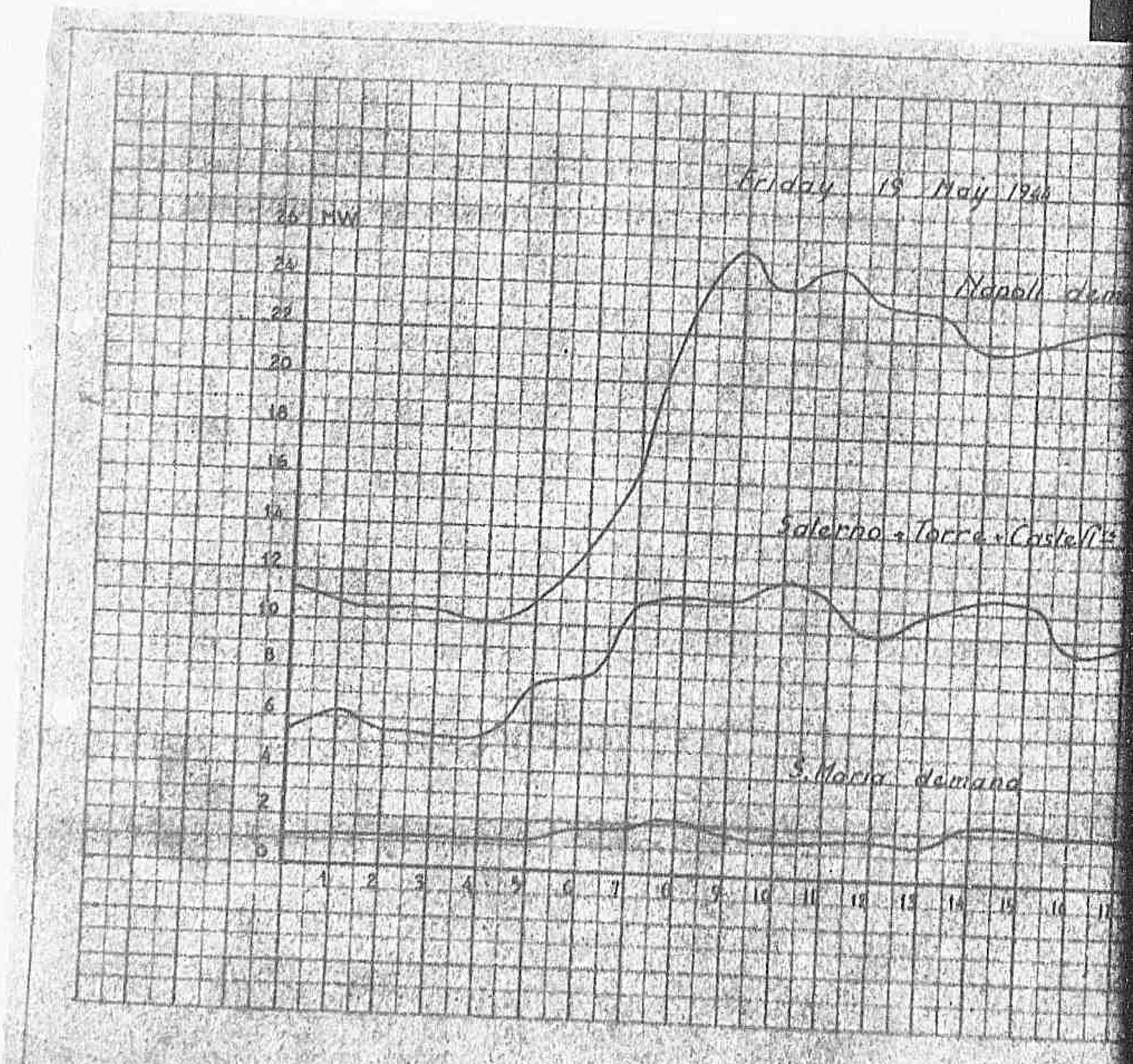
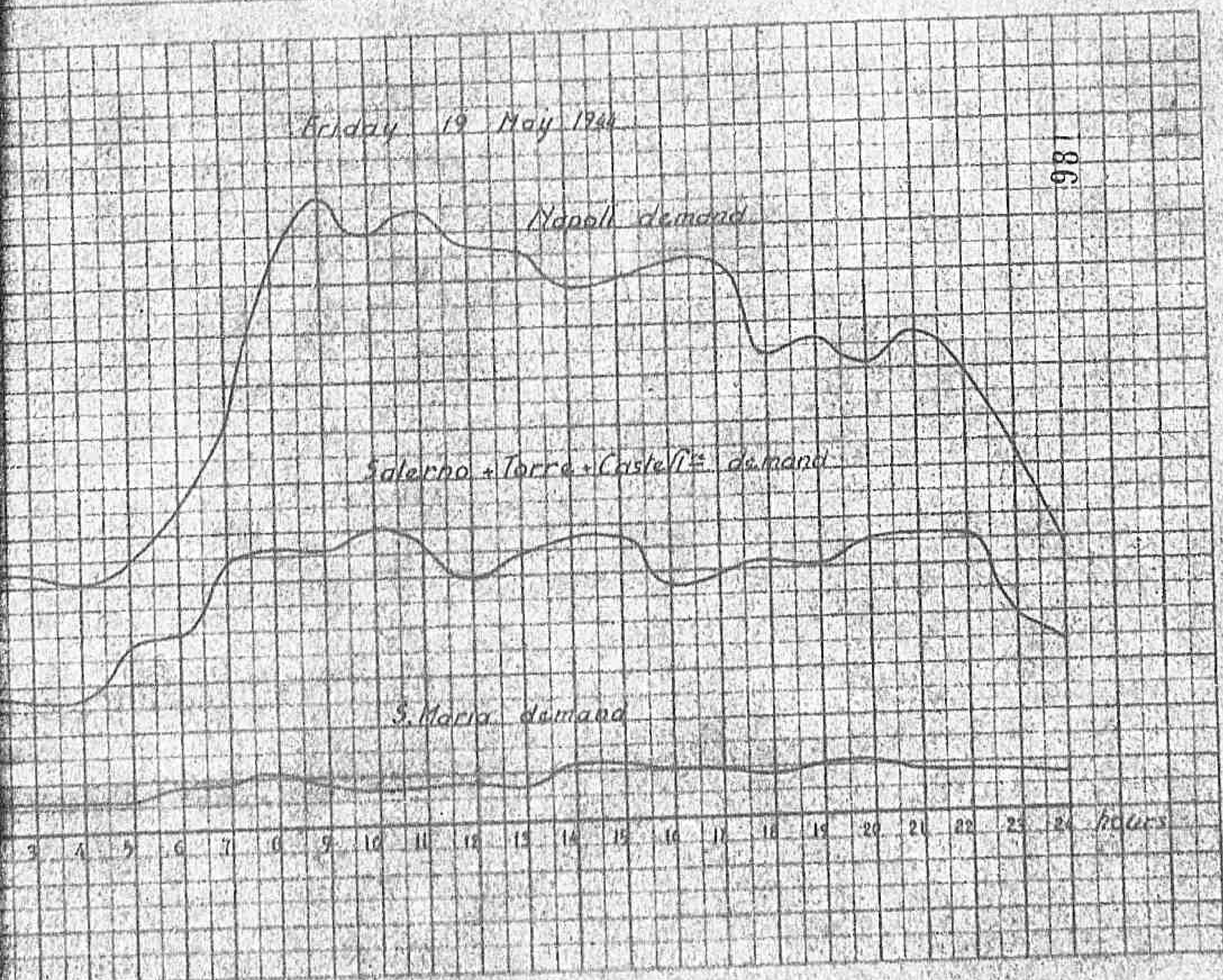
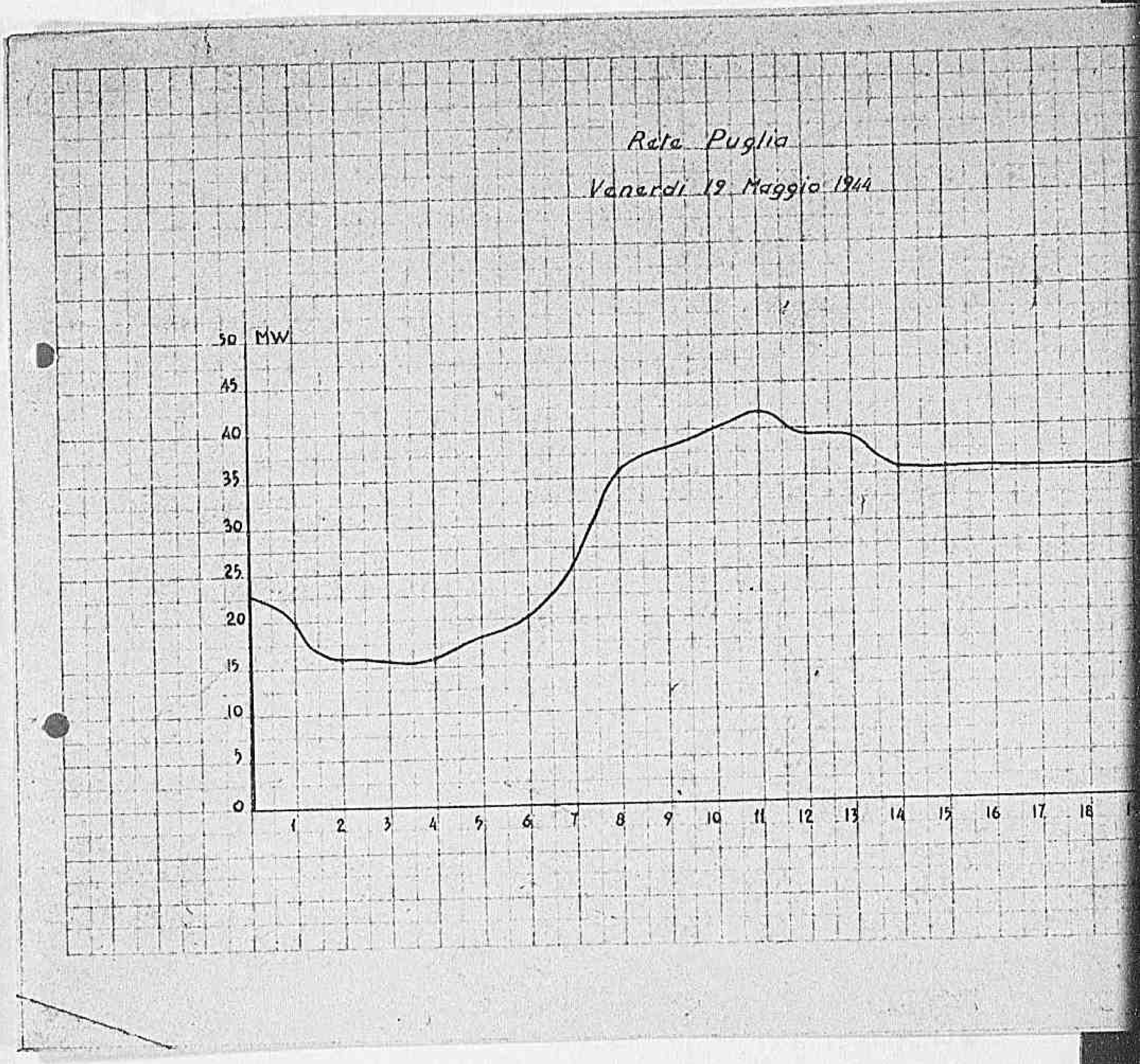


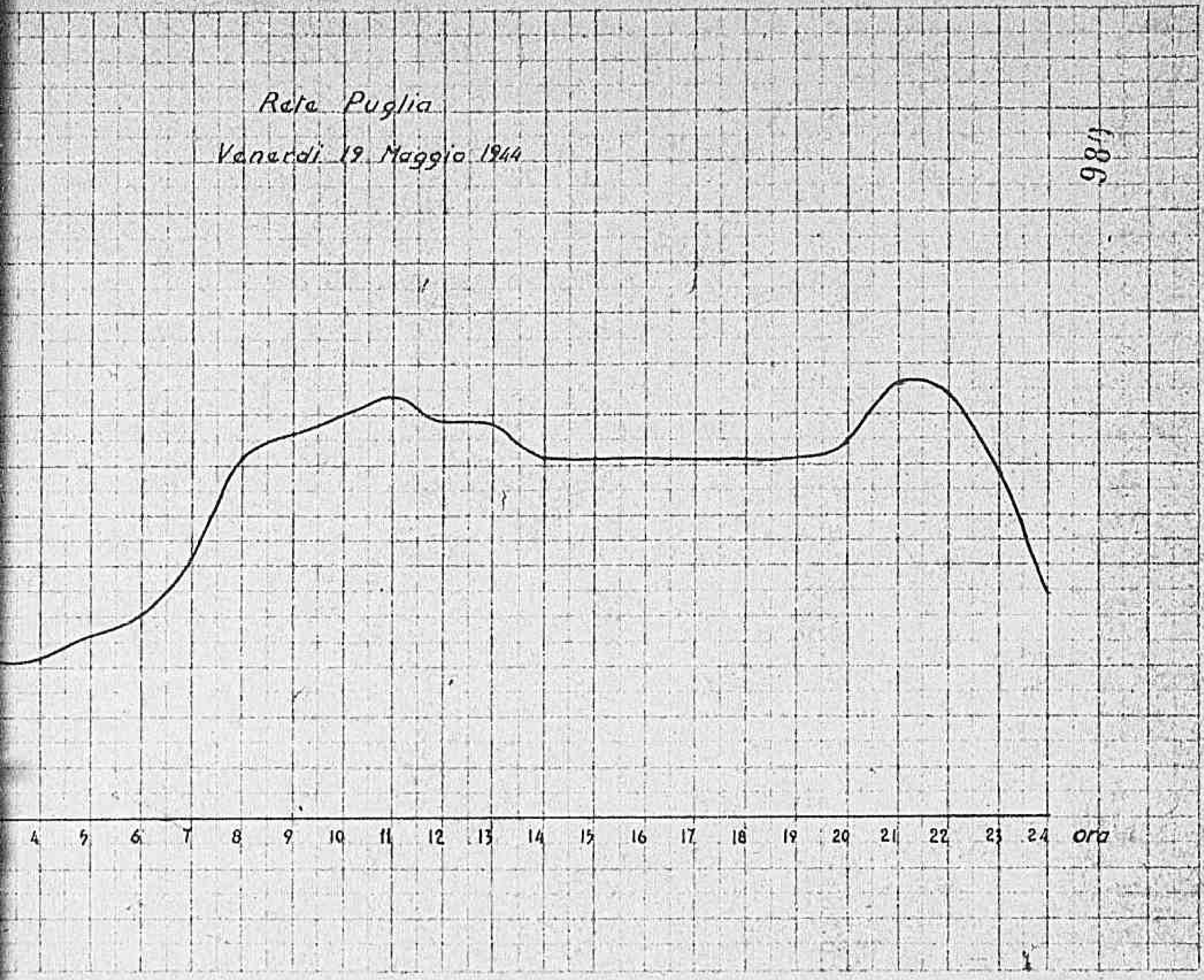


Friday 19 May 1944
26 MW
24
22
20
18
16
14
12
10
8
6
4
2
0
Napoli dem
Salerno + Torre + Castell
S. Maria demand
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16


Friday 19 May 1944
Napoli demand
Salerno + Torre + Castell^{re} demand
S. Maria demand
3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 hours

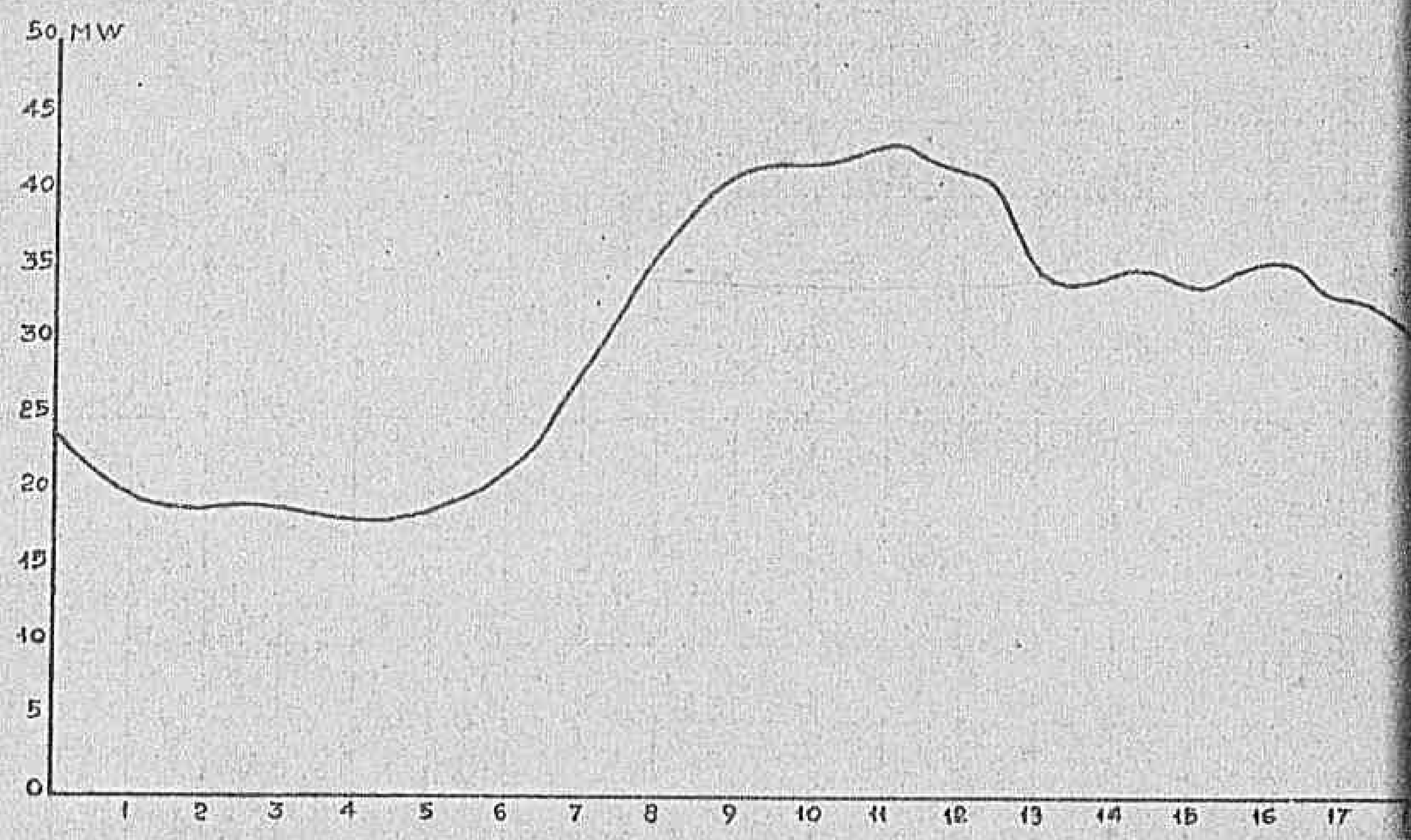
981


Rete Puglia
Venerdì 19 Maggio 1944
MW
50
45
40
35
30
25
20
15
10
5
0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18


Rete Puglia
Venerdi 19 Maggio 1944
4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 ora
984

Rete Puglia

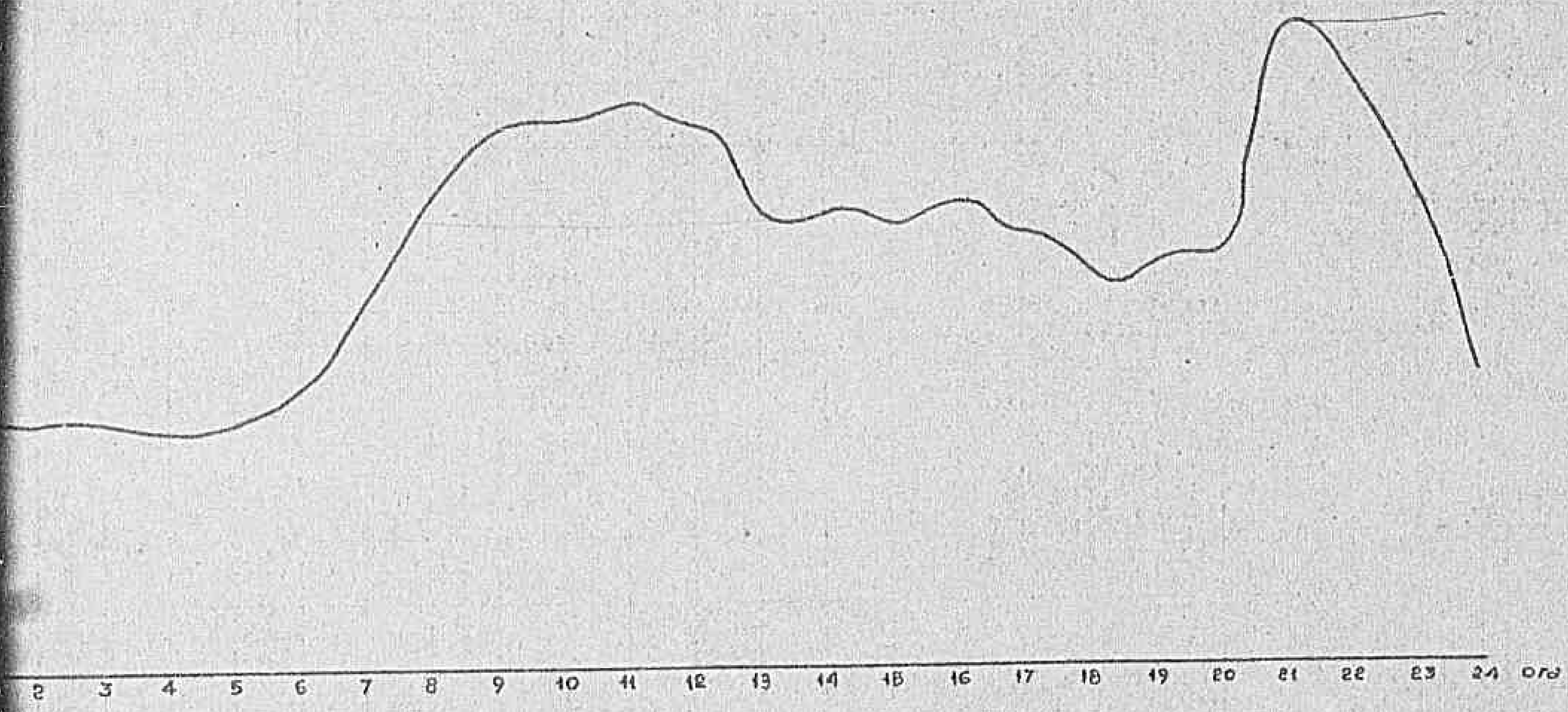
12 Maggio 1944

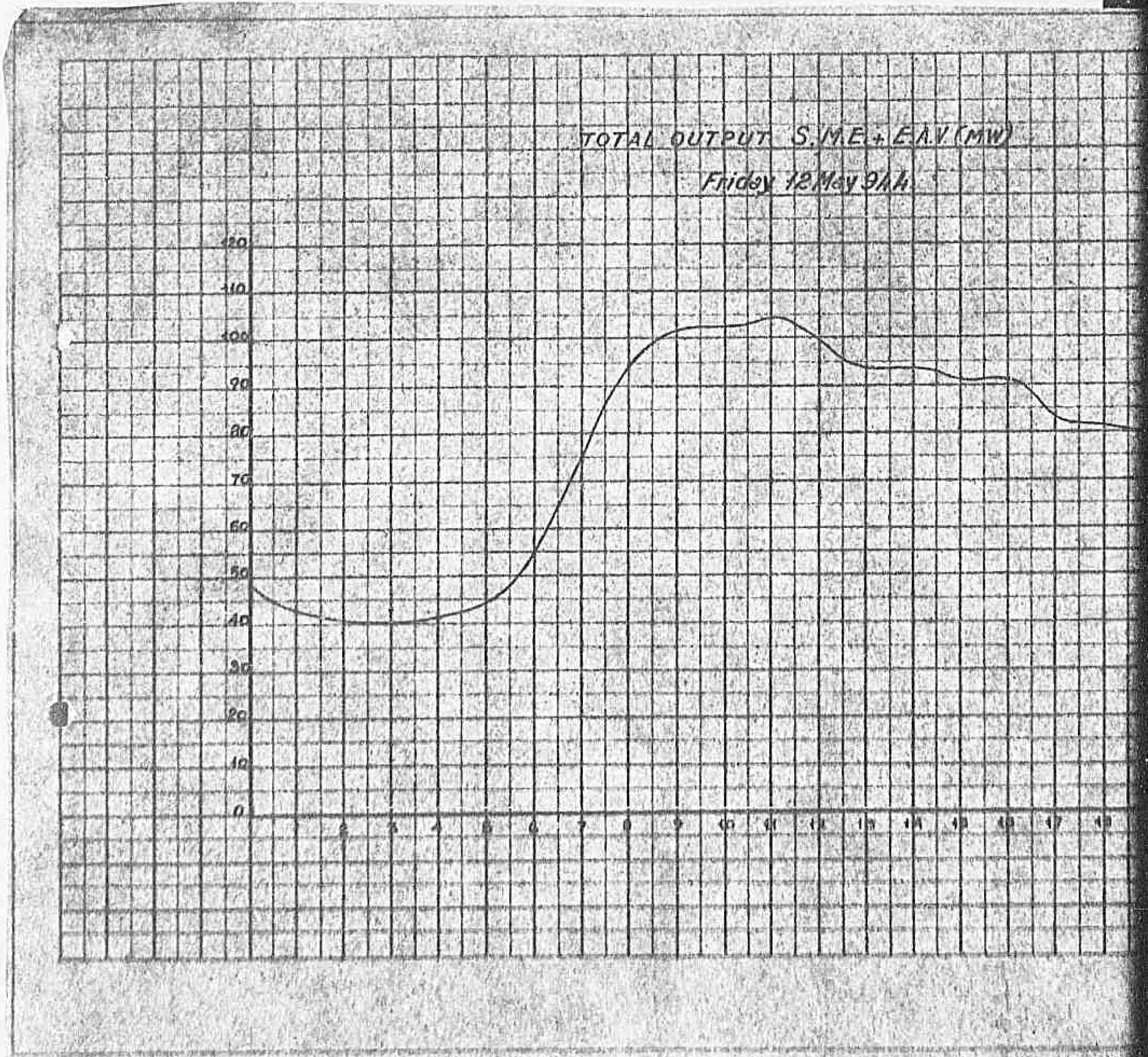


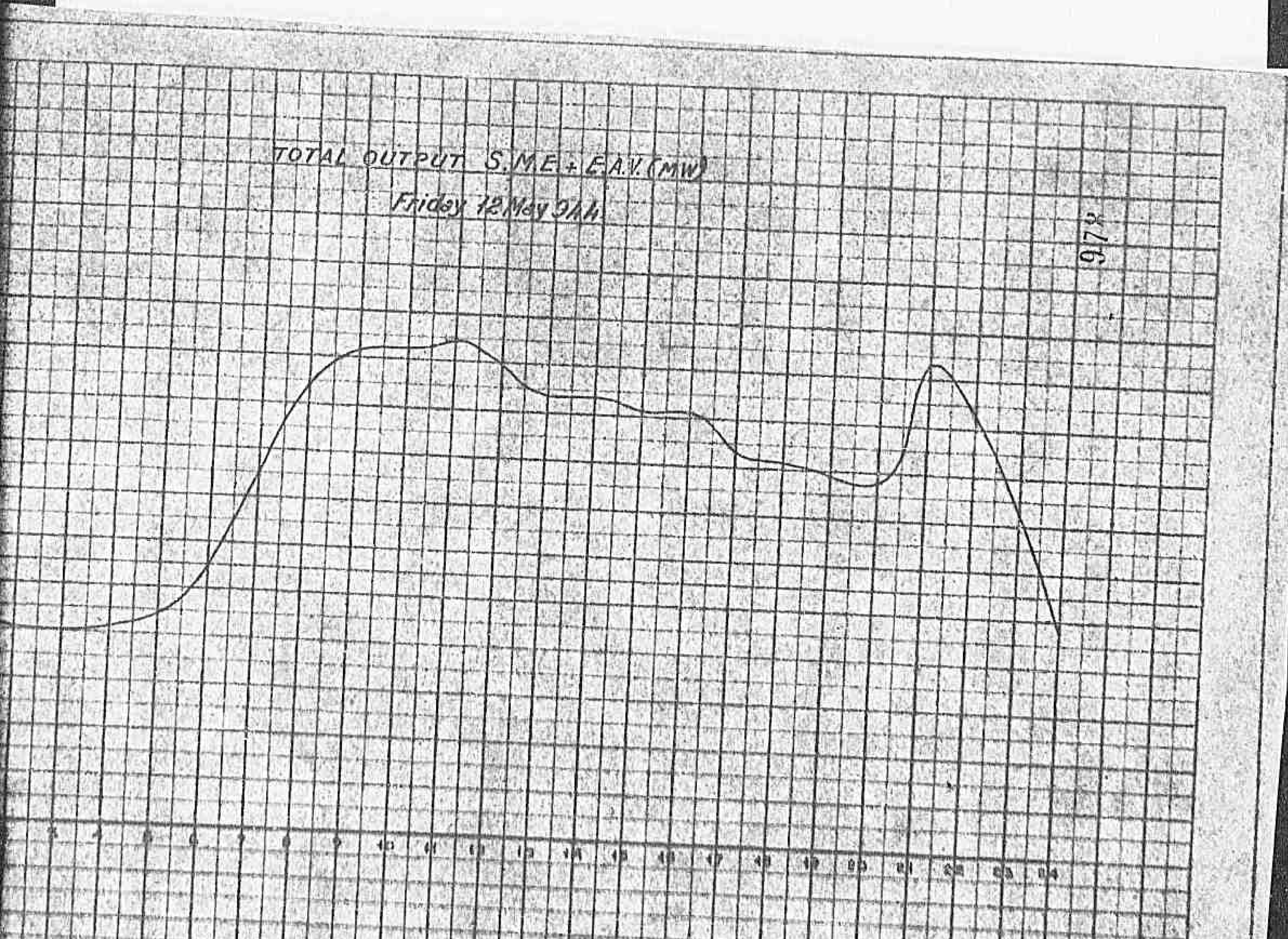
Rete Puglia

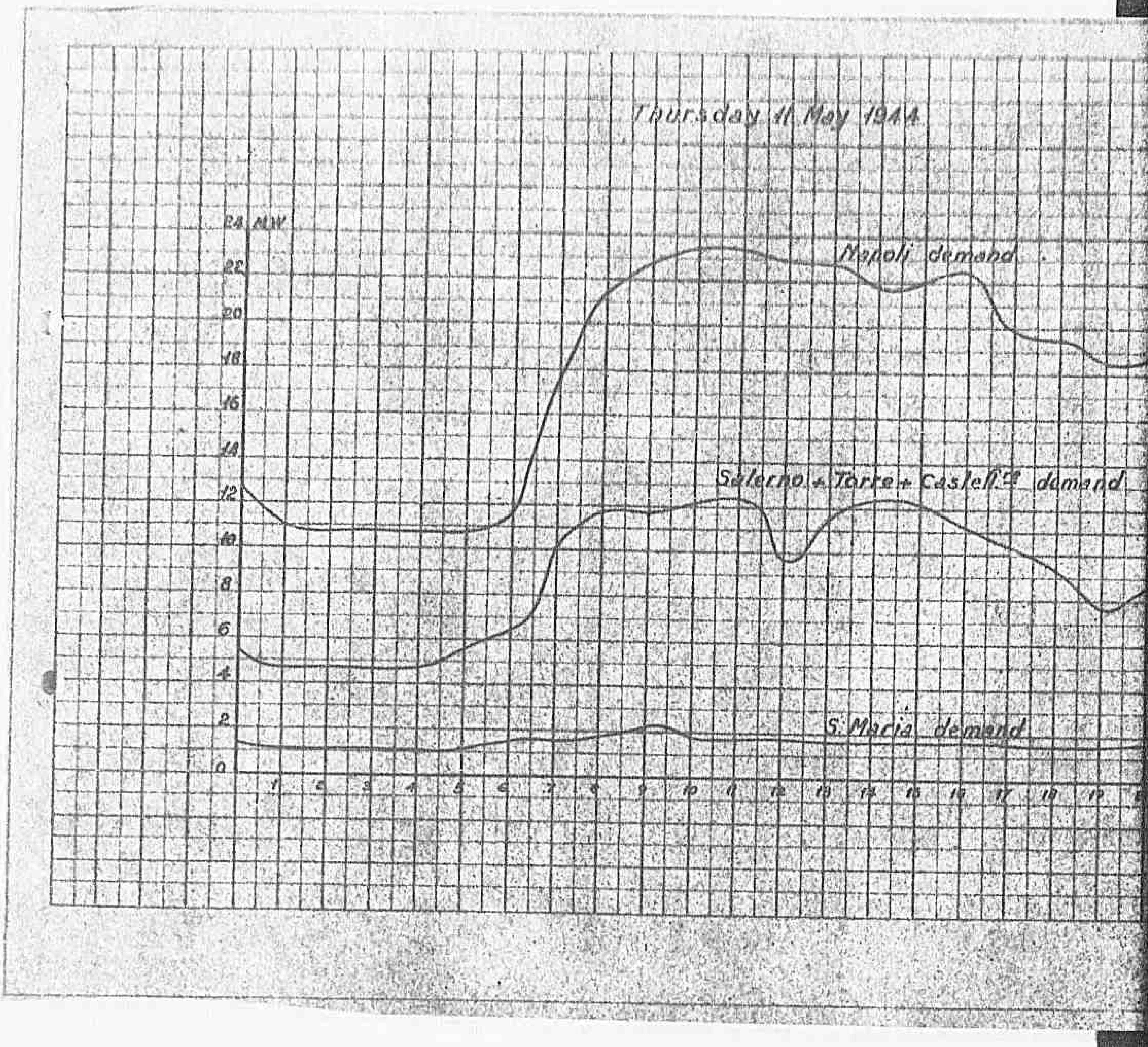
12 Maggio 1944

979

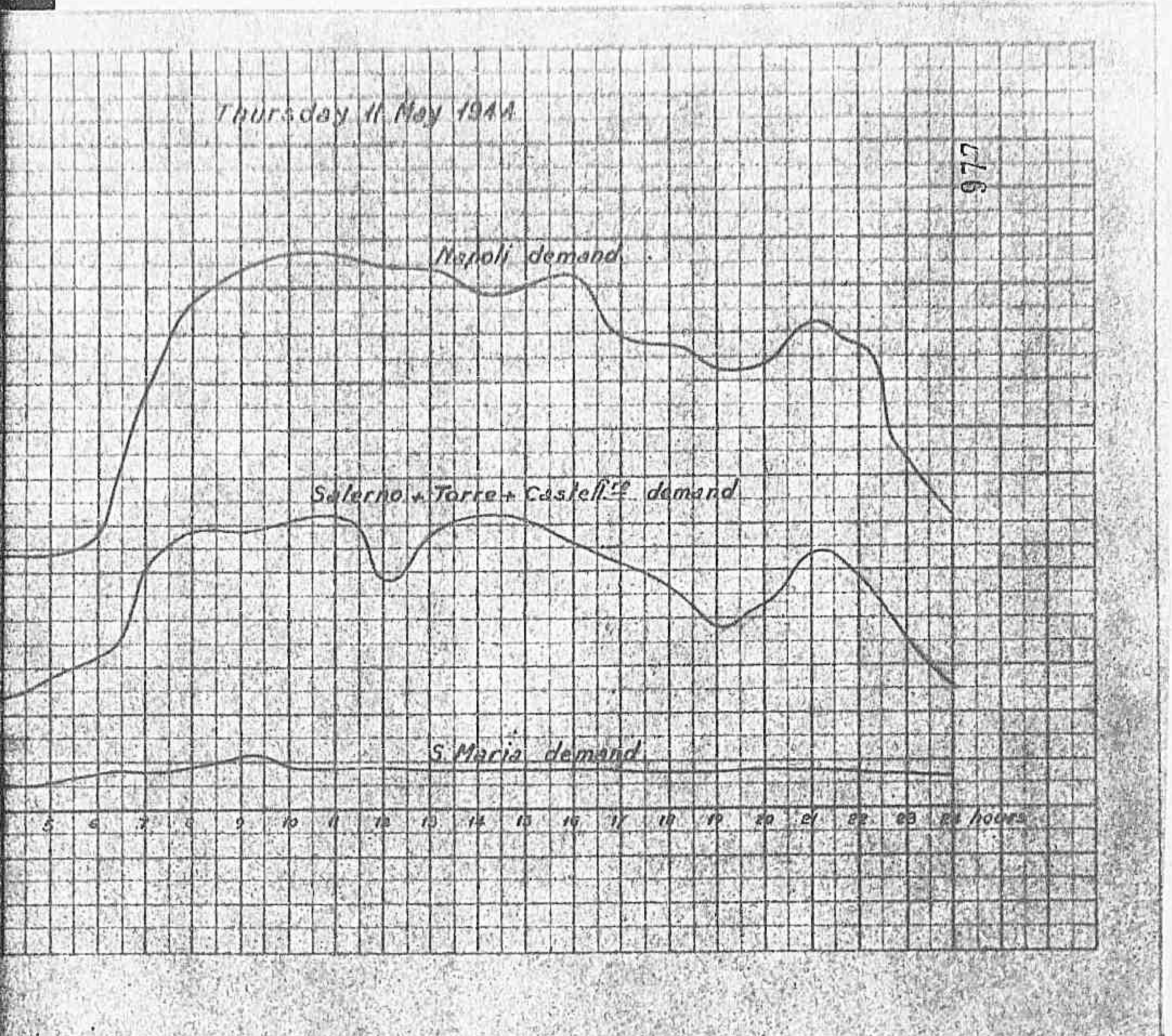


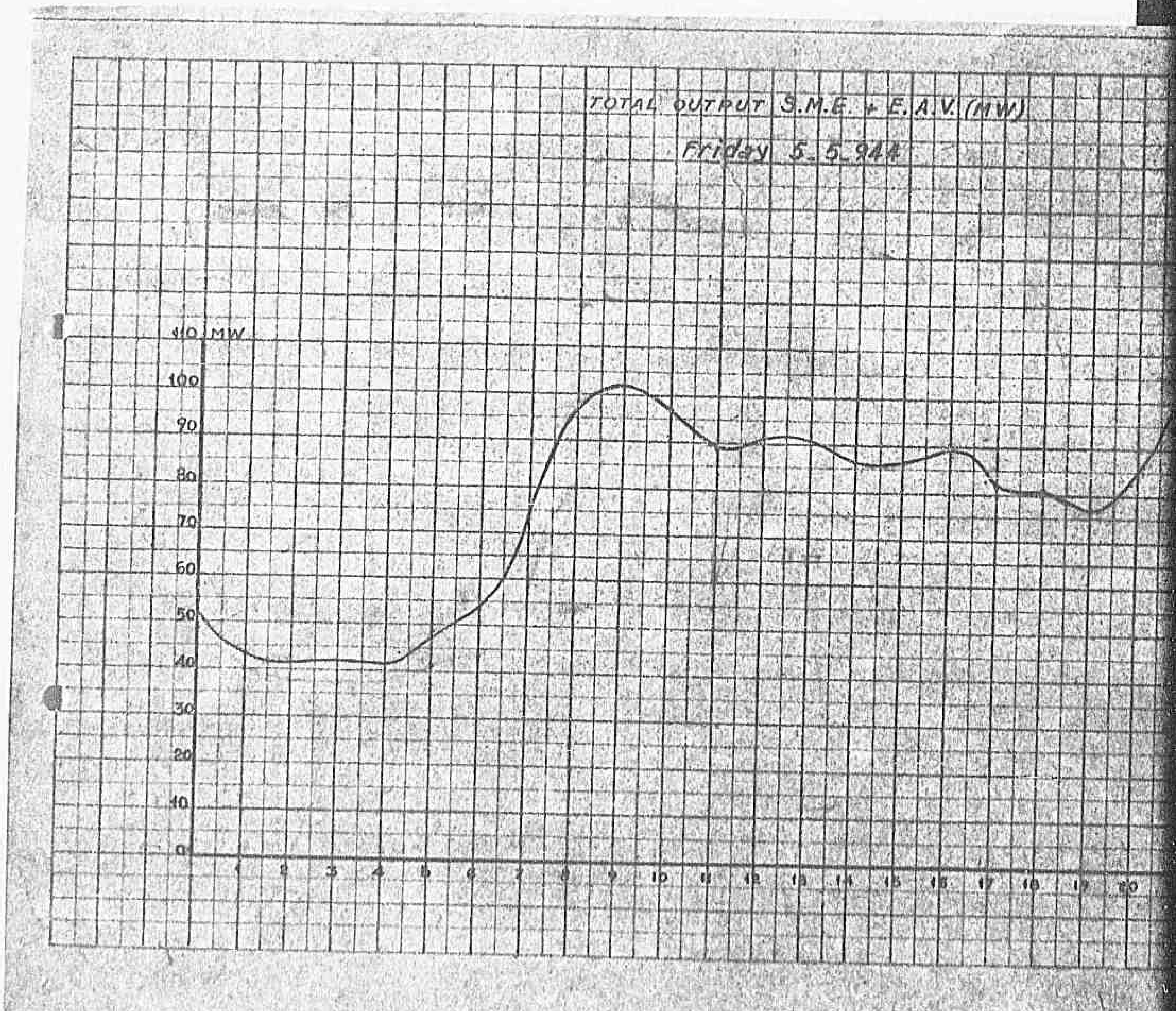

TOTAL OUTPUT S.M.E + E.A.V (MW)
Friday 12 May 944.
120
110
100
90
80
70
60
50
40
30
20
10
0
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18

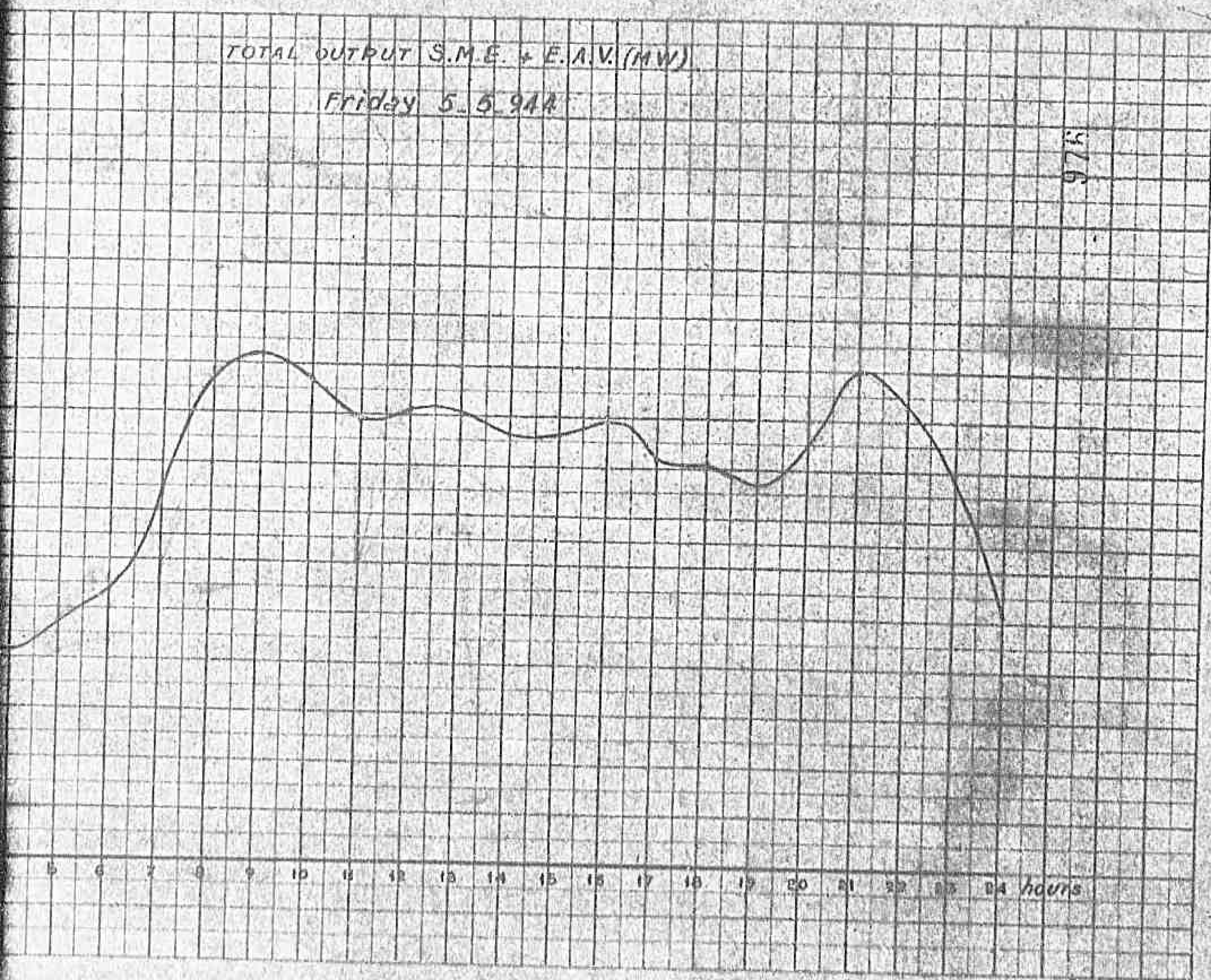

TOTAL OUTPUT S.M.E. + E.A.V. (MW)
Friday 12 May 944.
978



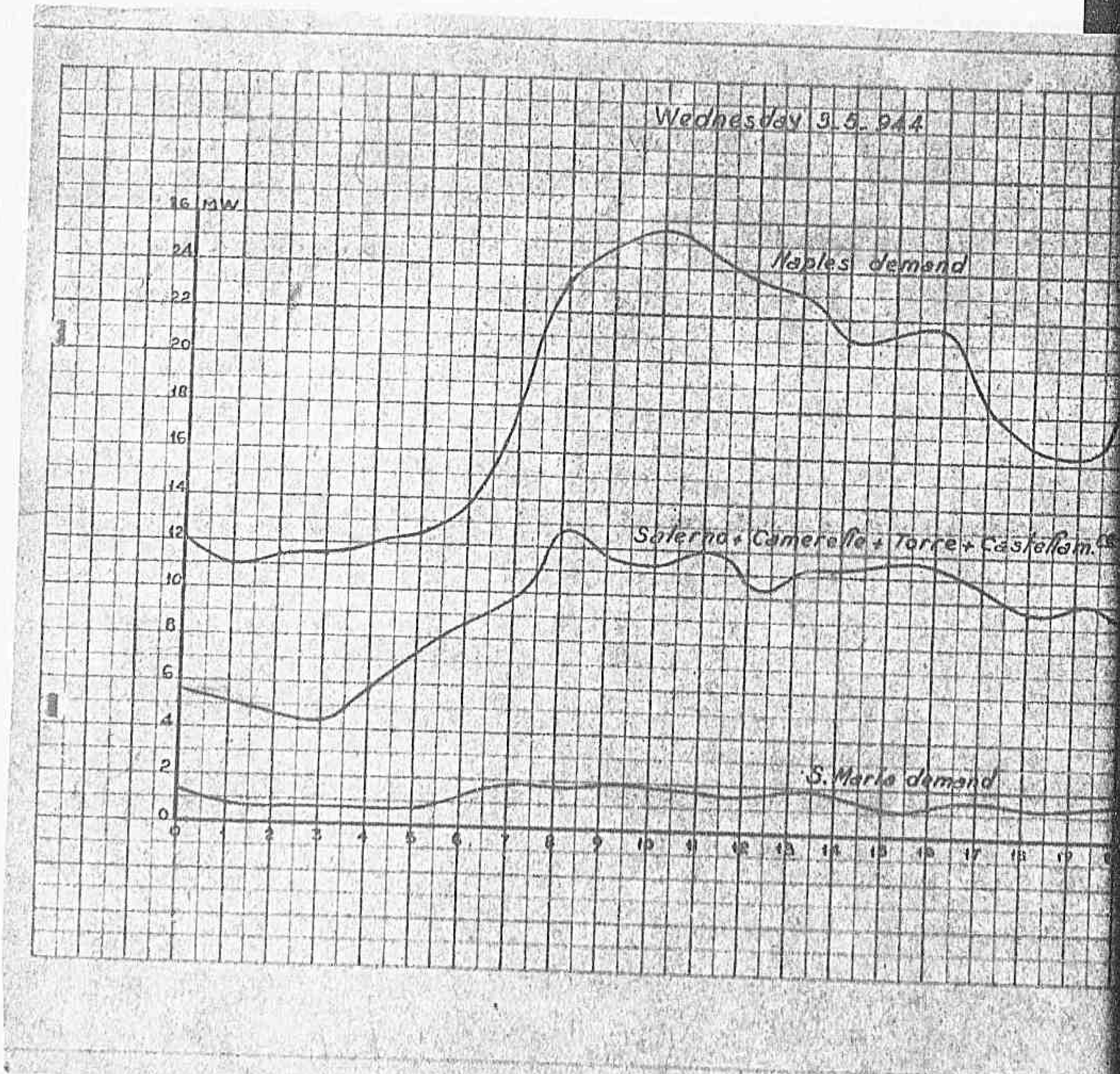
Thursday 11 May 1944
24 MW
22
20
18
16
14
12
10
8
6
4
2
0
Napoli demand
Salerno + Torre + Castell.re demand
S. Maria demand
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19

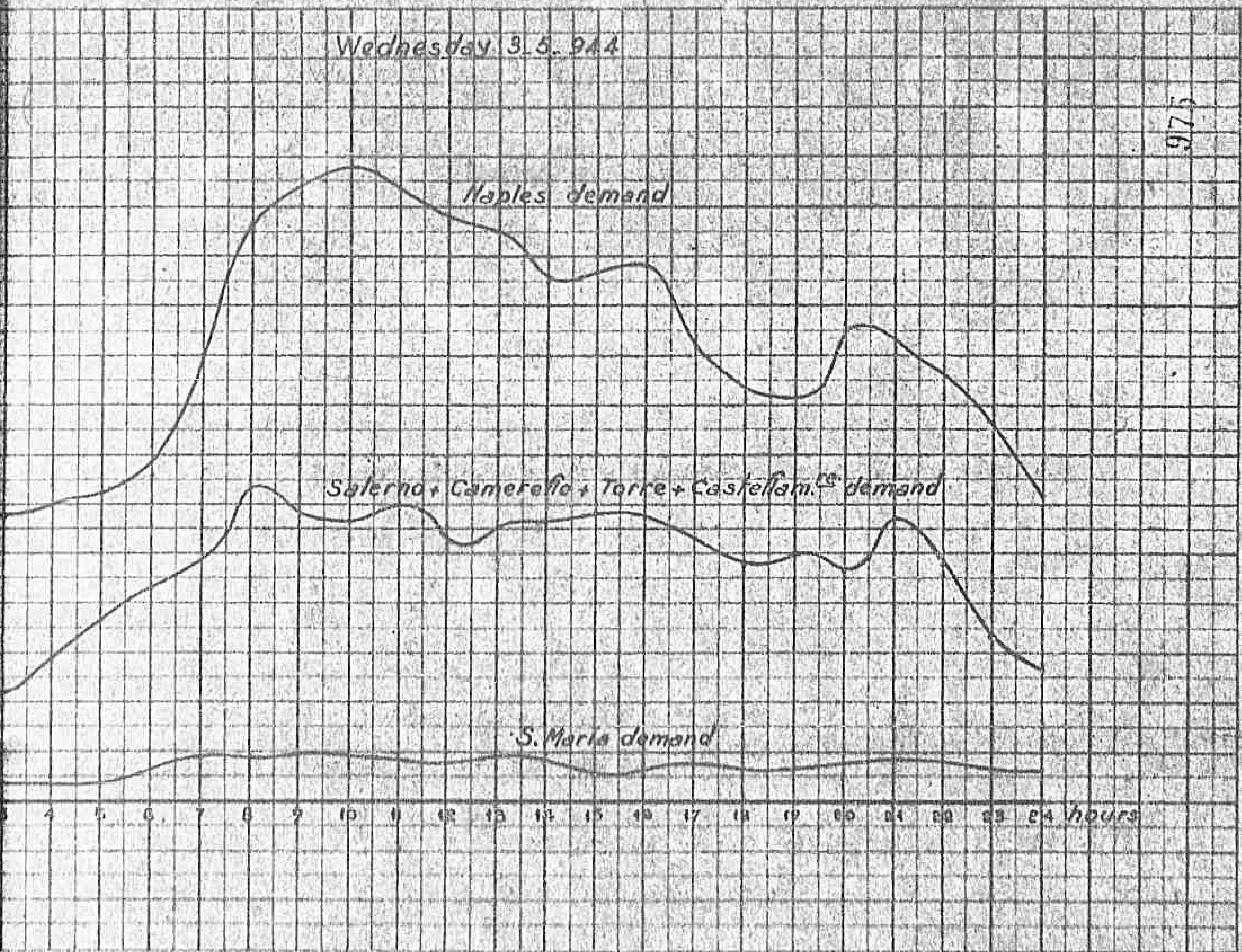

Thursday 11 May 1944
977
Napoli demand
Salerno + Torre + Castell.re demand
S. Maria demand
5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 hours


TOTAL OUTPUT S.M.E. + E.A.V. (MW)
Friday 5.5.944
110 MW
100
90
80
70
60
50
40
30
20
10
0
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20

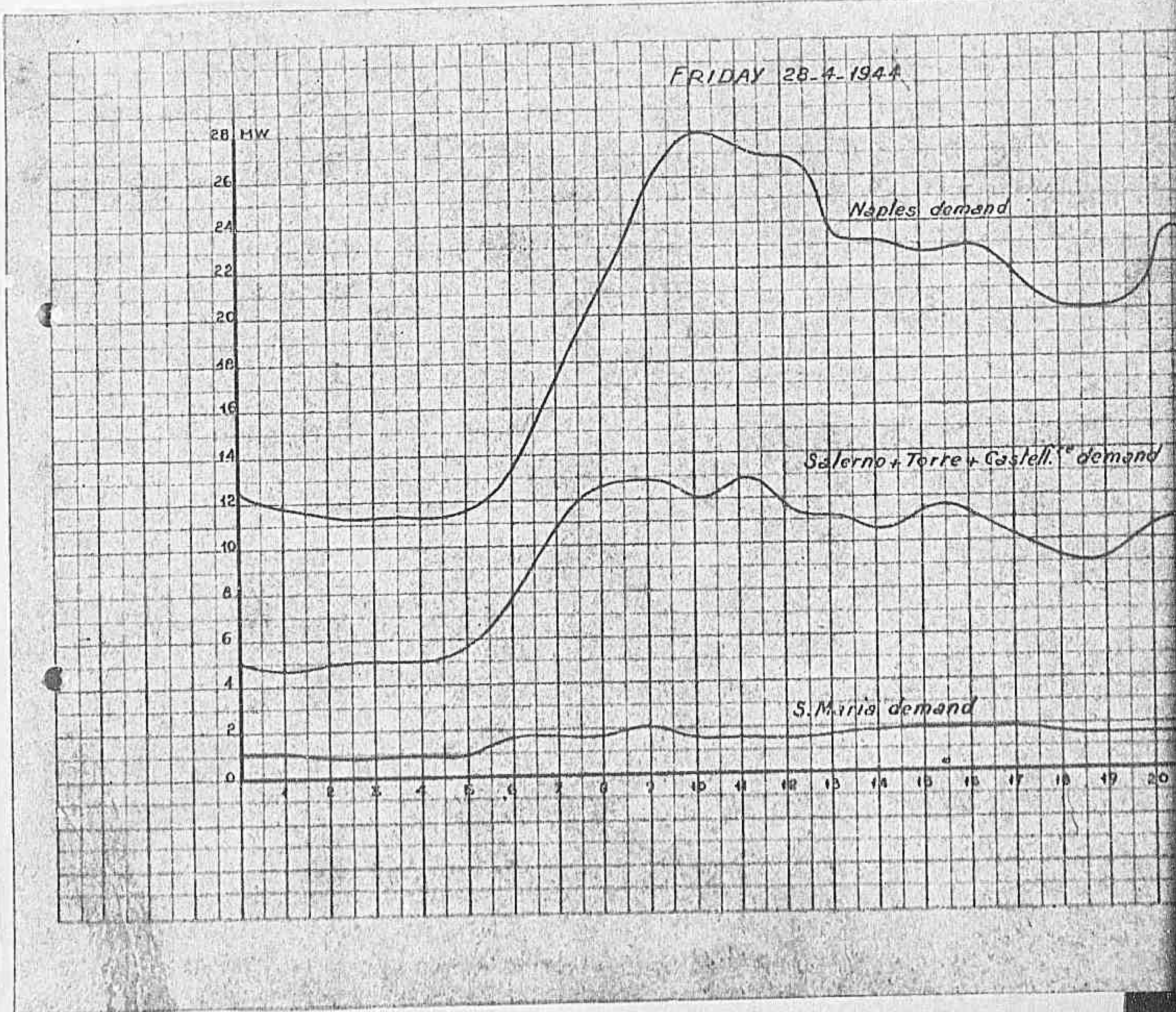

TOTAL OUTPUT S.M.E. + E.A.V. (MW)
Friday 5.5.944
5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 hours

975


Wednesday 3.5.944
26 MW
24
22
20
18
16
14
12
10
8
6
4
2
0
Naples demand
Salerno + Camerelle + Torre + Castellam.
S. Maria demand
0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19



Wednesday 3.5.944
Naples demand
Salerno + Camerello + Torre + Castellam.re demand
S. Maria demand
4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 hours
975


FRIDAY 28-4-1944
MW
28
26
24
22
20
18
16
14
12
10
8
6
4
2
0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
Naples demand
Salerno + Torre + Castell.re demand
S. Maria demand

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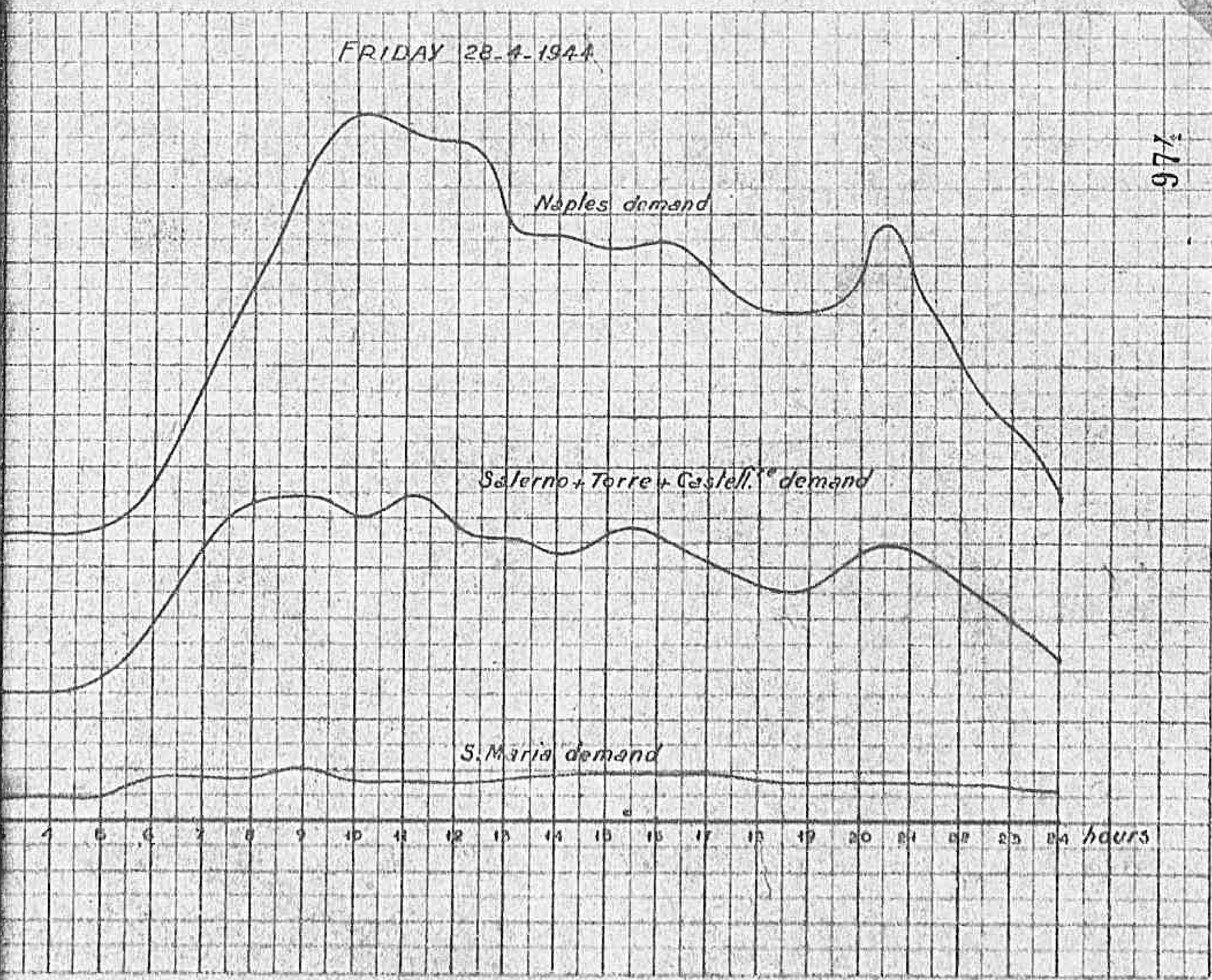
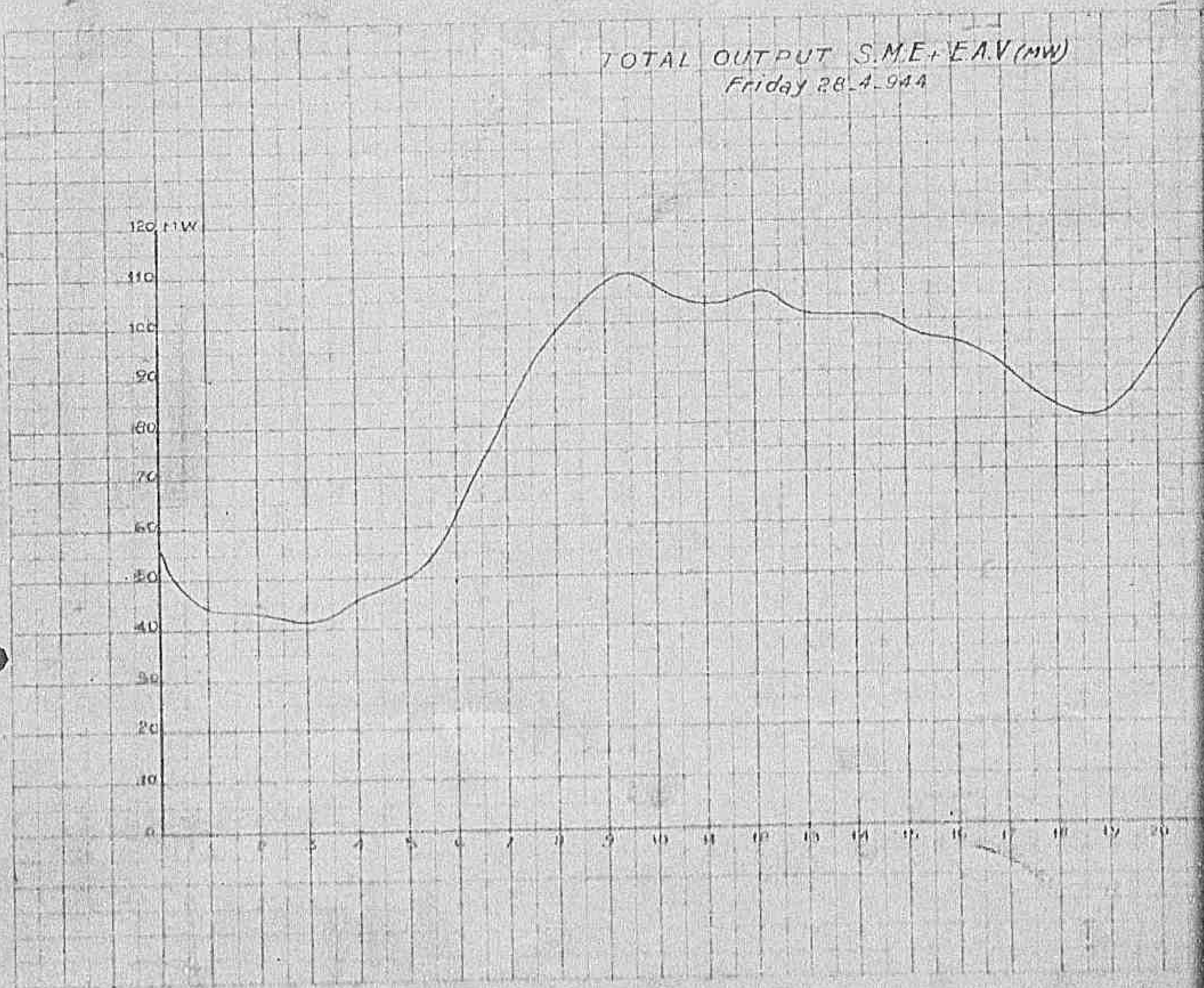
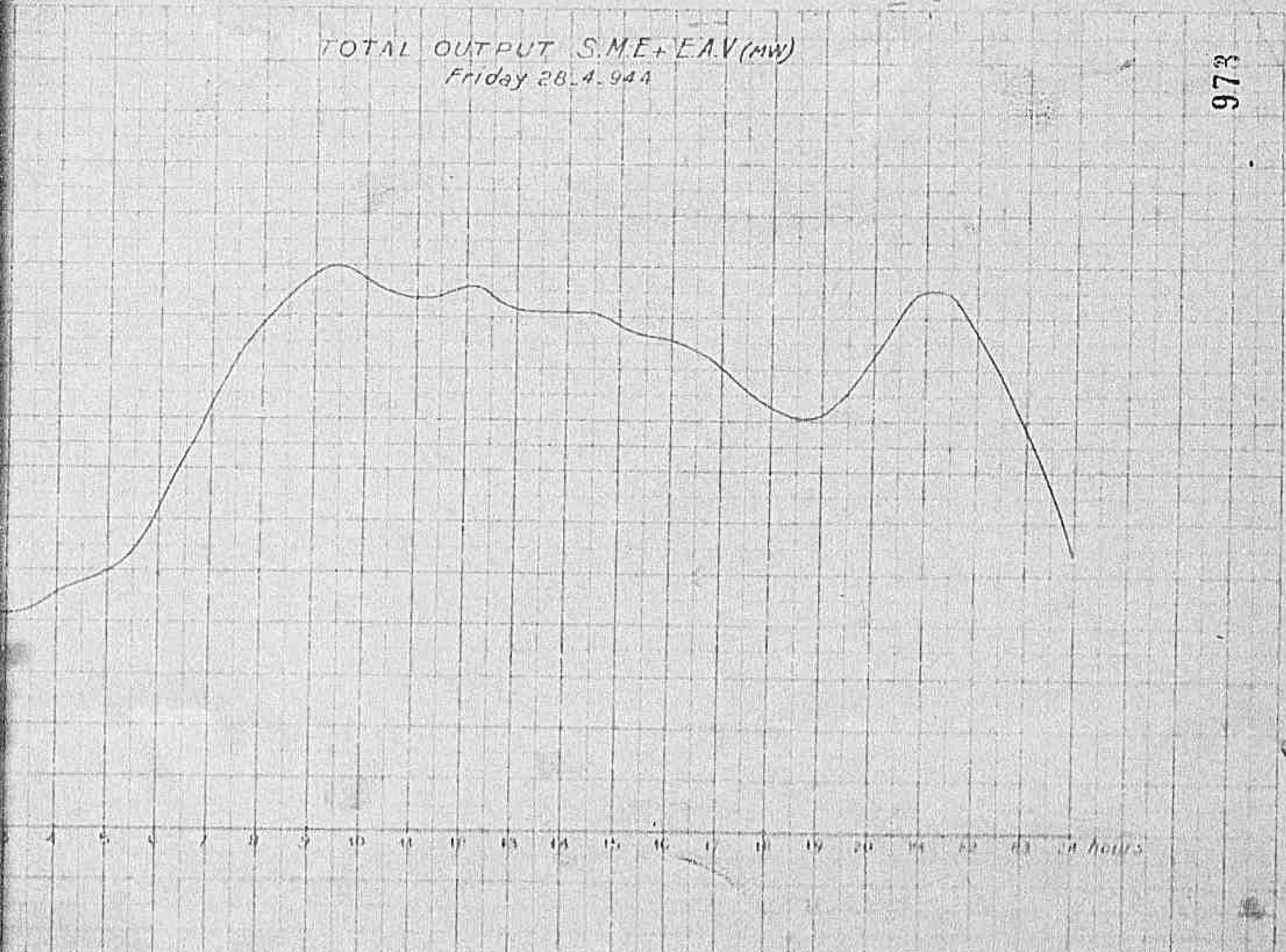
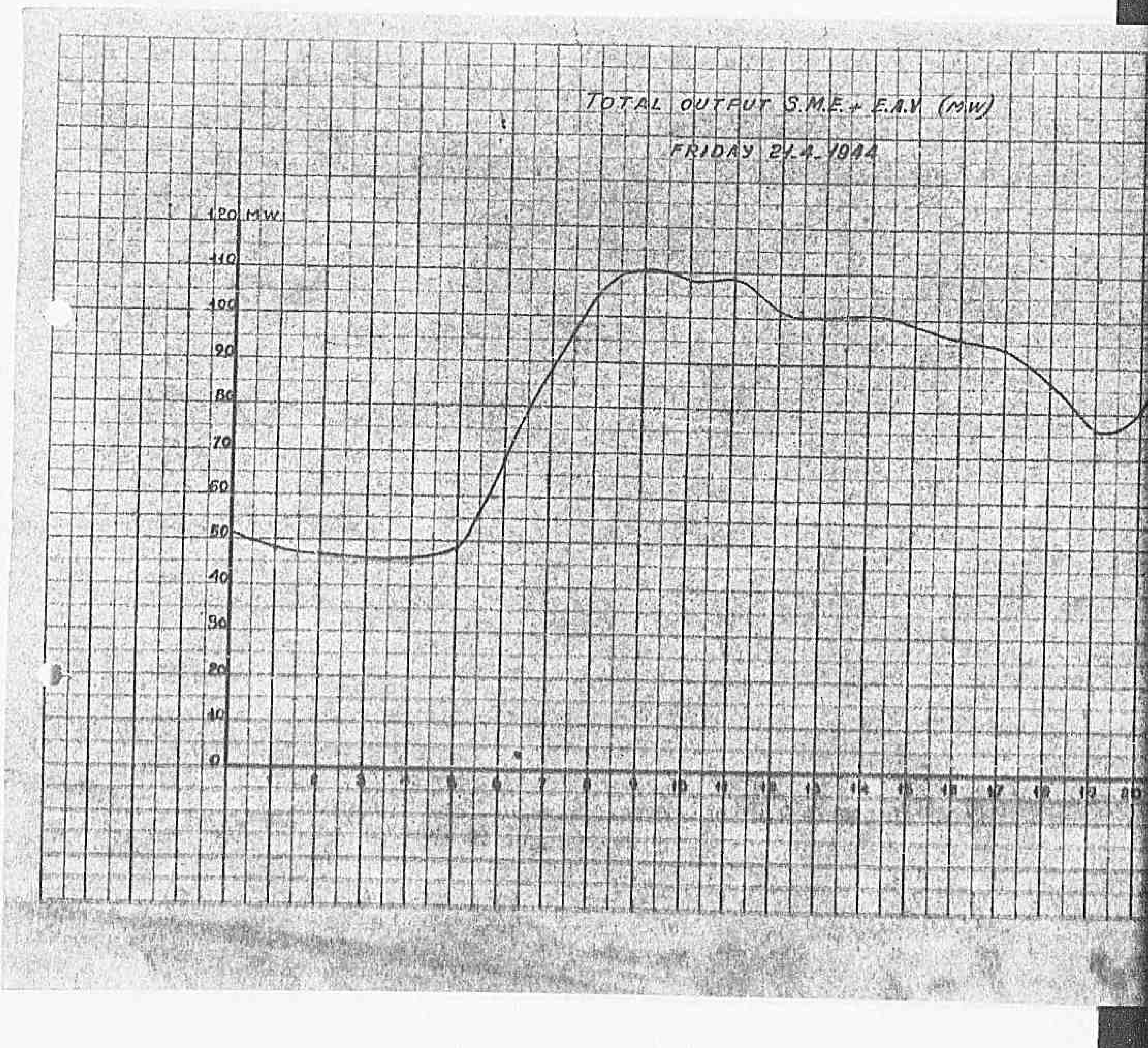


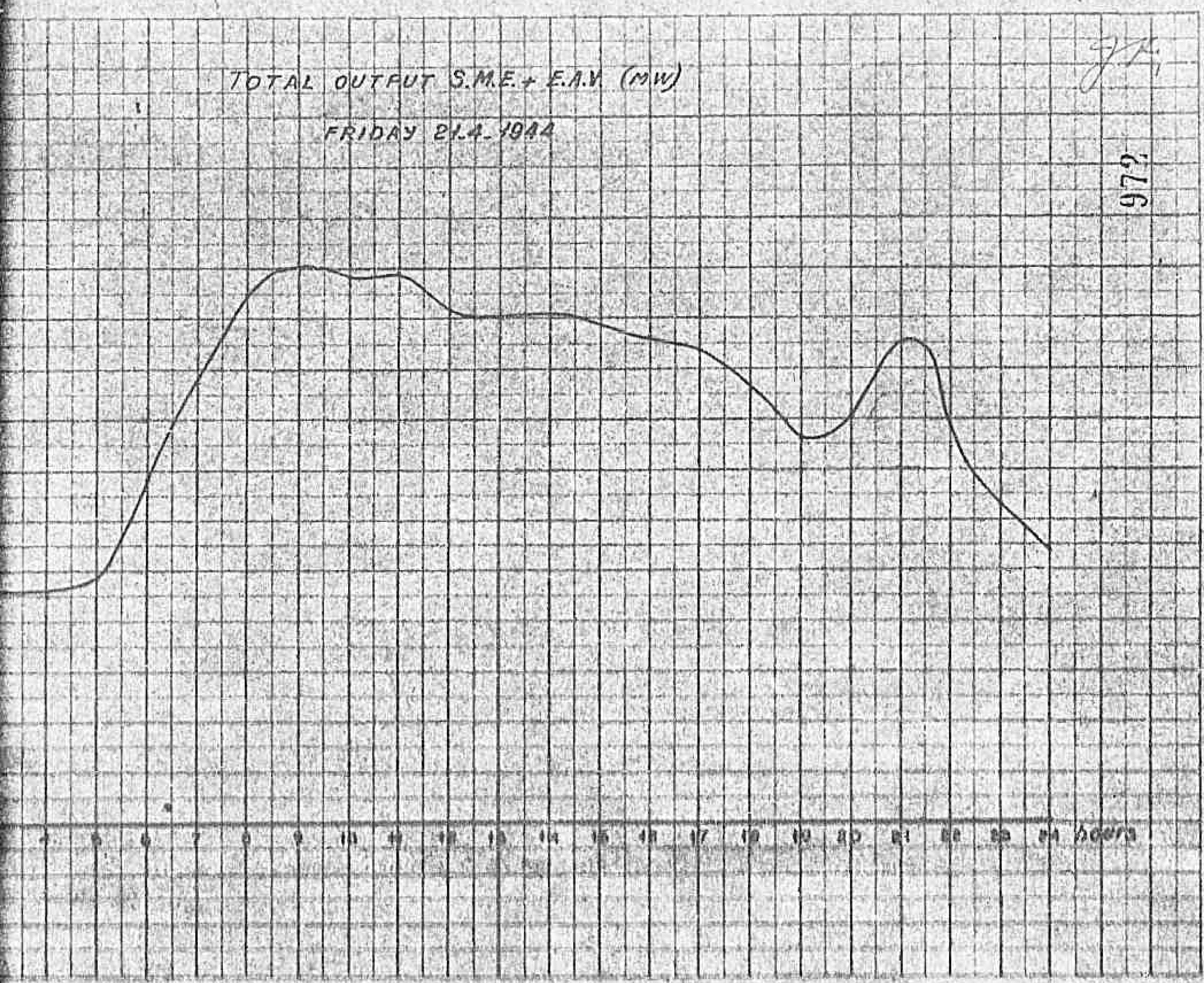
974


TOTAL OUTPUT S.M.E + E.A.V (MW)
Friday 28-4-944
120 MW
110
100
90
80
70
60
50
40
30
20
10
0
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20

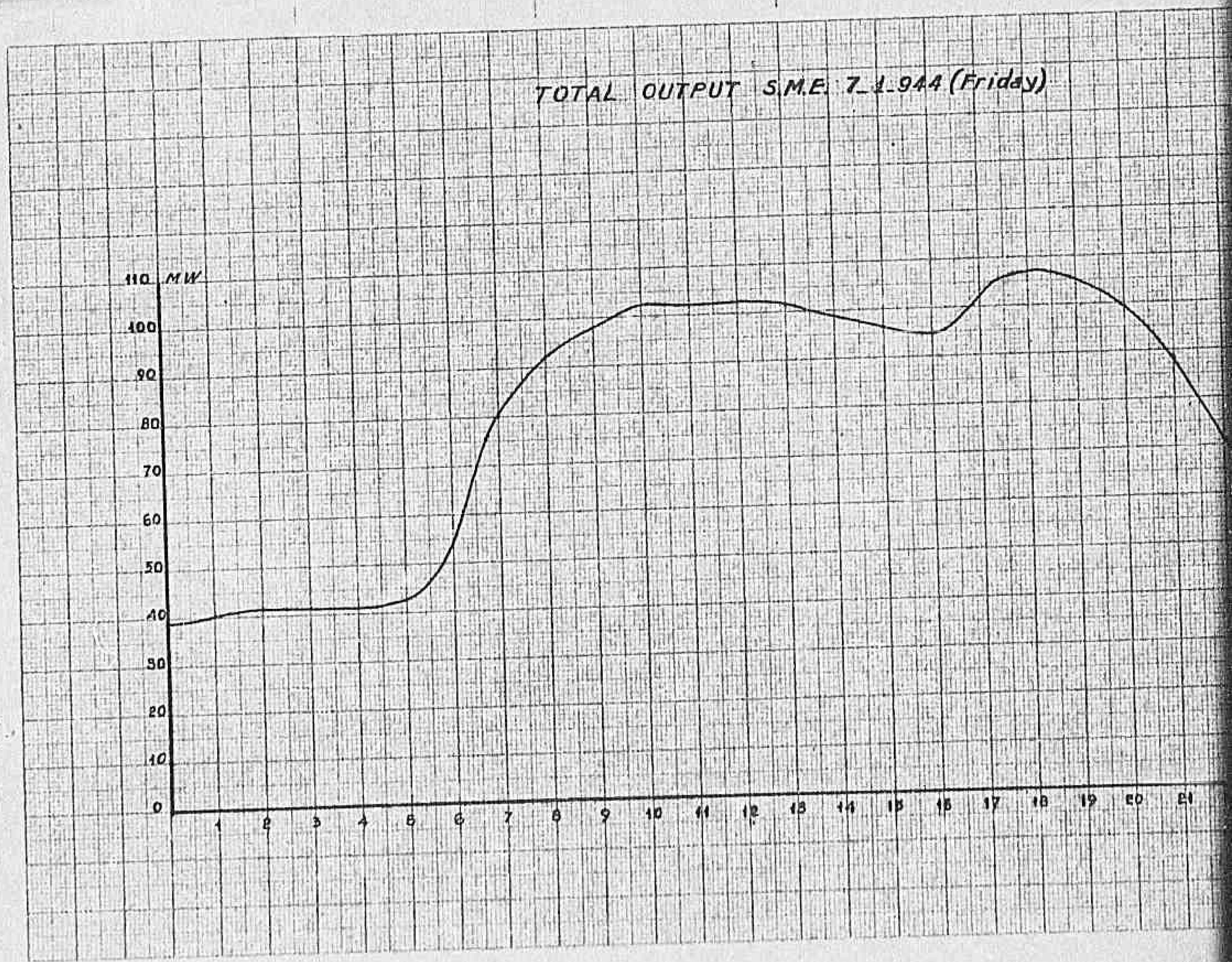
973


TOTAL OUTPUT S.M.E.+E.A.V. (MW)
Friday 28.4.944
4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 hours

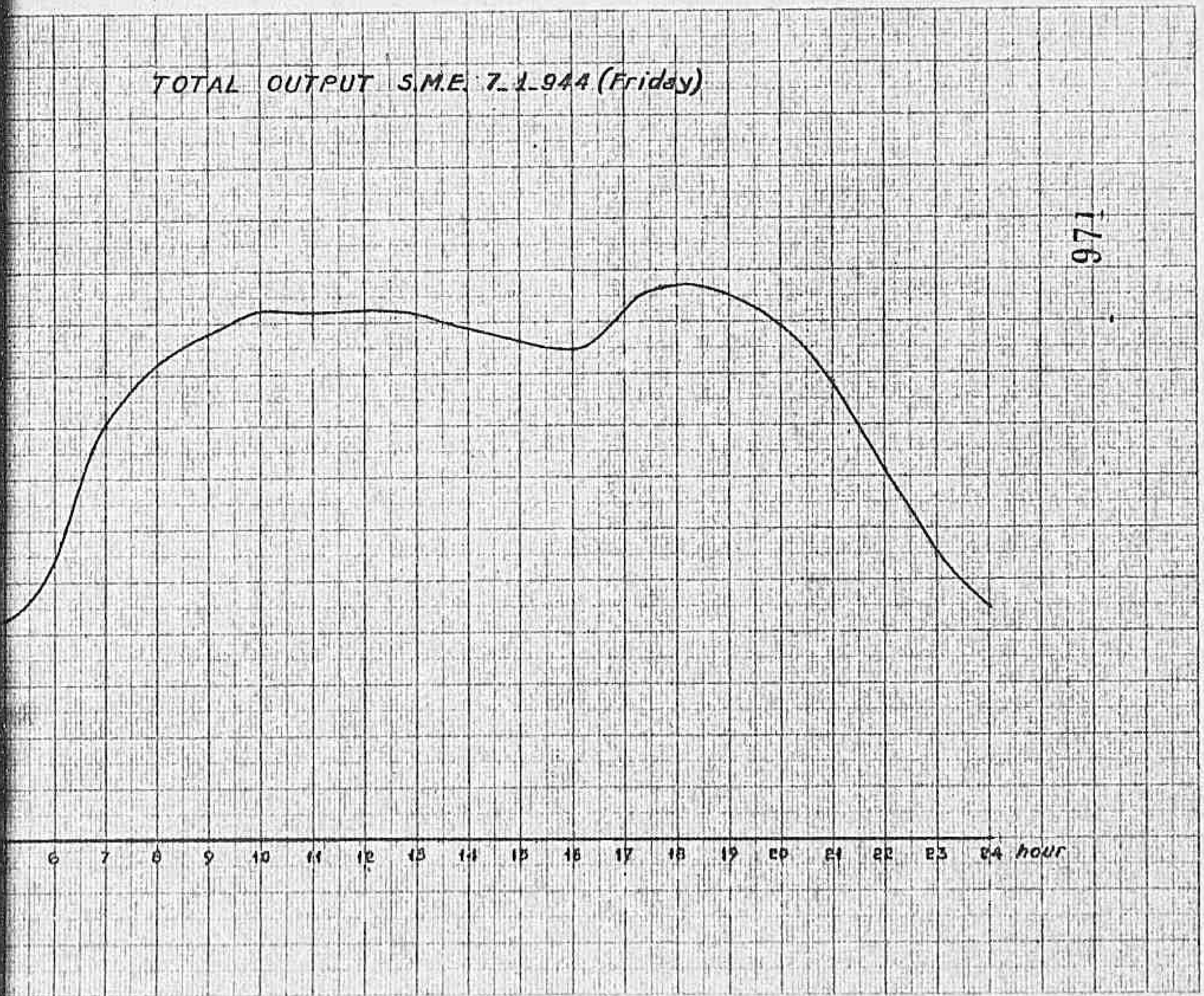

TOTAL OUTPUT S.M.E. + E.A.V. (MW)
FRIDAY 21.4.1944
120 MW.
110
100
90
80
70
60
50
40
30
20
10
0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20



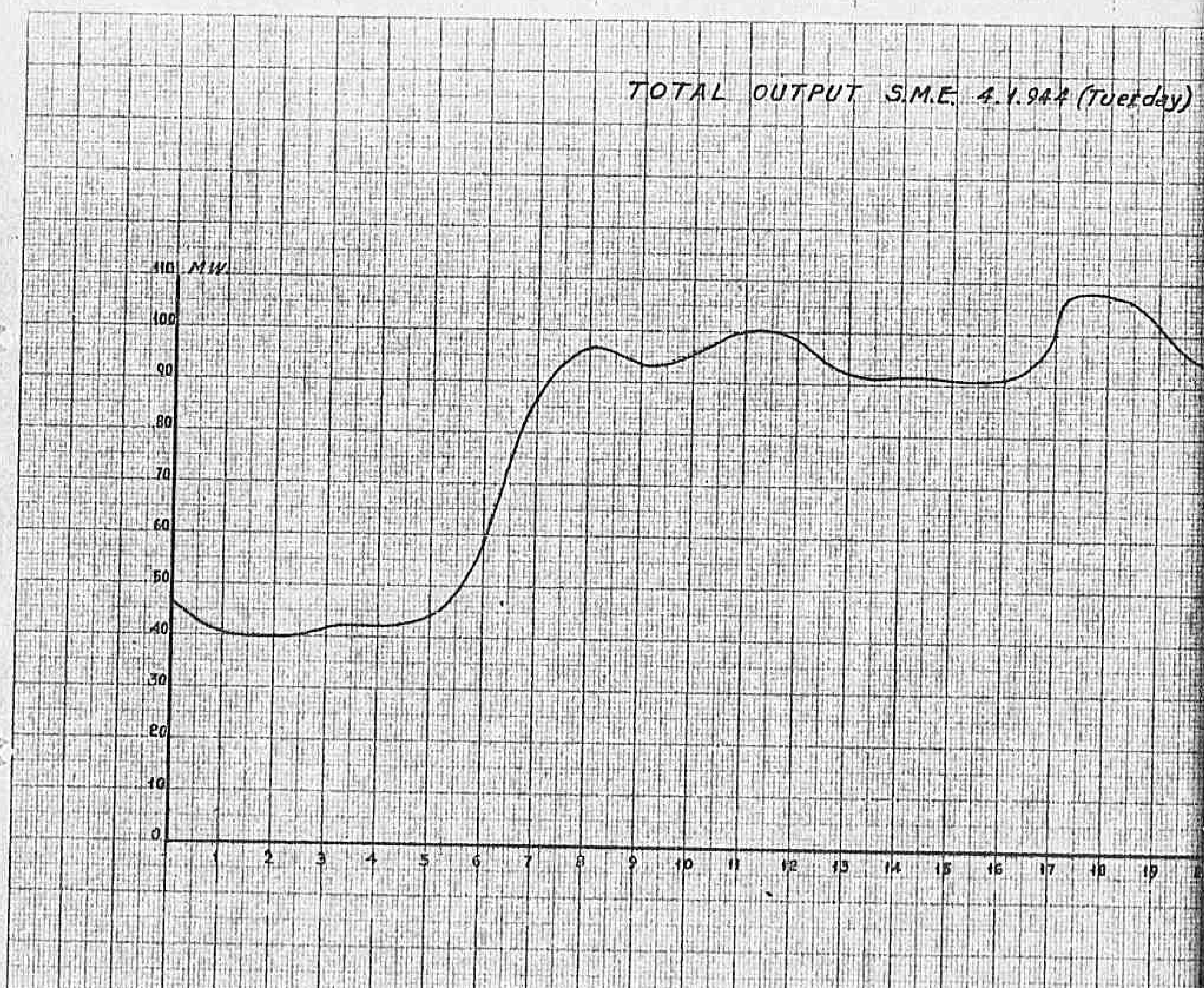
972

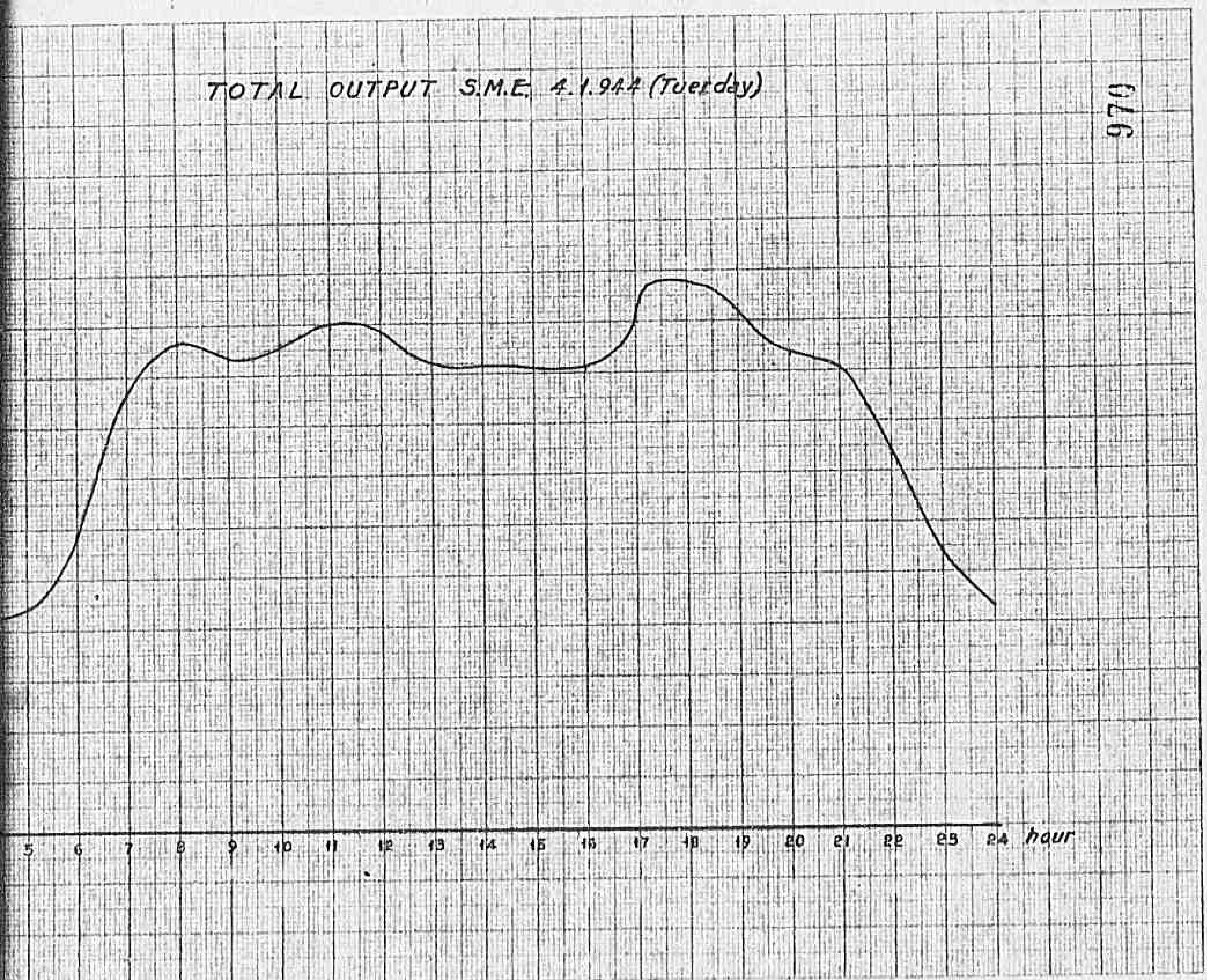


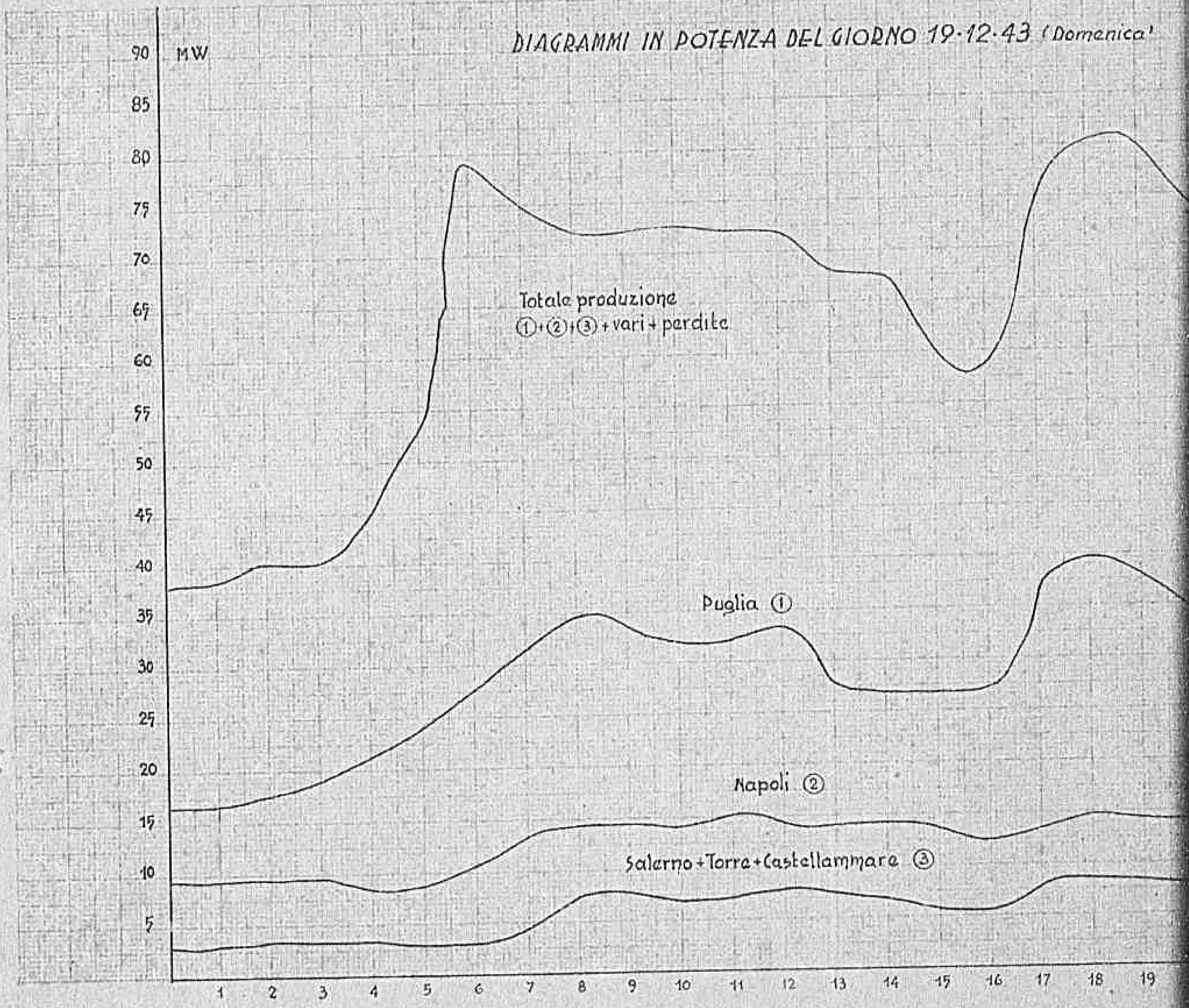
TOTAL OUTPUT S.M.E. 7-1-944 (Friday)
110 MW
100
90
80
70
60
50
40
30
20
10
0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21


TOTAL OUTPUT S.M.E. 7-1-944 (Friday)
6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 hour

971

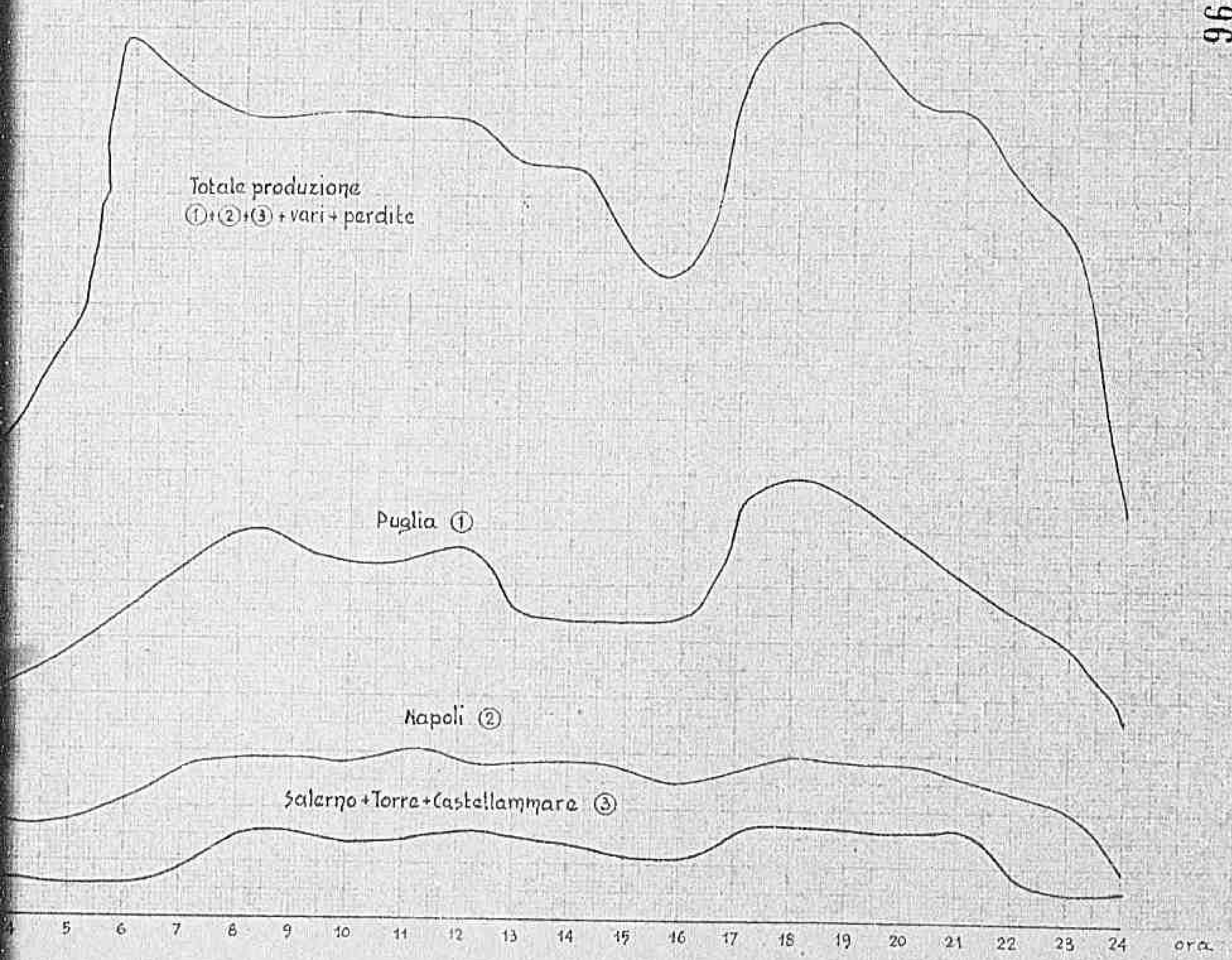

TOTAL OUTPUT S.M.E. 4.1.944 (Tuesday)
MW
110
100
90
80
70
60
50
40
30
20
10
0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19


TOTAL OUTPUT S.M.E. 4.1.944 (Tuesday)
970
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
hour

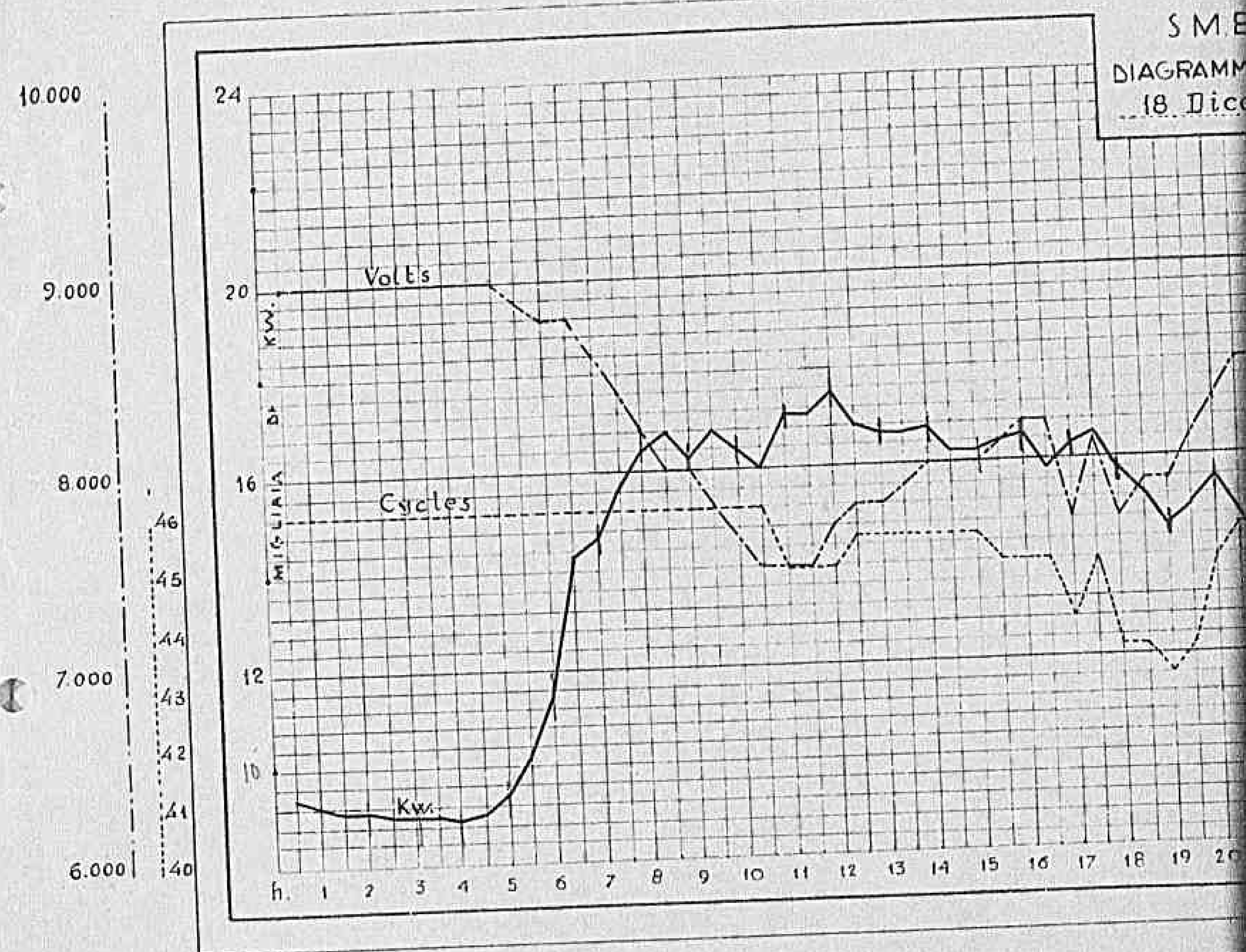

DIAGRAMMI IN POTENZA DEL GIORNO 19·12·43 (Domenica)
MW
90
85
80
75
70
65
60
55
50
45
40
35
30
25
20
15
10
5
Totale produzione
①+②+③ + vari + perdite
Puglia ①
Napoli ②
Salerno + Torre + Castellammare ③
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19

DIAGRAMMI IN POTENZA DEL GIORNO 19·12·43 (Domenica)

969

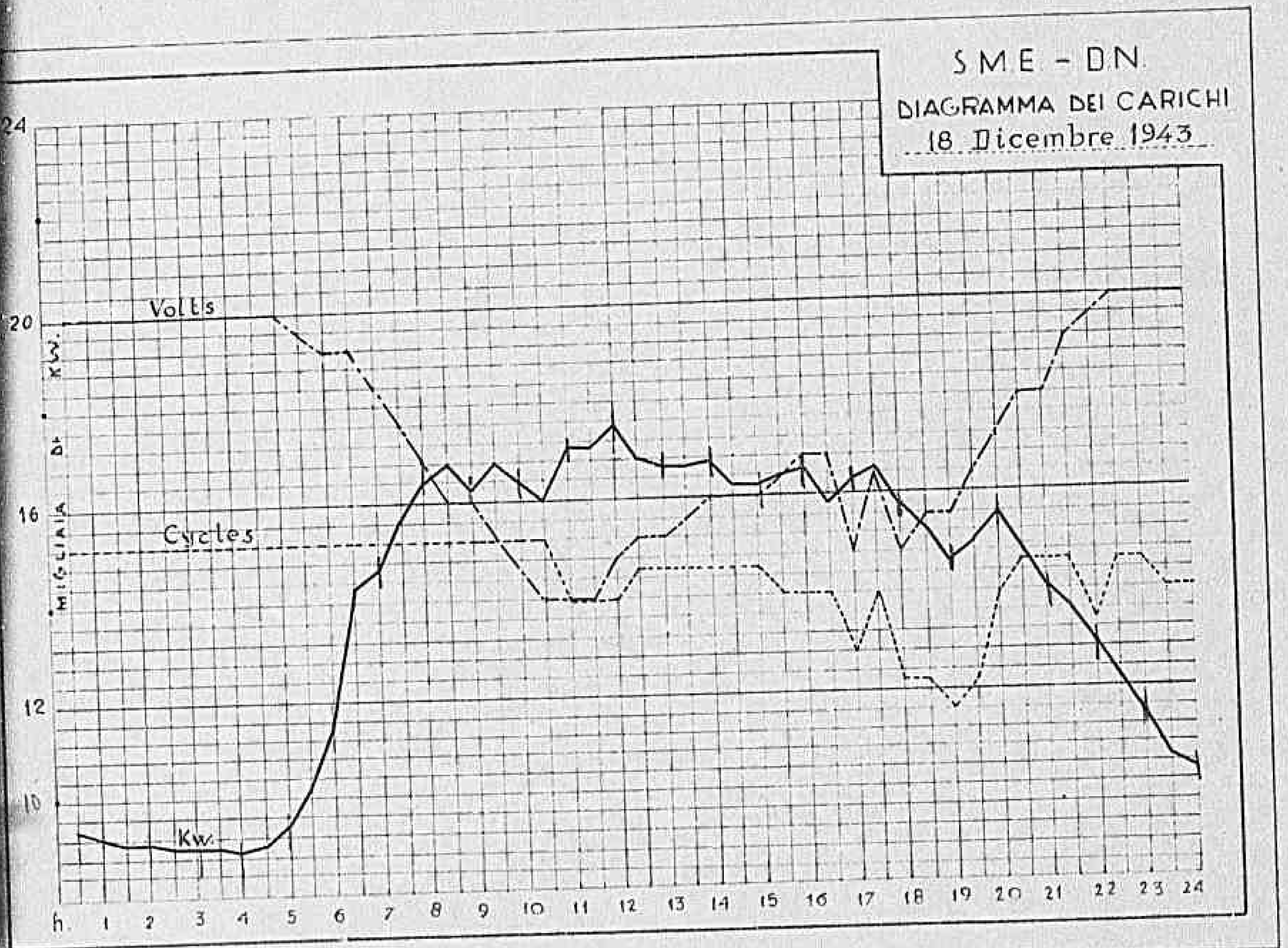


DIS. 2379



Without diesel
All power from Ala & Toscana.

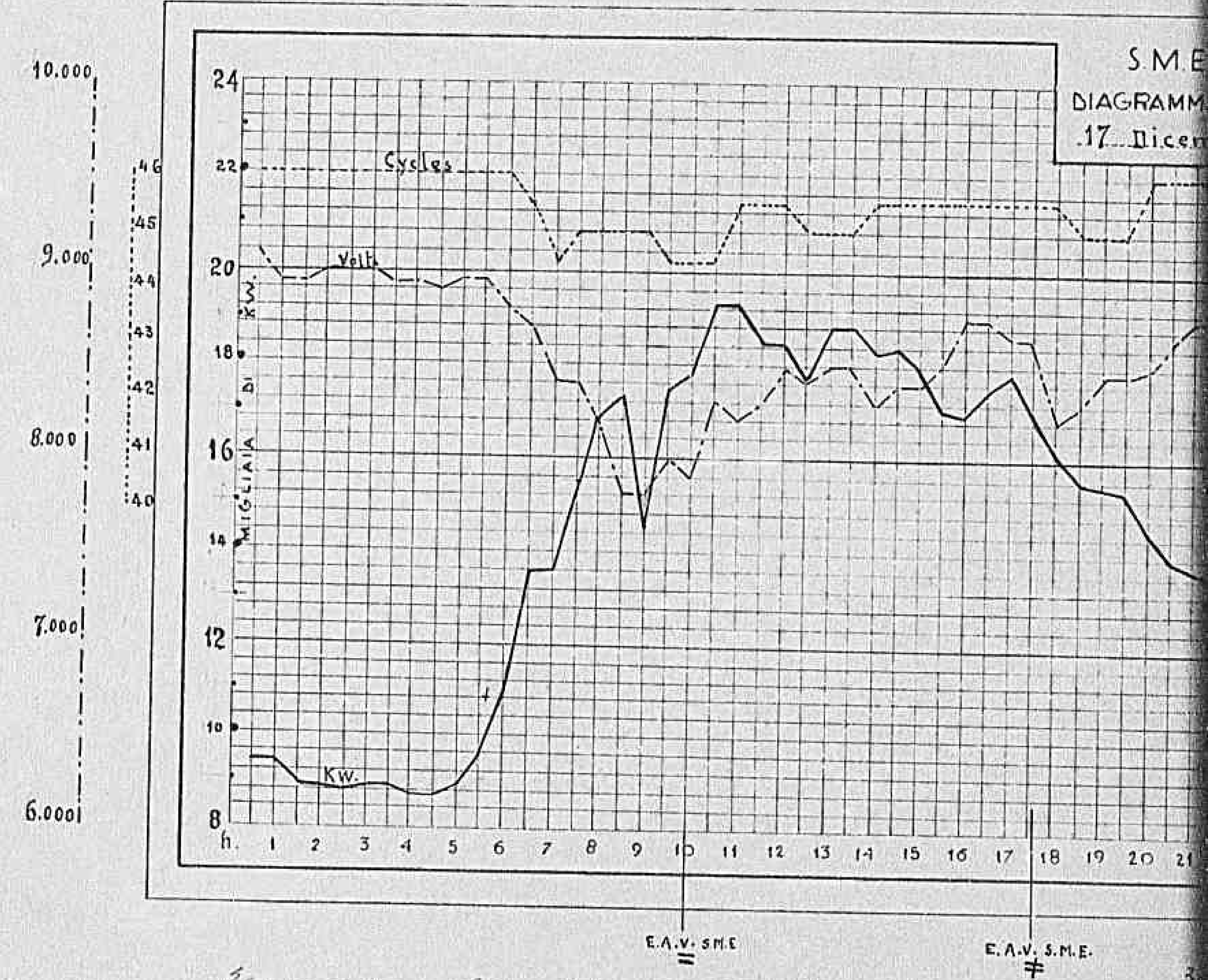
968



344.155 KWh

without diesel
All power from Sila + Tusciano.

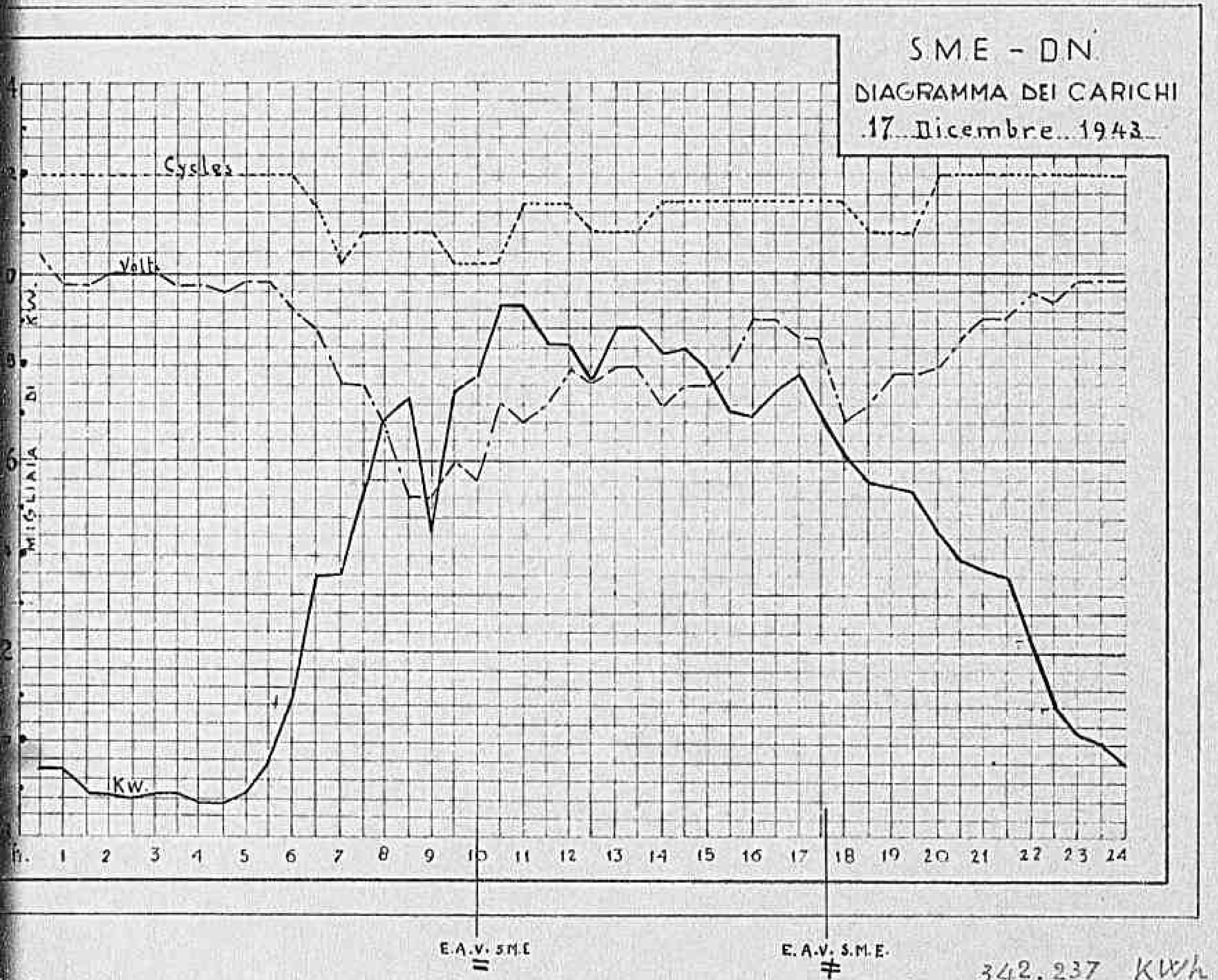
DIS. 2379



Mit 3500 [illegible]

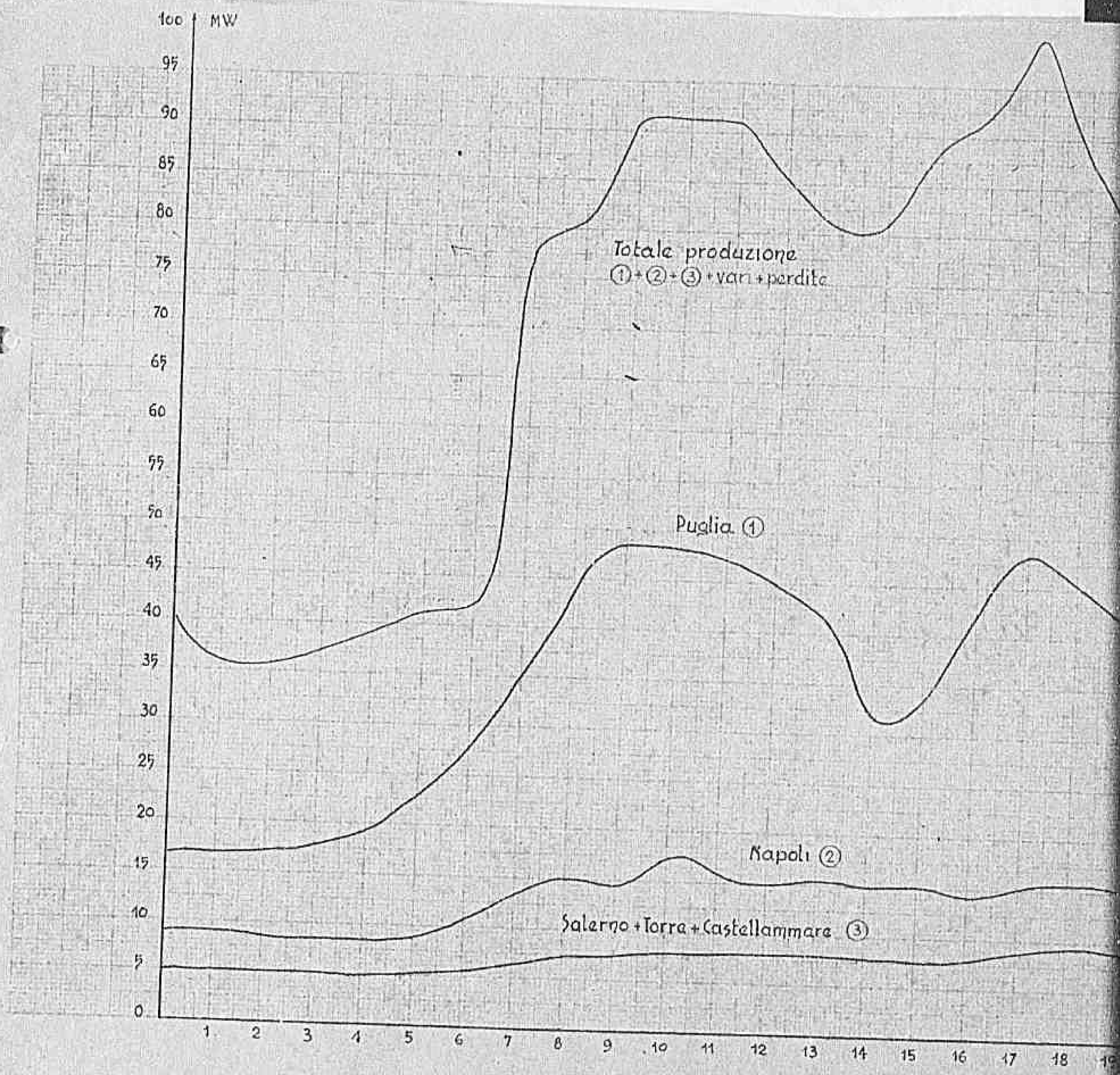
3 NOV 943

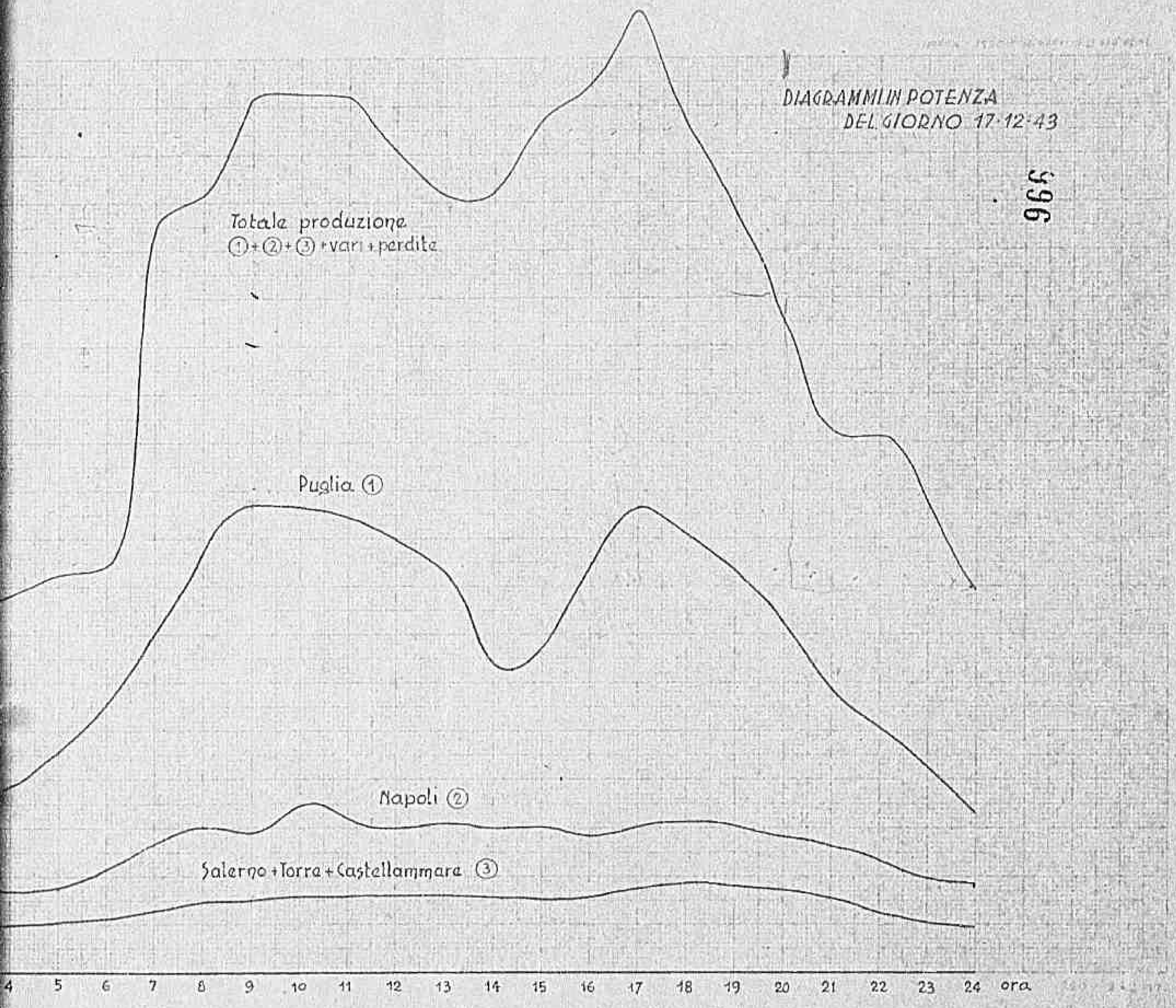
967

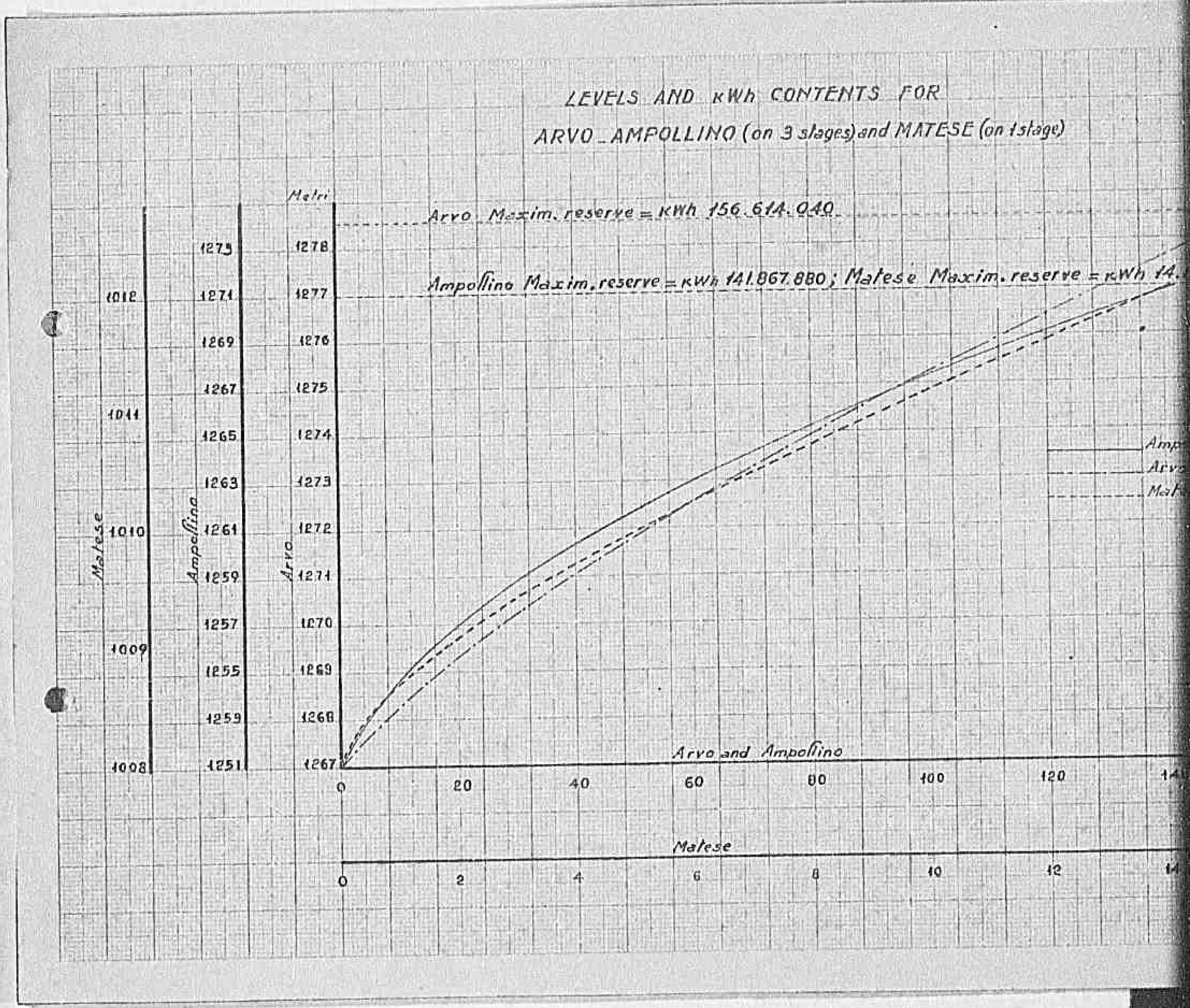


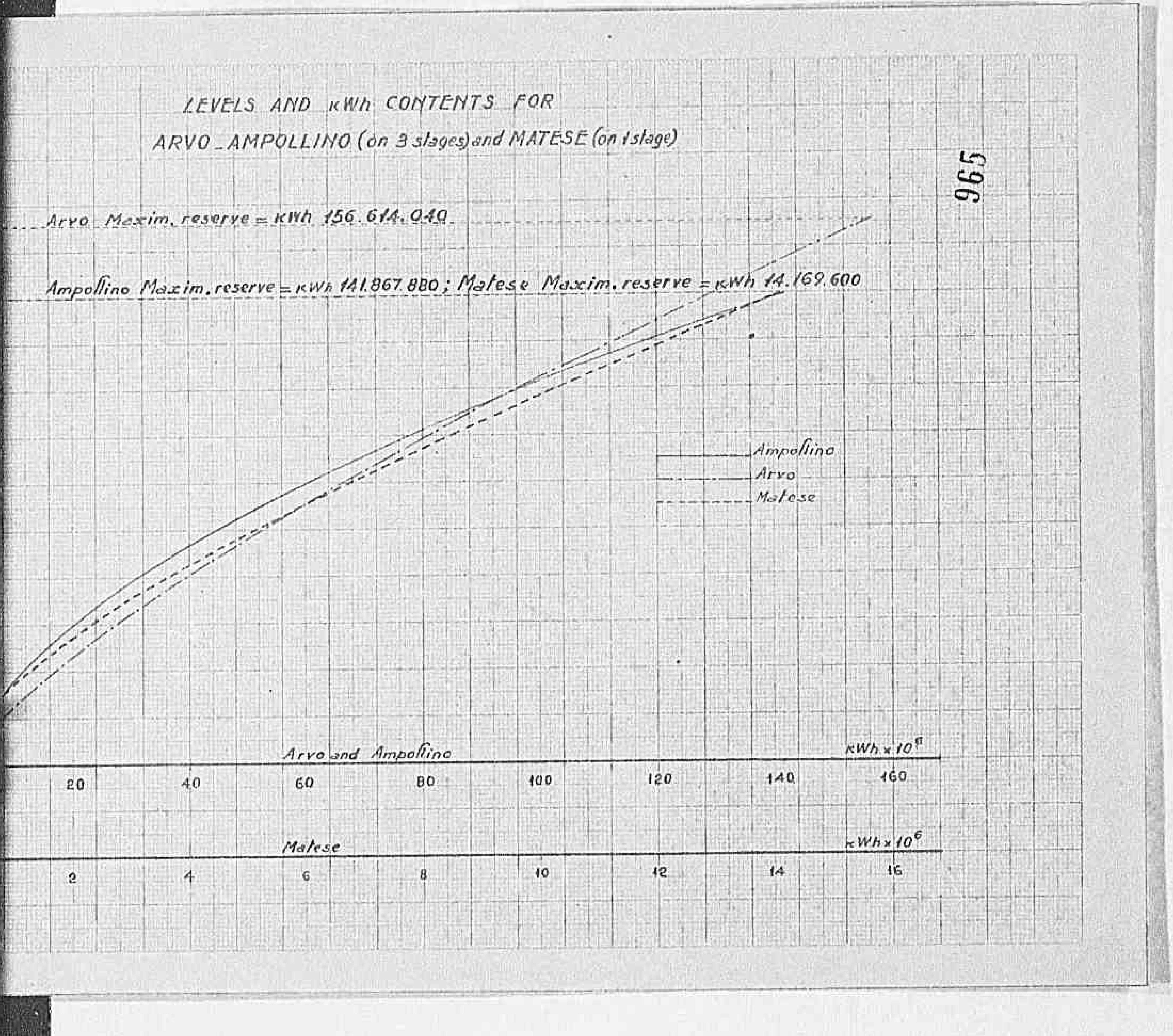
342.237 KWh

With 3500 [illegible]


MW
100
95
90
85
80
75
70
65
60
55
50
45
40
35
30
25
20
15
10
5
0
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18
Totale produzione
①+②+③+vari+perdite
Puglia ①
Napoli ②
Salerno+Torre+Castellammare ③


DIAGRAMMI IN POTENZA
DEL GIORNO 17·12·43
966
Totale produzione
①+②+③+vari+perdite
Puglia ①
Napoli ②
Salerno+Torre+Castellammare ③
4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 ora


LEVELS AND kWh CONTENTS FOR
ARVO_AMPOLLINO (on 3 stages) and MATESE (on 1 stage)
Metri
Arvo Maxim. reserve = kWh 156.614.040
Ampollino Maxim. reserve = kWh 141.867.880 ; Matese Maxim. reserve = kWh 14.
Matese
Ampollino
Arvo
1012
1011
1010
1009
1008
1273
1271
1269
1267
1265
1263
1261
1259
1257
1255
1253
1251
1278
1277
1276
1275
1274
1273
1272
1271
1270
1269
1268
1267
Arvo and Ampollino
0
20
40
60
80
100
120
Matese
0
2
4
6
8
10
12
Amp
Arvo
Mat



LEVELS AND kWh CONTENTS FOR
ARVO_AMPOLLINO (on 3 stages) and MATESE (on 1 stage)
965
Arvo Maxim. reserve = kWh 156.614.040
Ampollino Maxim. reserve = kWh 141.867.880 ; Matese Maxim. reserve = kWh 14.169.600
Ampollino
Arvo
Matese
Arvo and Ampollino
kWh x 10⁶
20
40
60
80
100
120
140
160
Matese
kWh x 10⁶
2
4
6
8
10
12
14
16

SYNCHRONOUS CONDENSER SPEEDS

SME SYSTEM

Information given JPG by Ing Cavellini on 9 March –

Plant	RPM
Tusciano	675
Bari	675
Foggia.	900.

VBR
11/3/44.

CAPO VULTURNO PLANT. (1)
PRELIMINARY CALCULATIONS
RE USE OF 3,000 KW UNIT.

Assumptions

Unit Capacity : 3,000 kw : 4,020 HP.

Head : 190 meters : 624 Feet.

Plant efficiency : 85%

Jet efficiency : 97%.

Wheel to run at 44% of spouting velocity.

Calculations

$$Q = \frac{H.P. \times 8.8}{H \times e} = \frac{4020 \times 8.8}{624 \times .85} = \underline{66.8\ Ft^3/Sec.}$$

$$\text{Jet Velocity} : .97\sqrt{2gh} = .97\sqrt{2 \times 32.2 \times 624}$$
$$= 194\ Ft/Sec.$$

$$\text{Jet Area} : \frac{Q}{\text{Jet Velocity}} : \frac{66.8}{194} \times \frac{144}{1} : 49.5\ in^2.$$

For one jet-

$$\text{diameter} = \sqrt{\frac{\text{Jet Area}}{.7854}} : \sqrt{\frac{49.5}{.7854}} : \underline{7.93\ in}$$

For two jets-

$$\text{diameter} : \sqrt{\frac{49.5}{2 \times .7854}} : \underline{5.6\ in.}$$

CAPO VULTURNO PLANT.
PRELIMINARY CALCULATIONS
RE USE OF 3,000 KW UNIT.

Calculations (Continued)

Velocity of wheel = .44 x 194 = 85.4 Ft/Sec.

Tabulation of wheel diameters for 45 cycle operation:

SPEED OF UNIT-RPM	N_s	NO. POLES		WHEEL DIAMETER"	RATIO- IMPULSE DIAMETER / JET DIAMETER. ONE JET	TWO JETS.
450	9.14	12		43.5"	5.49	7.76
385	7.81	14		50.8"	6.40	9.07
337	6.84	16		58.0"	7.31	10.36
300	6.09	18		65.2"	8.25	11.69
270	5.48	20		72.5"	9.15	12.97
225	4.56	24	OK	87.0"	10.98	15.54
180.	3.66	30		108.9"	13.74	19.43.

OK based on $N_s < 5.5$ and with ratio impulse diameter/jet diameter ranging between limits of 11 and 17.

BK
8/3/44.

962

SOCIETÀ MERIDIONALE DI ELETTRICITÀ

SULPHURIC ACID DENSITIES AT I5° C. TEMP.

(Water at 4° C. = 1,000)

Specific gravity (15° C. temp.)	Beaumé grades	Twaddell grades
1,000	0,0	0
1,025	3,4	5
1,050	6,7	10
1,075	10,0	15
1,100	13,0	20
1,125	16,0	25
1,150	18,8	30
1,175	21,4	35
1,200	24,0	40
1,225	26,4	45
1,250	28,8	50
1,275	31,1	55
1,300	33,3	60
1,325	35,4	65
1,350	37,4	70
1,375	39,4	75
1,400	41,2	80
1,425	43,1	85
1,450	44,8	90
1,475	46,4	95
1,500	48,1	100
1,525	49,7	105
1,550	51,2	110
1,575	52,7	115
1,600	54,1	120
1,625	55,5	125
1,650	56,9	130
1,675	58,2	135
1,700	59,5	140
1,725	60,6	145
1,750	6I,8	150
1,775	63,0	155
1,800	64,2	160

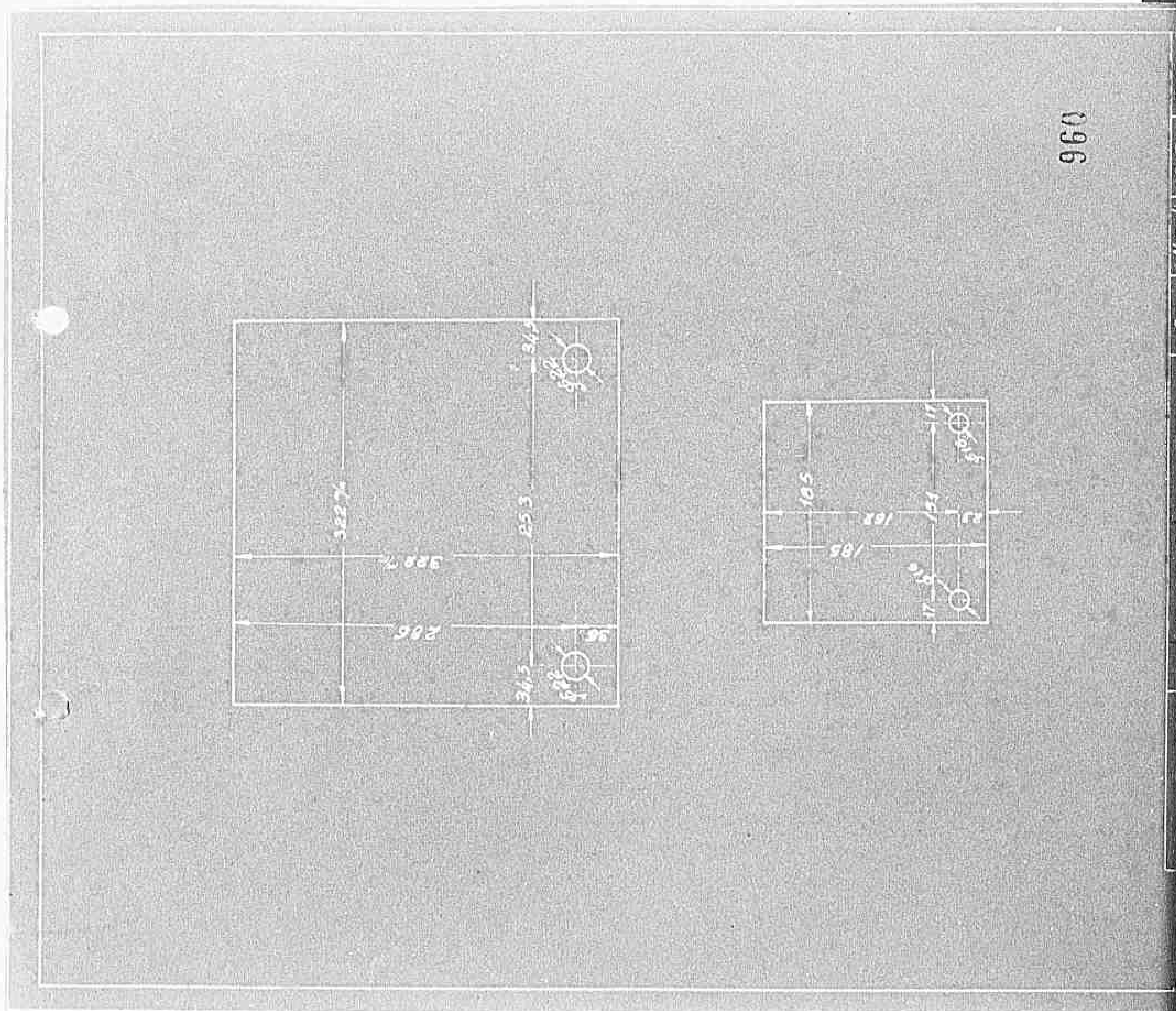
961

Naples, March I944
GC/GDr

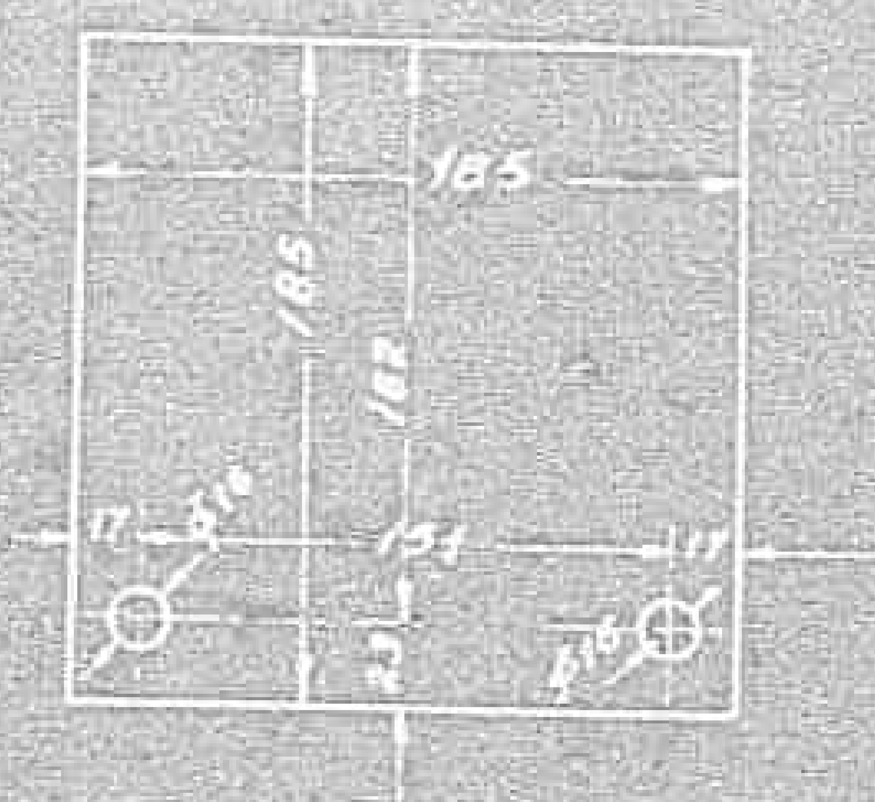
To Major Price ordered

from G. Cavallini 20. III. 44

Transformer Filter Papers.



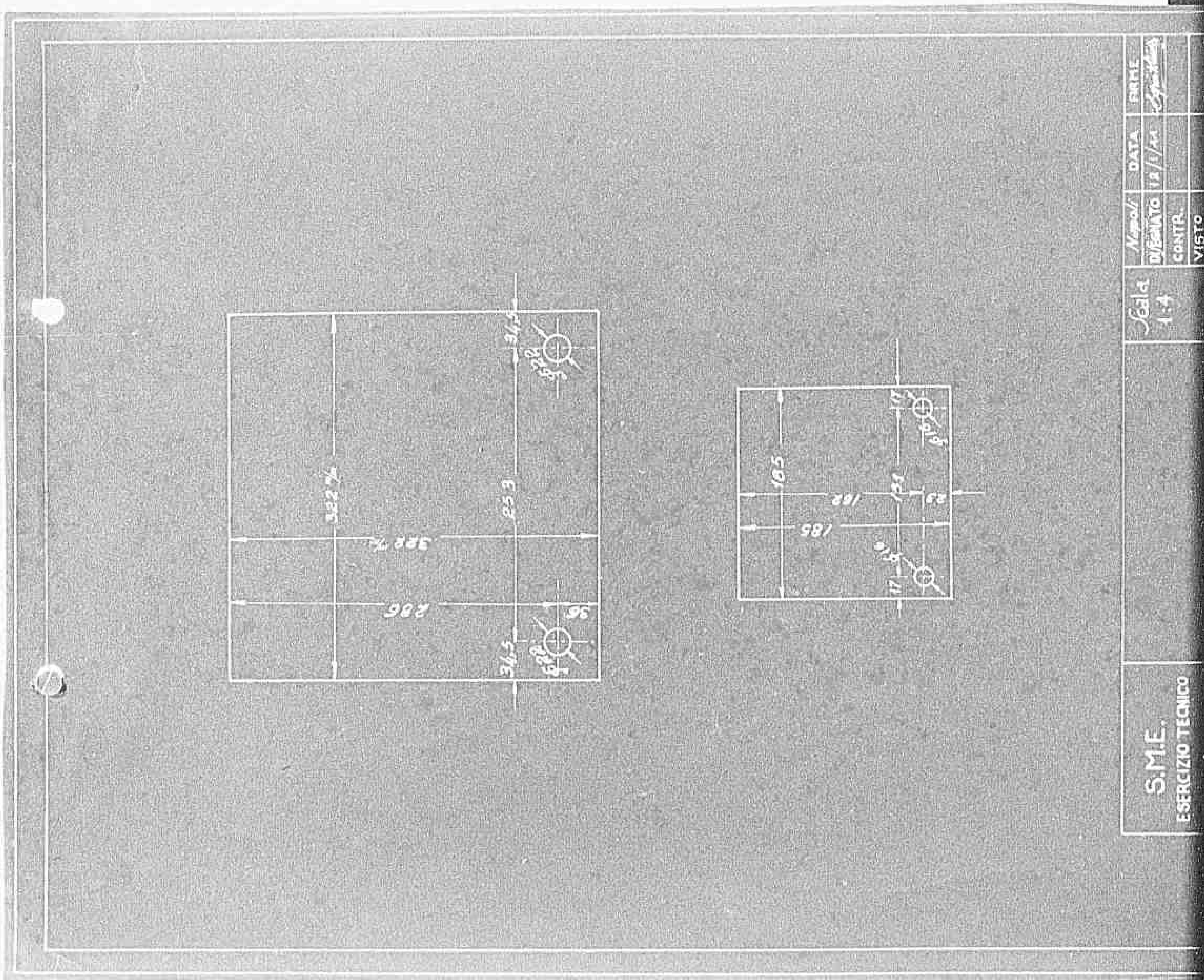
1288

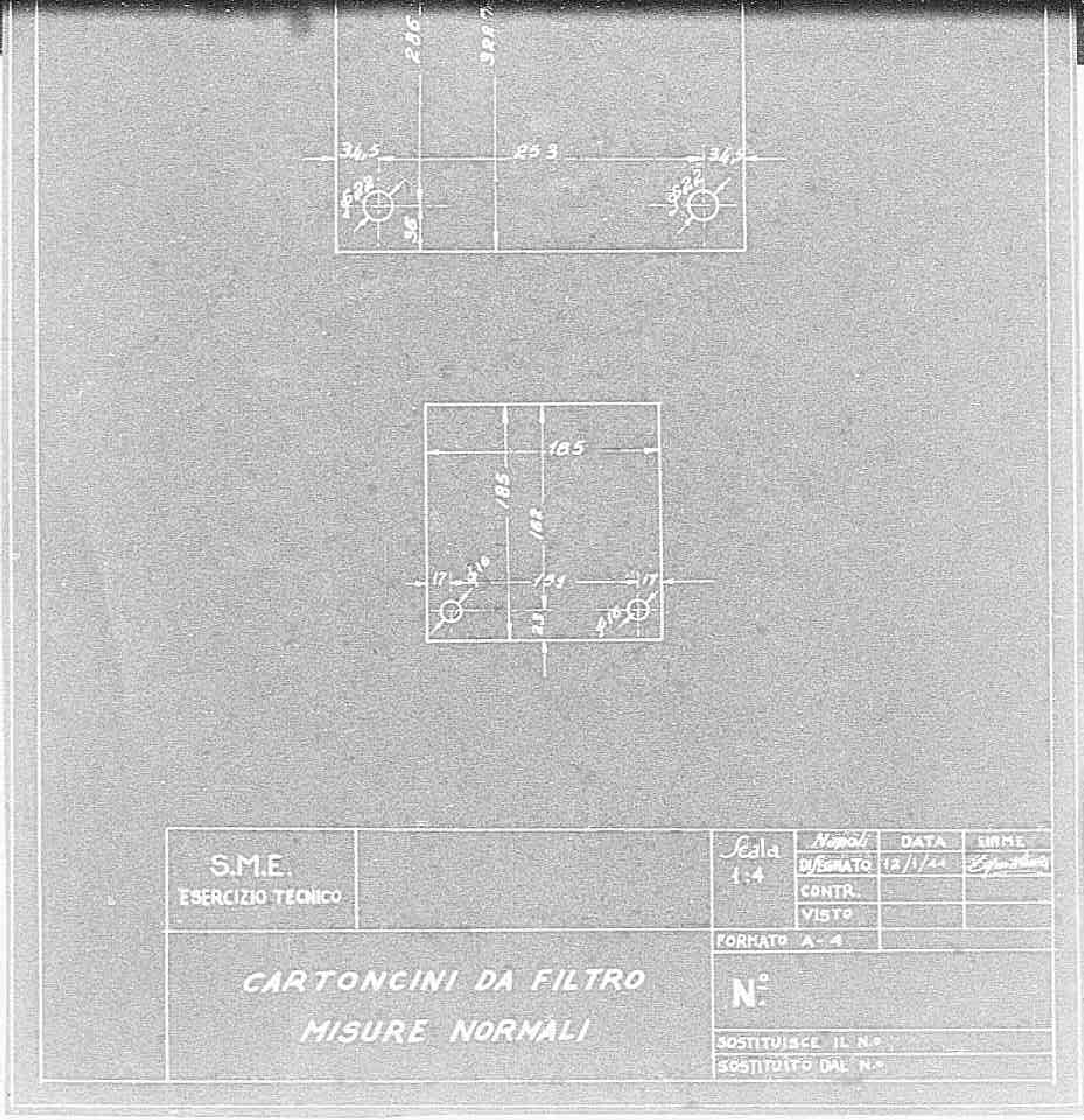


960

S.M.E. ESERCIZIO TECNICO		Scala 1:4	Napoli	DATA	FIRME
			DISEGNATO	12/1/44	[illegible]
			CONTR.		
			VISTO		
CARTONCINI DA FILTRO MISURE NORMALI		FORMATO A-4			
		N°			
		SOSTITUISCE IL N°			
		SOSTITUITO DAL N°			

Declassified E.O. 12356 Section 3.3/NND No. [illegible]




286
388
34,5
253
34,5
22
22
36
185
185
182
17
16
151
17
23
16
S.M.E.
ESERCIZIO TECNICO
Scala
1:4
Napoli
DATA
FIRME
DISEGNATO
12/1/44
CONTR.
VISTO
FORMATO A-4
CARTONCINI DA FILTRO
MISURE NORMALI
N.°
SOSTITUISCE IL N.°
SOSTITUITO DAL N.°

L G Price
Major RE.

A · F · H · Q

DIRECTORATE OF WORKS

TECHNICAL INSTRUCTION Nº 24

OVERHEAD TRANSMISSION LINES
(ELECTRICAL POWER)

INCLUDING
SAG & SPAN CHARTS.
IMPROVISED SUPPORTS
HUT CONNECTIONS.

TECHNICAL INSTRUCTION No 24

OVERHEAD TRANSMISSION LINES
(ELECTRICAL POWER)

INCLUDING

SAG & SPAN CHARTS.
IMPROVISED SUPPORTS
HUT CONNECTIONS.

FEBRUARY 1944

959

OVERHEAD TRANSMISSION LINES (ELECTRICAL POWER)

(1) TRANSMISSION.

High voltages are used for this purpose and the lines are invariably E.H.T. (Extra High Tension, e.g. above 33,000 V.). One or more circuits may be run on the same supports. Lattice towers are usual to support the conductors although steel channel masts and wooden masts may be employed either singly, with cross arms or as portals. Over flat country with towers of 65' high, spans of 900 feet are normal. Conductors may be of copper or steel cored aluminium. Insulators may be of Pin or Disc type.

(2) DISTRIBUTION.

(a) High voltage distribution lines, which feed transformer stations for local distribution, employ similar type supports as above, although the wooden pole with cross arms are most favoured with "A" or "H" supports where heavy loading and/or transformers and switchgear have to be mounted. Span lengths are up to 400'.

(b) Low tension distribution employ largely single poles of wood, concrete or steel. Conductors are usually erected in the vertical plane spaced between 9" to 1' 3". Span length is normally governed by branches and services.

(3) SPANS.

The factors governing spans are as follows:-

(i) Height of supports.
(ii) Strength of supports.
(iii) Weight of conductor.
(iv) Nature of terrain.
(v) Sag and tension of conductors.

The nature of the terrain will affect span and sag when items, 1, 2 and 3 are standardised. Where conditions permit it is desirable to have dead straight runs, equal spans, equal sag of the wire and equal tension. Tension should preferably be equal both sides of a support, this enables the minimum size support to be used. Unequal tension necessitates the use of stay wires (Figs. 1, 2 and 3, Appendix "D"), or struts. Minimum and maximum sag and tension (Appendix "C") are governed by the strength of wire, ground clearance etc. Staying is desirable every 4th or 5th support in straight runs. A stouter support should be used in these cases and the jointing of conductors may be also carried out. Stays or struts will normally be required for line deviations exceeding 10°. Pylons are normally designed for unequal tensions without the use of stays.

(4) IMPROVISED SUPPORTS.

Appendix "E" shows two forms of improvised supports utilising 3" and 4" S & S, W.I. Water pipe, which could be used for both Transmission and Distribution. By reference to Appendix "A" and "C" lines using these supports may be designed. Modification of the supports will be necessary for line transposition.

(5) INSULATORS.

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(5) INSULATORS.

Several types of insulators are available for use and those which appear in the Engineer Stores Schedule are as follows:-

2" Bobbin	- Suitable for insulated L.T. conductors.
Service type	- Used for taking off services from distribution poles and terminating on huts, etc.
Shackle type	- L.T. distribution will take up to .1 H.D.C. conductor.
Pin type	- Standard cap and Pin 15 KV for H.T. lines.
Suspension type 7" discs	- 2 discs in series up to 11 KV.
"	4 " " " " " 22 KV.
" 10" discs	- 2 " " " " " 22 KV.
	4 " " " " " 40 - 60 KV.

It may be necesary to add more discs in salt laden or damp situations.

(6) CONNEXIONS TO HUTS

(6) CONNEXIONS TO HUTS.

At the earliest possible stage it is advisable to agree with R.Sigs. the arrangement and runs of signal connexions as they will be competitors for the use of the most convenient alignments, leading in position and the like.

(7) ROMNEY HUTS.

Appendix."F" shows three methods of terminating on Romney Hut ends.

Method (1) Shows a standard of 4" x 3" timber bolted to the main 4" x 2" channel by means of 4 bolts and nuts. It may be necessary to put a plate under the two bolt heads in the case of unseasoned timber.

Method (2) Shows a service termination where more than a two wire entry is necessary 2" x ½" mild steel is bent to form a bracket to take standard "D" iron for shackle insulators.

Method (3) Is a modification of (1) using "U" bolts for fixing the 4" x 3".

It is possible to have more combinations of fixings by modifications of the three methods shown above, e.g. the fixing of the bracket shown in Method (2) by means of the "U" bolts described in Method (3).

(8) NISSEN HUTS 16' and 24'.

The standard method of terminating an incoming service is shown at Appendix "G". The timber is shown bolted to the brick or wood end. It is preferable in the case of wood ends to bolt through to a piece of 4" x 2" placed on the inside of the hut for greater strength.

The service is shown being led into the hut by means of screwed conduit. The size is dependent upon the number of wires to be led in. Electric conduit should be used where possible but water pipe can be used in lieu, care being taken to ensure that the inside of the pipe is free from sharp edges.

The pipe is bent and the wires threaded through on the bench. The assembly should be mounted complete on the 4" x 2" timber and secured by means of saddles. Earthing of the conduit will not be necessary providing it is kept out of reach from a person standing on the ground. The pipe should be bushed both ends by means of the correct bushes, wood or insulating tape.

This method of entry may also be used for the Romney hut.

(9) GENERAL.

Further information on wires, conductors and overhead lines may be found in D.W. Technical Instruction No.19 "Electrical Notes for Mechanists".

M.H.G. Costello
Colonel.

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WHG Costelloe
Colonel

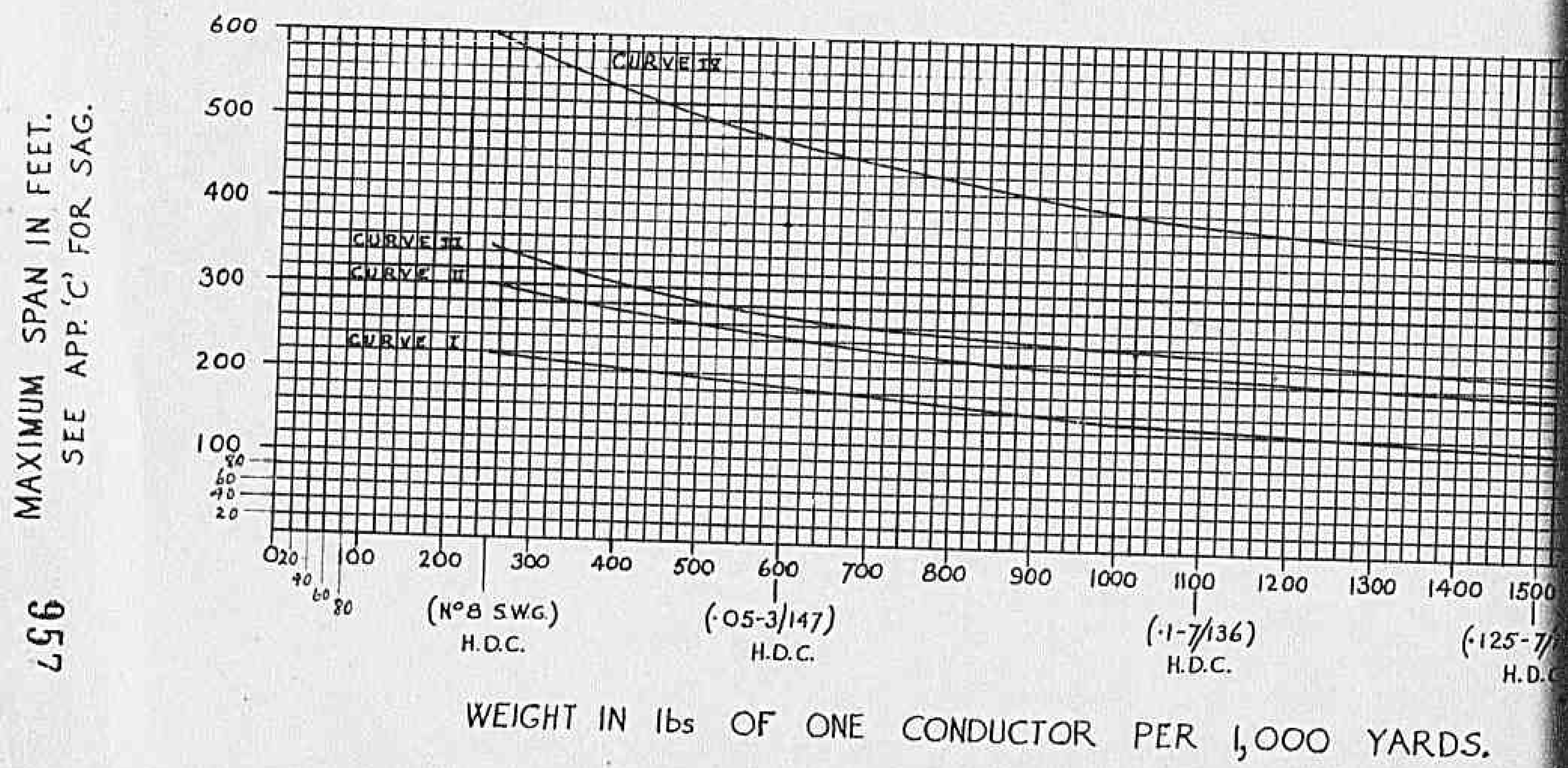
W.H.G.COSTELLOE,
Colonel,
for Brigadier,
Director of Works,
A.F.H.Q.

DISTRIBUTION:- Scale D (plus Units with Mechanists).

Note:- D.W.T.I. No.23 - "Stores issued and Services rendered to the Council of Voluntary War Work (C.V.W.W.) and the British Red Cross Society (B.R.C.S.)" - was for special distribution in NORTH AFRICA only.

GRAPH SHOWING MAXIMUM CONDUCTOR SPAN FOR EQUALLY SPACED
WITH SIMULTANEOUS WIND AND ICE LOADING.

CURVE I. 3" NON-RIGID STRUCTURE 25' ABOVE GROUND.
" II. 4" " " " 30' " "
" III. 3" RIGID " 30' " "
" IV. 4" " " 30' " "

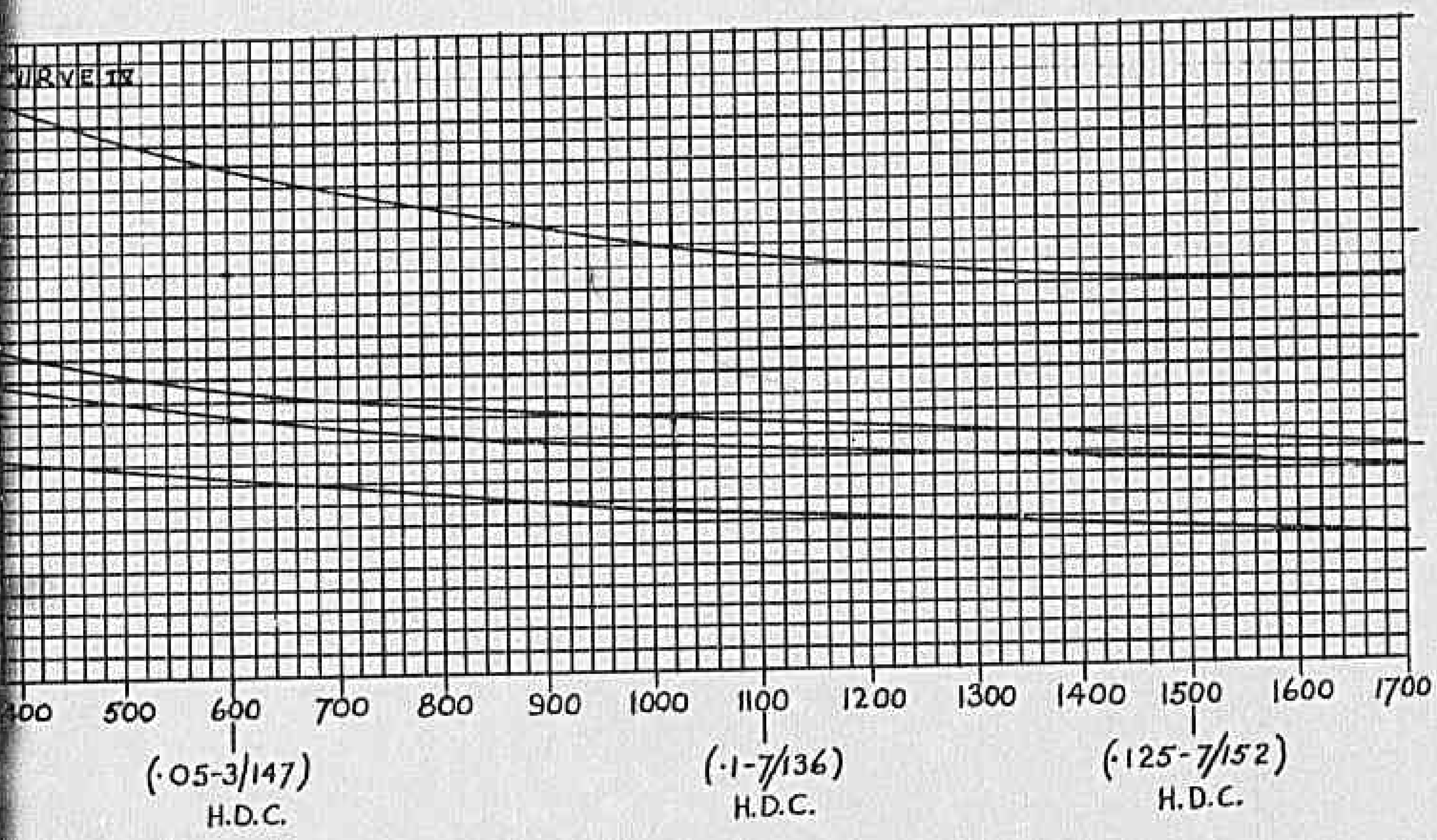


957

D. W. A.F.H.Q.

APPENDIX A.

ONDUCTOR SPAN FOR EQUALLY SPACED CONDUCTORS (3 N°)
ND ICE LOADING.
STRUCTURE 25' ABOVE GROUND.
" 30' " "
" 30' " "
" 30' " "

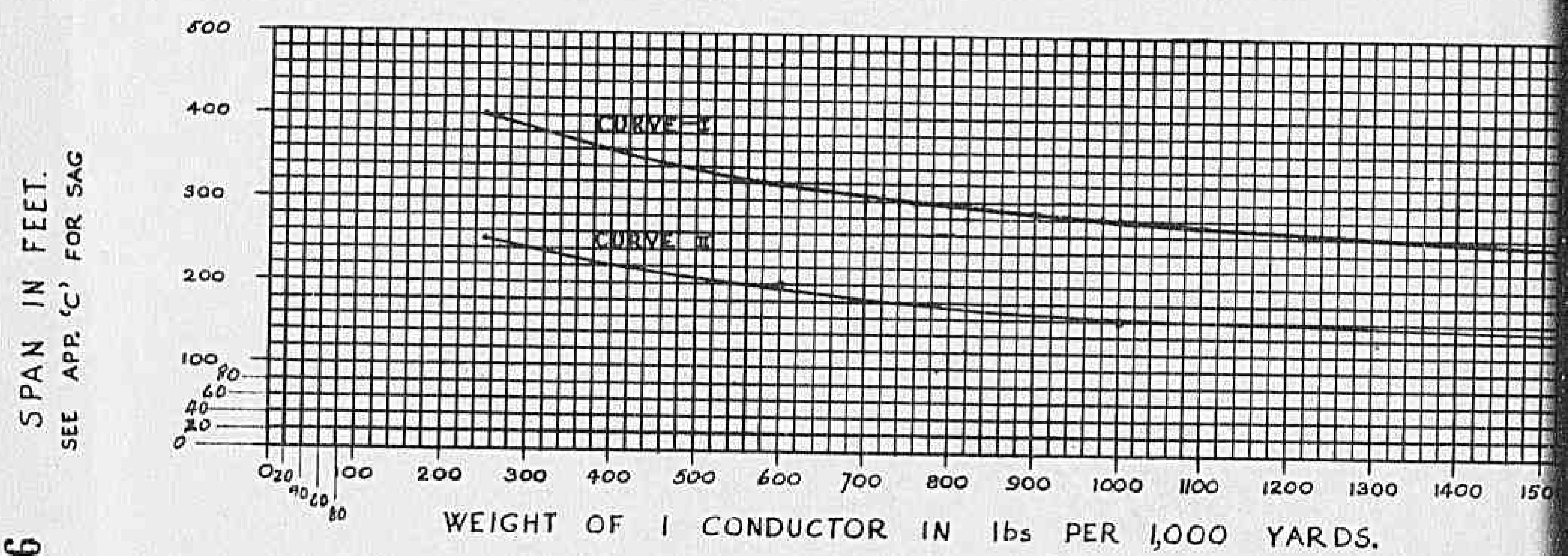


FACTOR OF SAFETY 2·5.
ICE LOAD 3/16" RADIAL THICKNESS.
WIND PRESSURE 50 M.P.H.
(CONFORMS TO REGS. FOR O.H.L. E.L.C.53 (REV. 1933)).

IN lbs OF ONE CONDUCTOR PER 1,000 YARDS.

RA

GRAPH SHOWING MAXIMUM SPAN OF 4 EQUAL CONDUCTORS RUN VERT
OF POLE AT 12" CENTRES WITH SIMULTANEOUS ICE AND WIND LOAD
CURVE I - POLES 20' ABOVE GROUND LEVEL, MEASURING 8" ø AT
CURVE II - " 30' " " " " 8" ø "

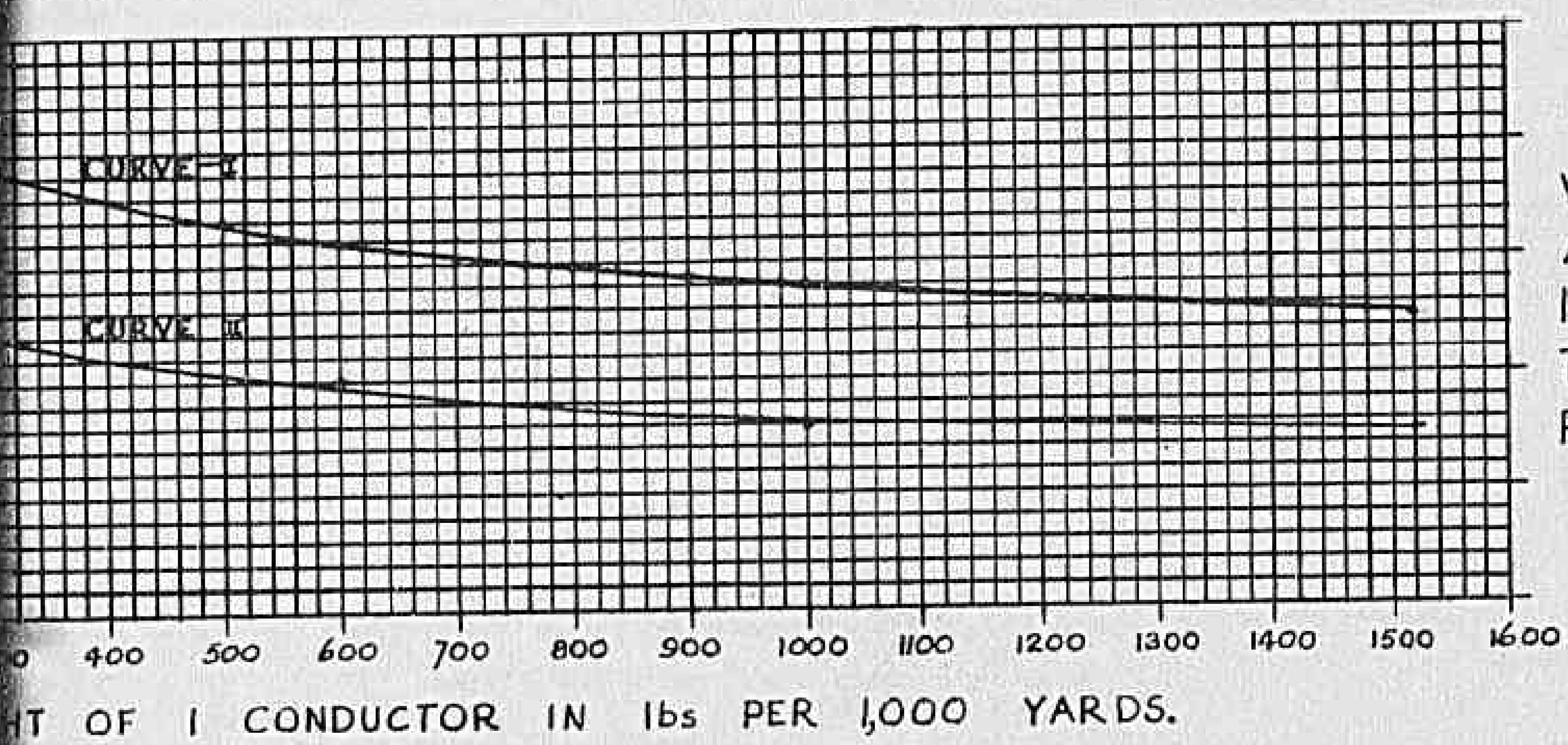


956

D. W. A.F.H.Q.

APPENDIX B

SPAN OF 4 EQUAL CONDUCTORS RUN VERTICALLY ON SIDE
RES WITH SIMULTANEOUS ICE AND WIND LOADING.
ABOVE GROUND LEVEL, MEASURING 8" ø AT GROUND LEVEL.
" " " " 8" ø " " "

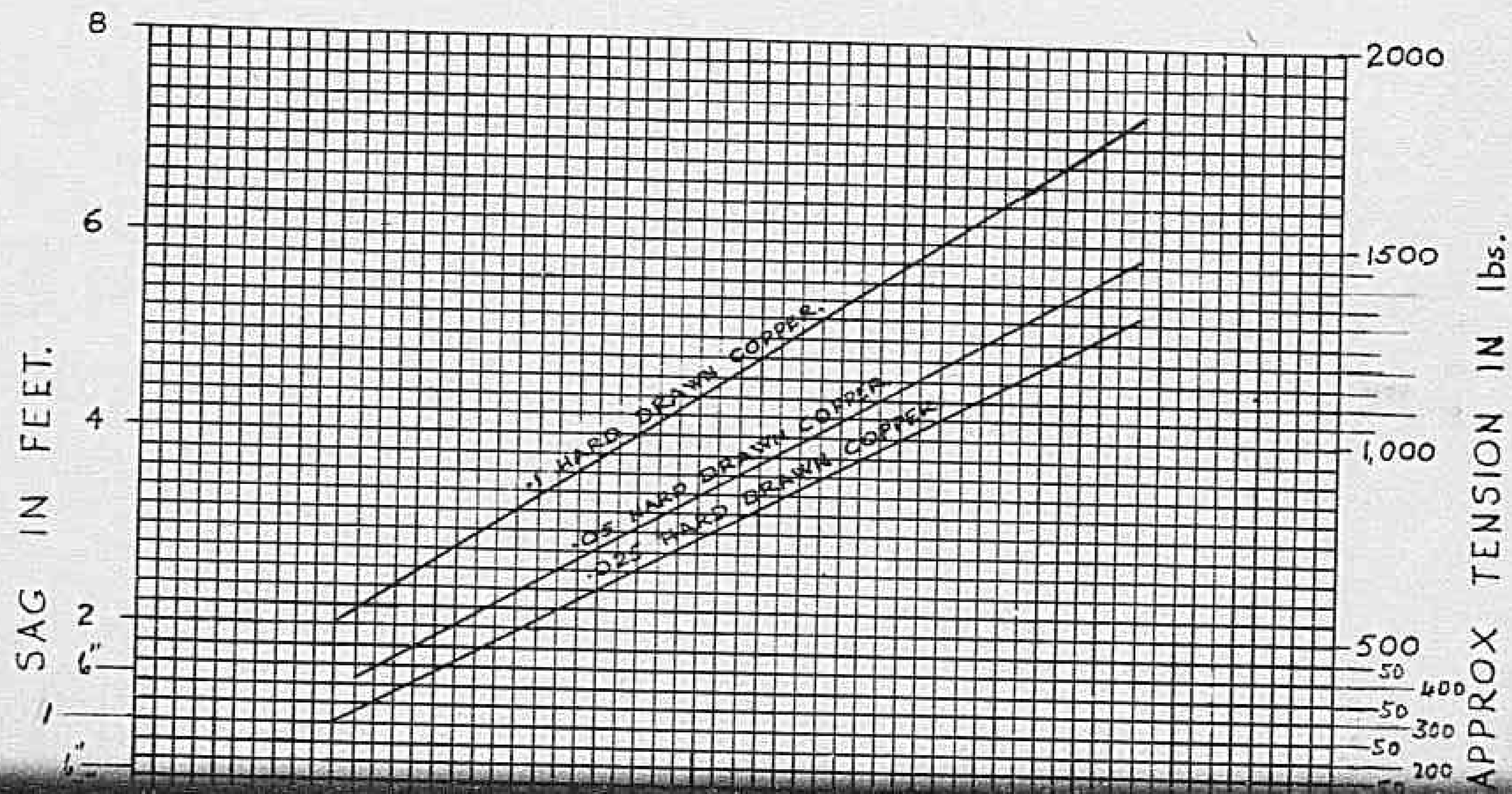


WIND PRESSURE 50 M.P.H.
AT Rt.L TO LINE.
ICE LOADING 3/16" RADIAL
THICKNESS.
FACTOR OF SAFETY 2·5.

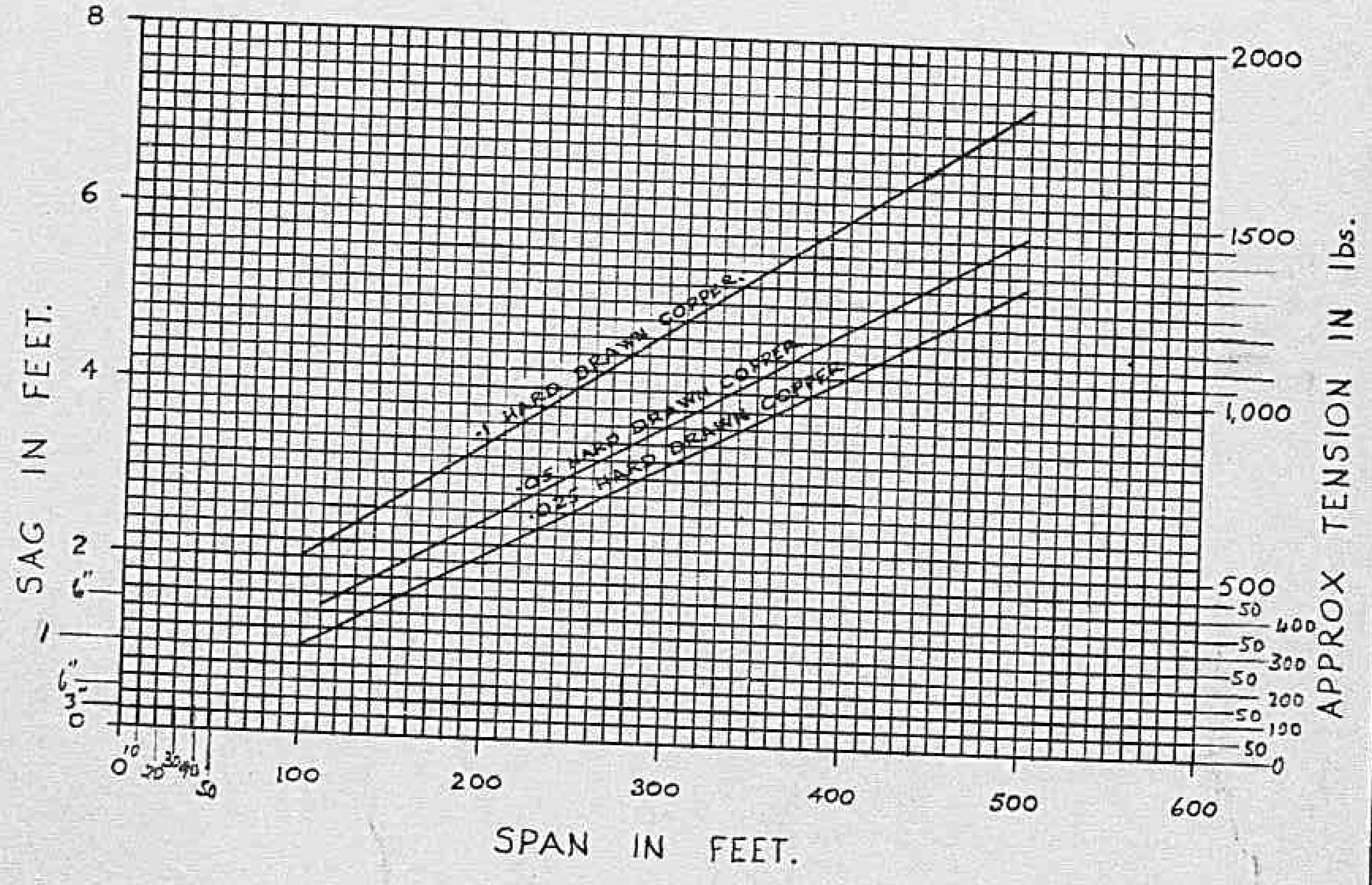
R.K.

APPENDIX C

GRAPH SHOWING SAG REQUIRED AT 54° F. IN COPPER CONDUCTORS FOR A GIVEN SPAN. (CONDUCTORS ASSUMED TO HAVE BEEN PRE-STRESSED IN SITU.)



ASSUMED TO HAVE BEEN PRE-STRESSED IN SITU.)



STRENGTH OF CONDUCTORS. (BREAKING.)

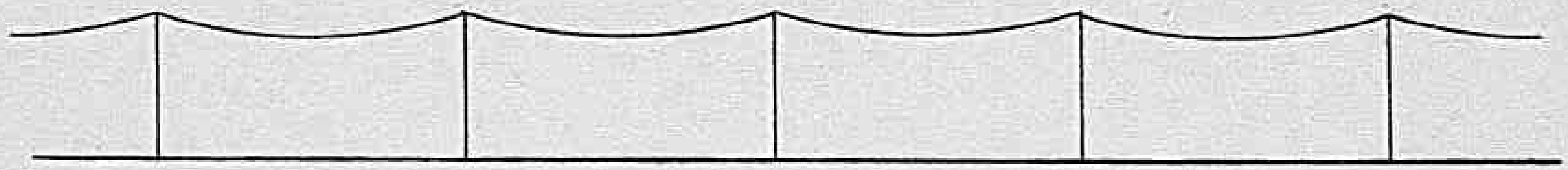
·1 H.D. COPPER	5,872 lbs.
·05 H.D. COPPER	2,914 "
·025 H.D. COPPER	1,518 "

D. W. A.F.H.Q.

RF

APPENDIX. D.

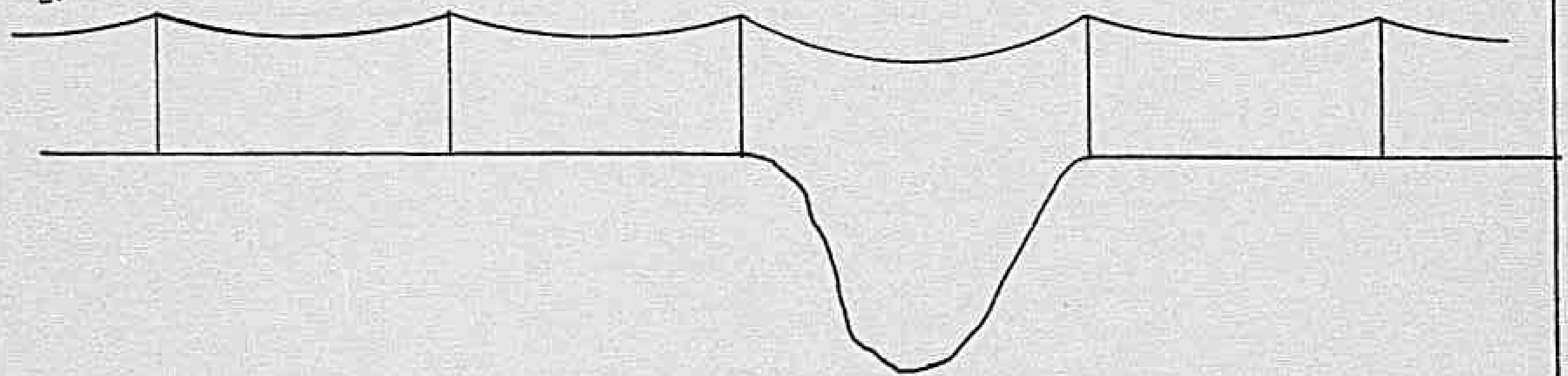
1.



EQUAL SPANS (EQUAL TENSIONS.)

Note the equal sag, and equal distance between pylons. This is the most desirable type of line to employ. Usually only possible in straight lines over level terrain.

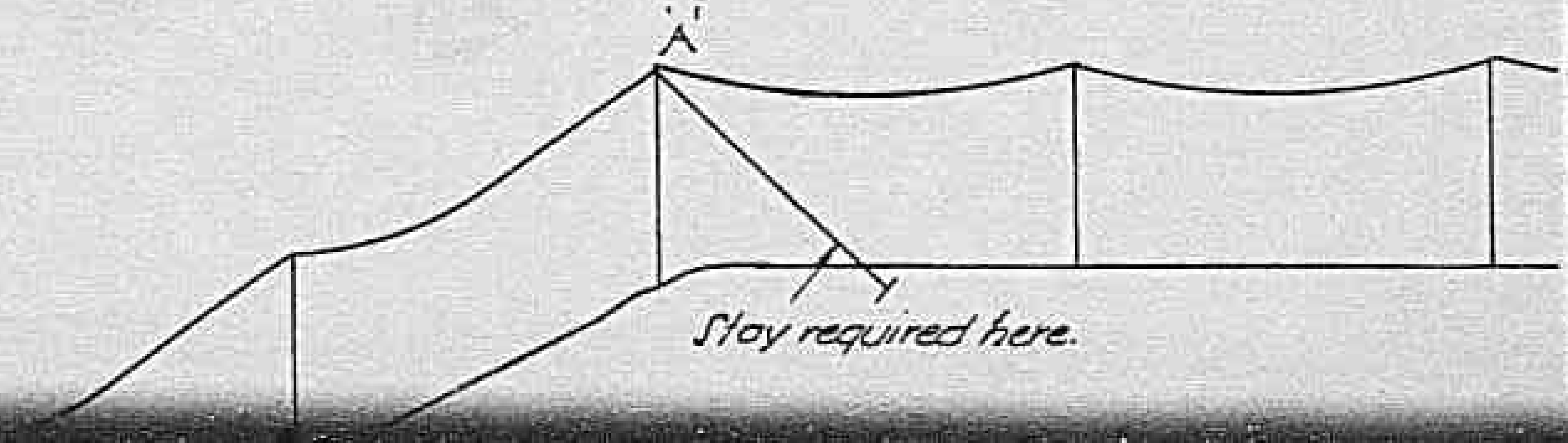
2.



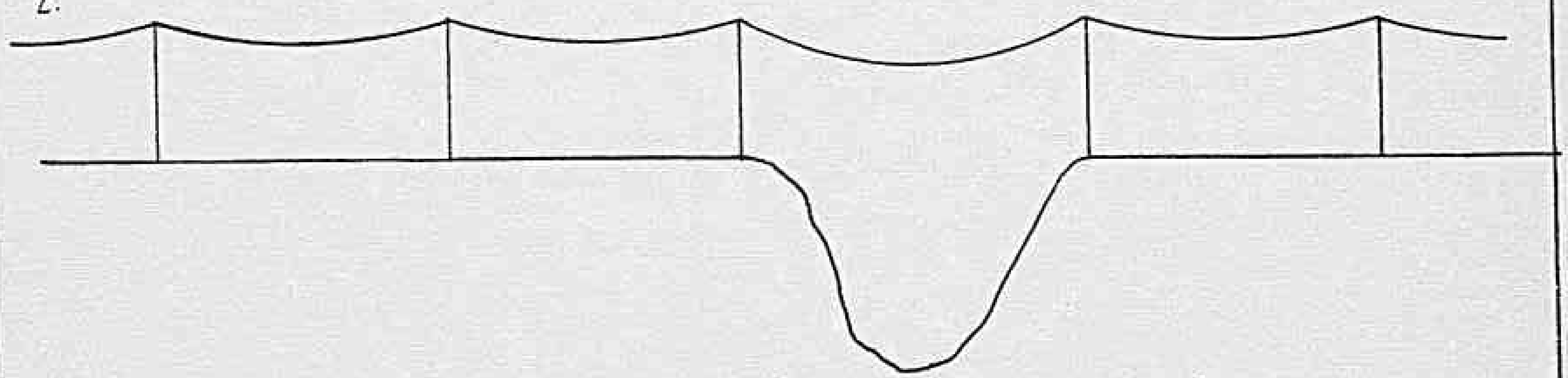
UNEQUAL SPANS (EQUAL TENSIONS.)

Here the line is depicted crossing a ravine - greater span results. to avoid the use of stays the same tension is maintained. Extra sag results, but is immaterial. as line is crossing a ravine.

3.



2.



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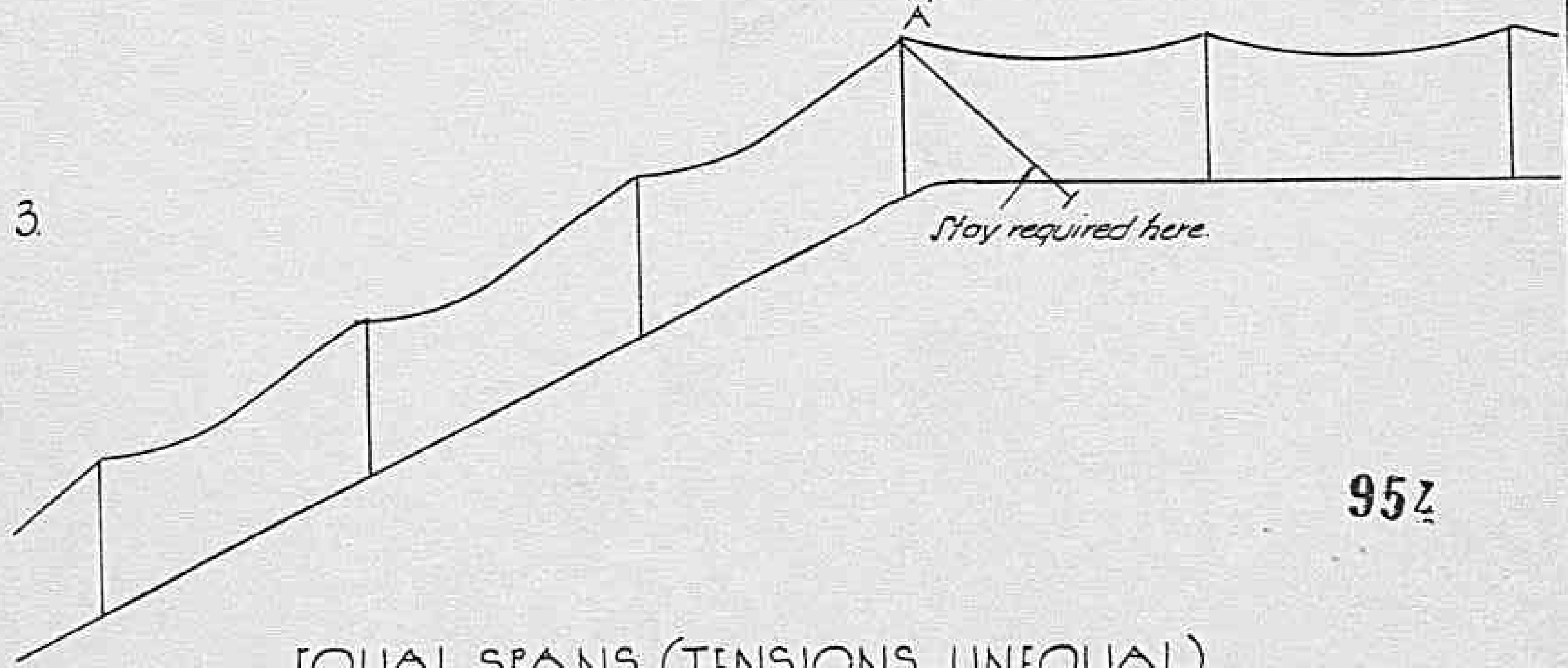
3.

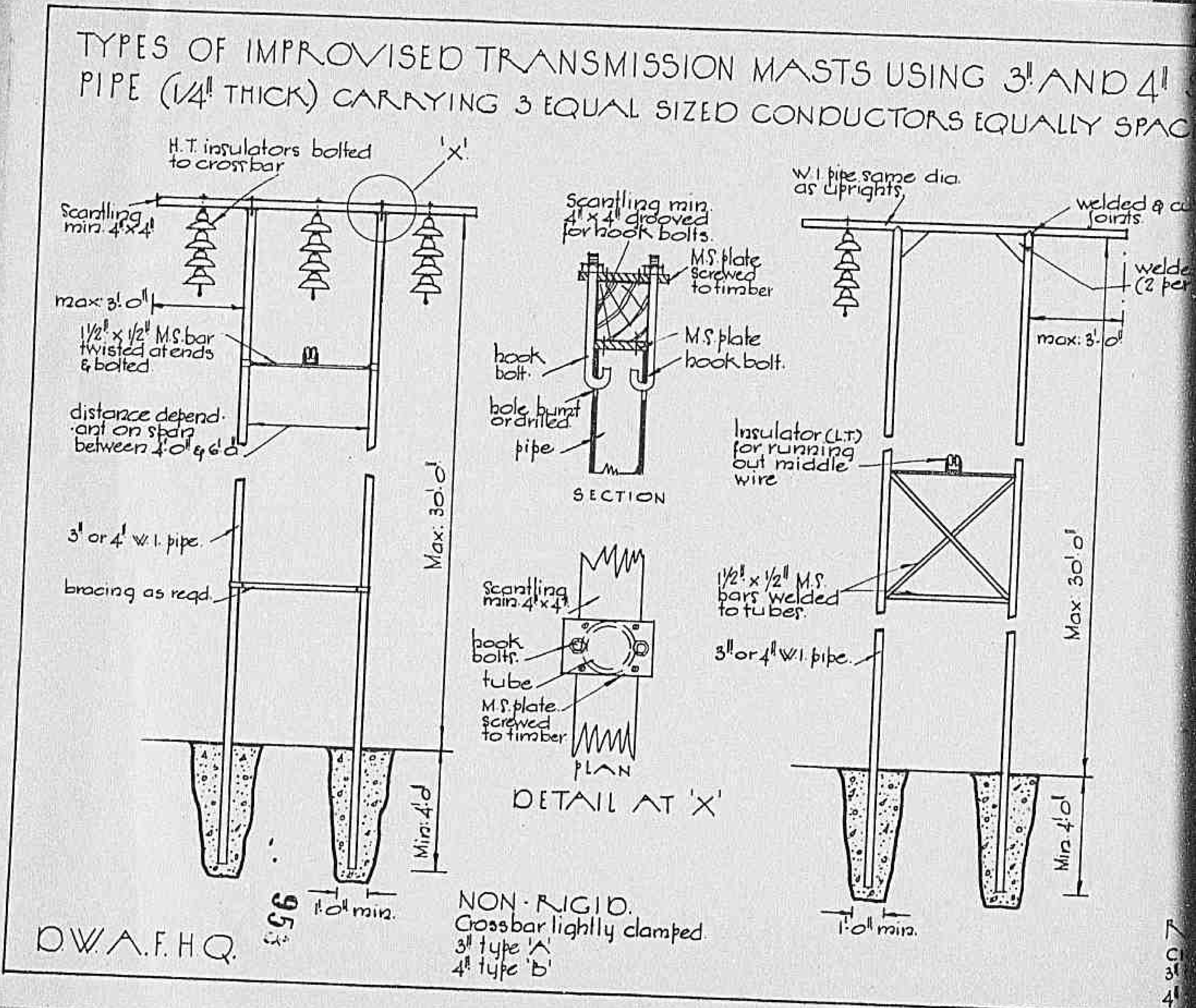


952

EQUAL SPANS (TENSIONS UNEQUAL)

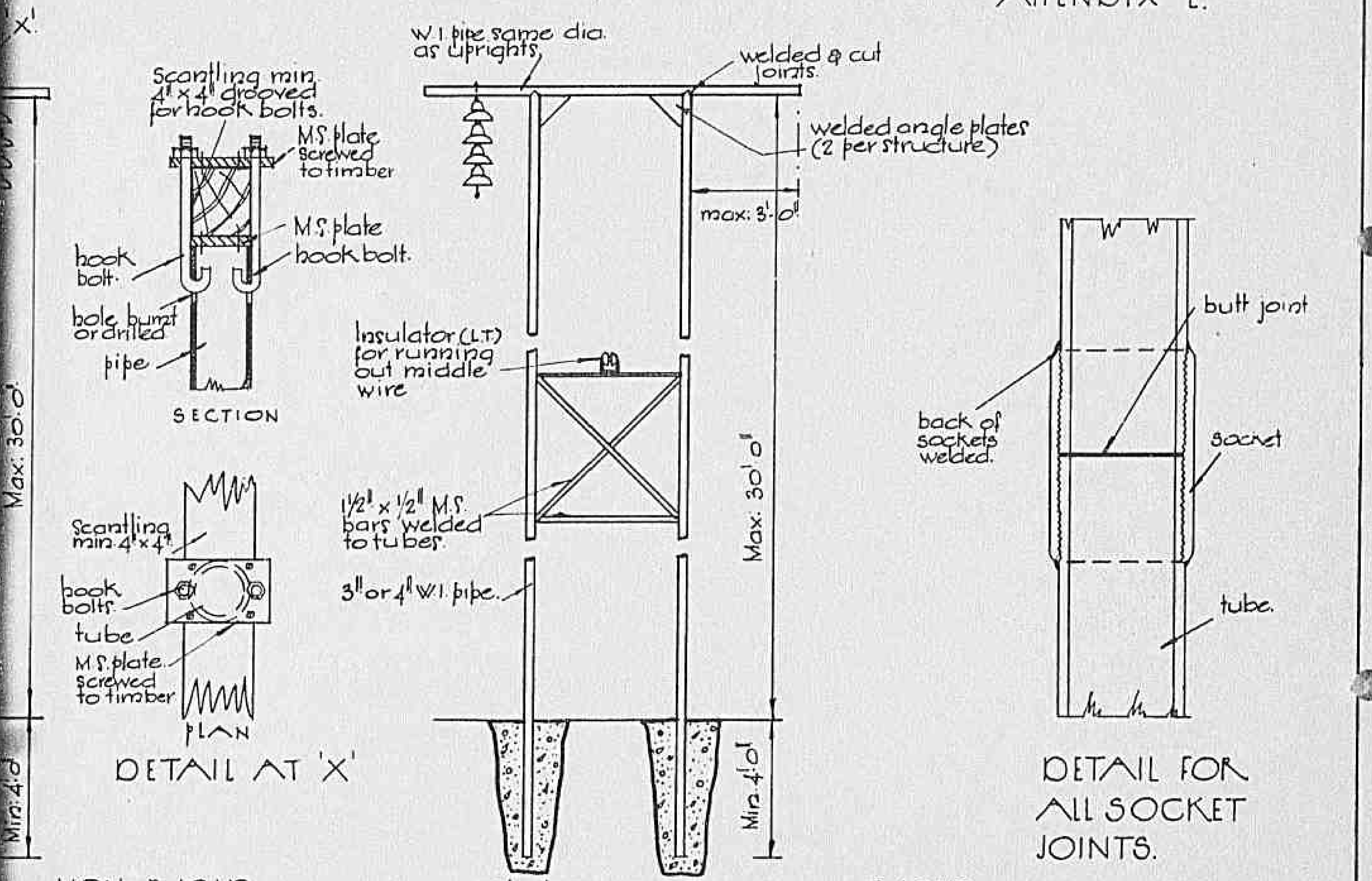
the line is shewn traversing rising ground. Note that the spans are equal. the provision of a stay wire at 'A' is desirable to equalise the tensions.

D.W.A.F.H.Q. RH


TYPES OF IMPROVISED TRANSMISSION MASTS USING 3" AND 4"
PIPE (1/4" THICK) CARRYING 3 EQUAL SIZED CONDUCTORS EQUALLY SPAC
H.T. insulators bolted to crossbar
'X'
Scantling min. 4"x4"
max. 3'-0"
1 1/2" x 1/2" M.S. bar twisted at ends & bolted
distance dependant on span between 4'-0" & 6'-0"
Max. 30'-0"
3" or 4" W.I. pipe
bracing as reqd.
Min. 4'-0"
1'-0" min.
Scantling min. 4" x 4" grooved for hook bolts.
M.S. plate screwed to timber
M.S. plate
hook bolt.
hook bolt.
hole burnt or drilled.
pipe
SECTION
Scantling min. 4"x4"
hook bolts.
tube
M.S. plate screwed to timber
PLAN
DETAIL AT 'X'
NON-RIGID.
Crossbar lightly clamped.
3" type 'A'
4" type 'B'
D.W.A.F.H.Q.
W.I. pipe same dia. as uprights.
welded & cu joints.
welde (2 per
max. 3'-0"
Insulator (L.T.) for running out middle wire
1 1/2" x 1/2" M.S. bars welded to tubes.
3" or 4" W.I. pipe.
Max. 30'-0"
Min. 4'-0"
1'-0" min.

D TRANSMISSION MASTS USING 3" AND 4" STANDARD WATER
ING 3 EQUAL SIZED CONDUCTORS EQUALLY SPACED.

APPENDIX E.

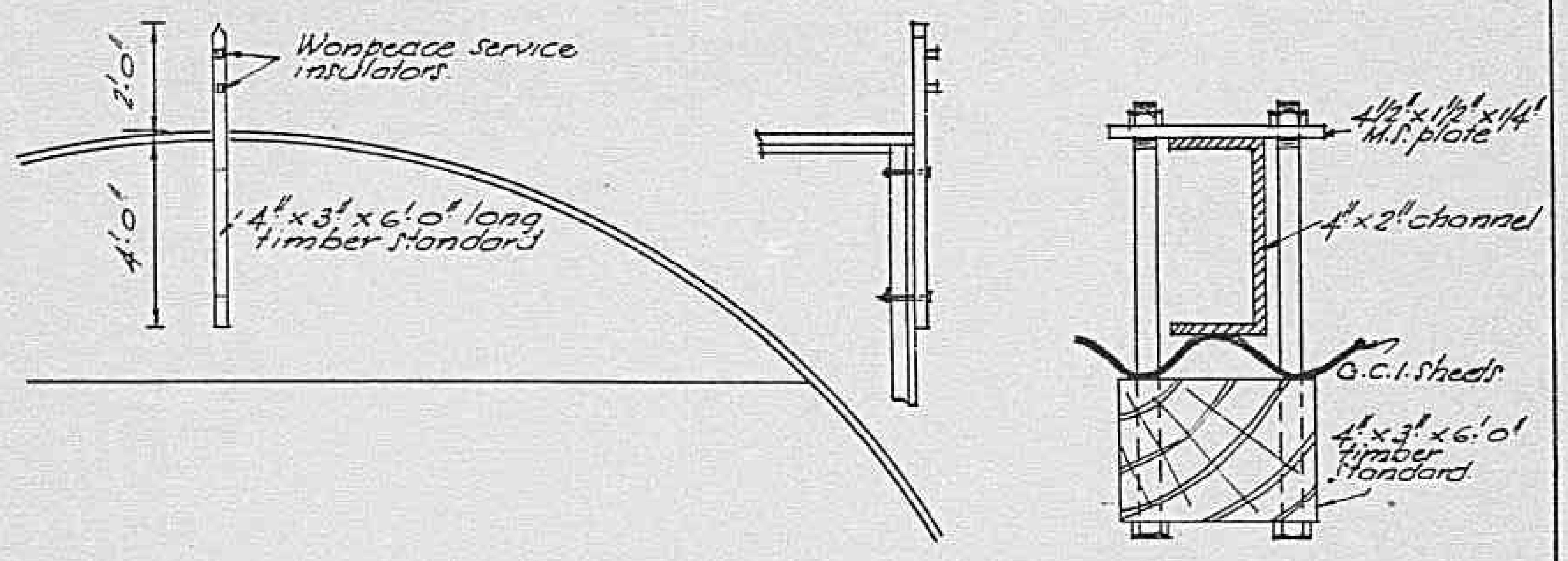


NON-RIGID.
Crossbar lightly clamped.
3" type 'A'
4" type 'B'

RIGID
crossbar welded.
3" type 'C'
4" type 'D'

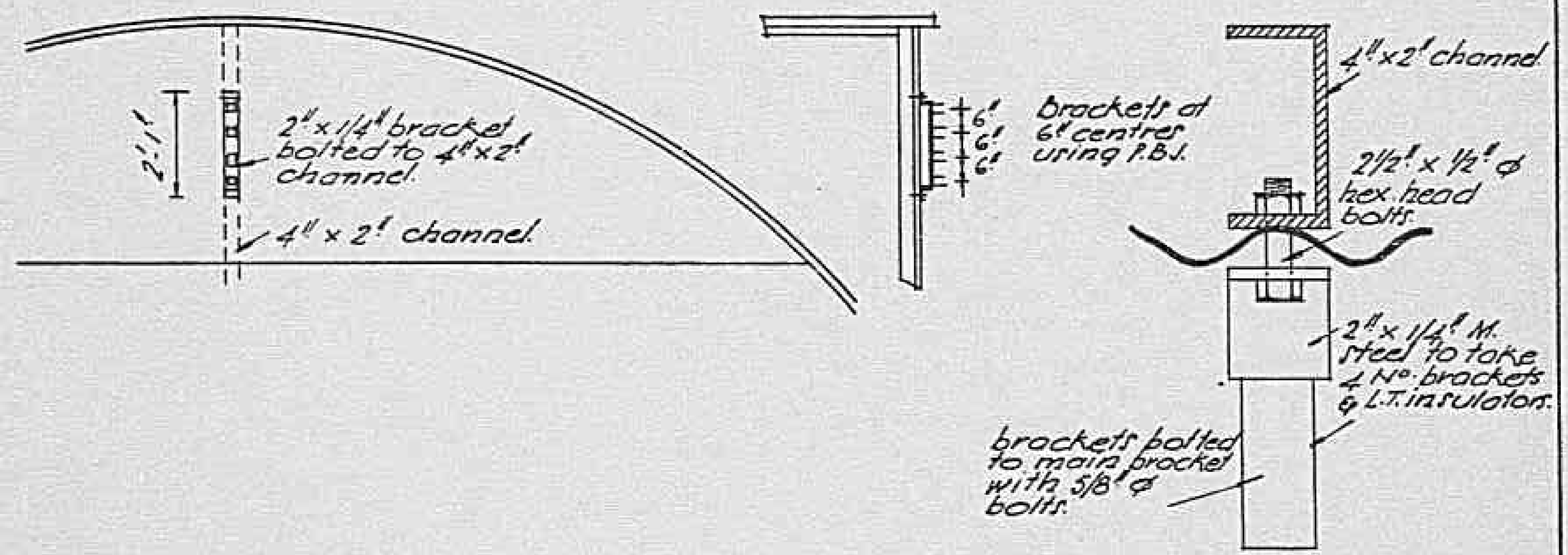
R.B.

APPENDIX F



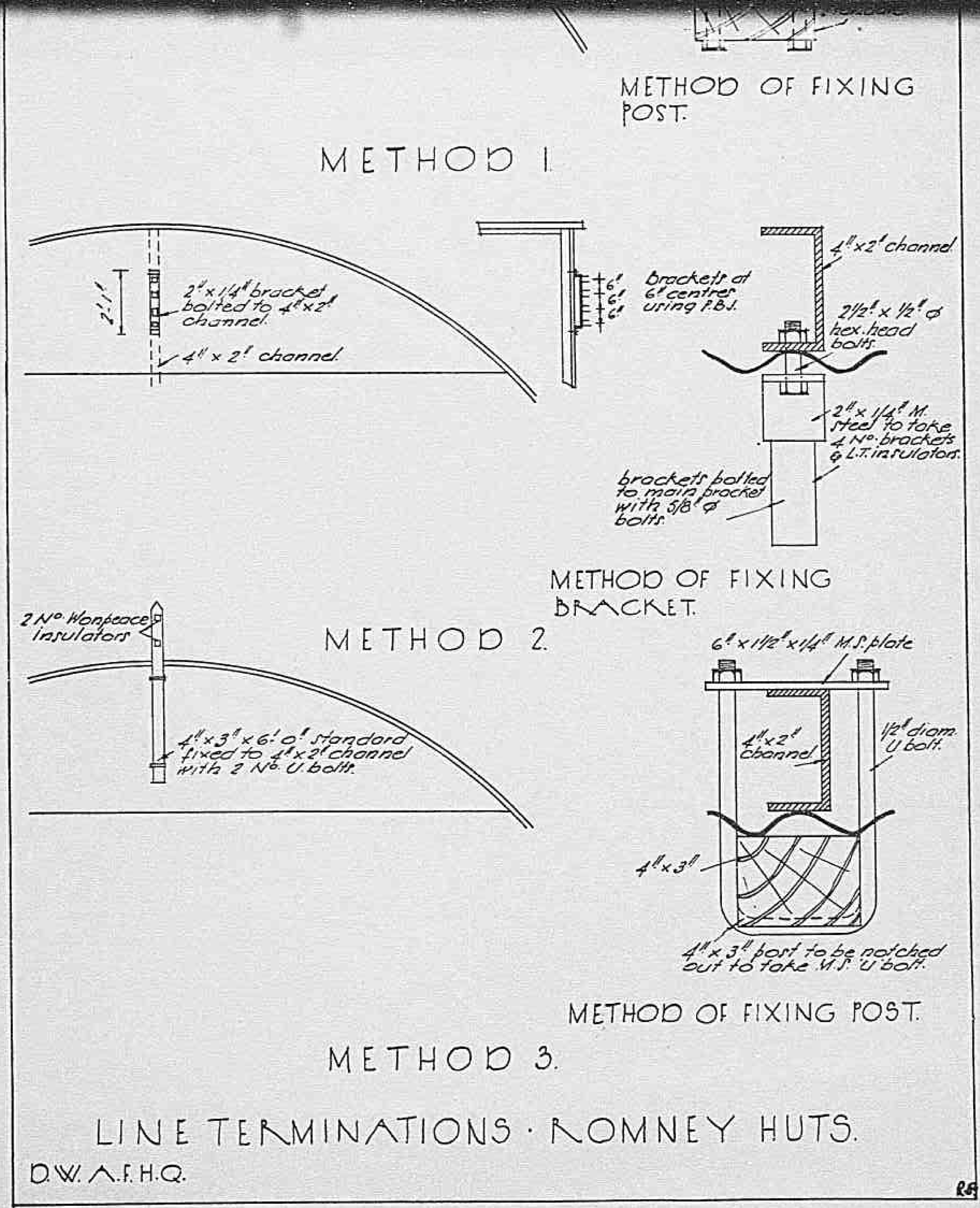
METHOD OF FIXING POST.

METHOD I.

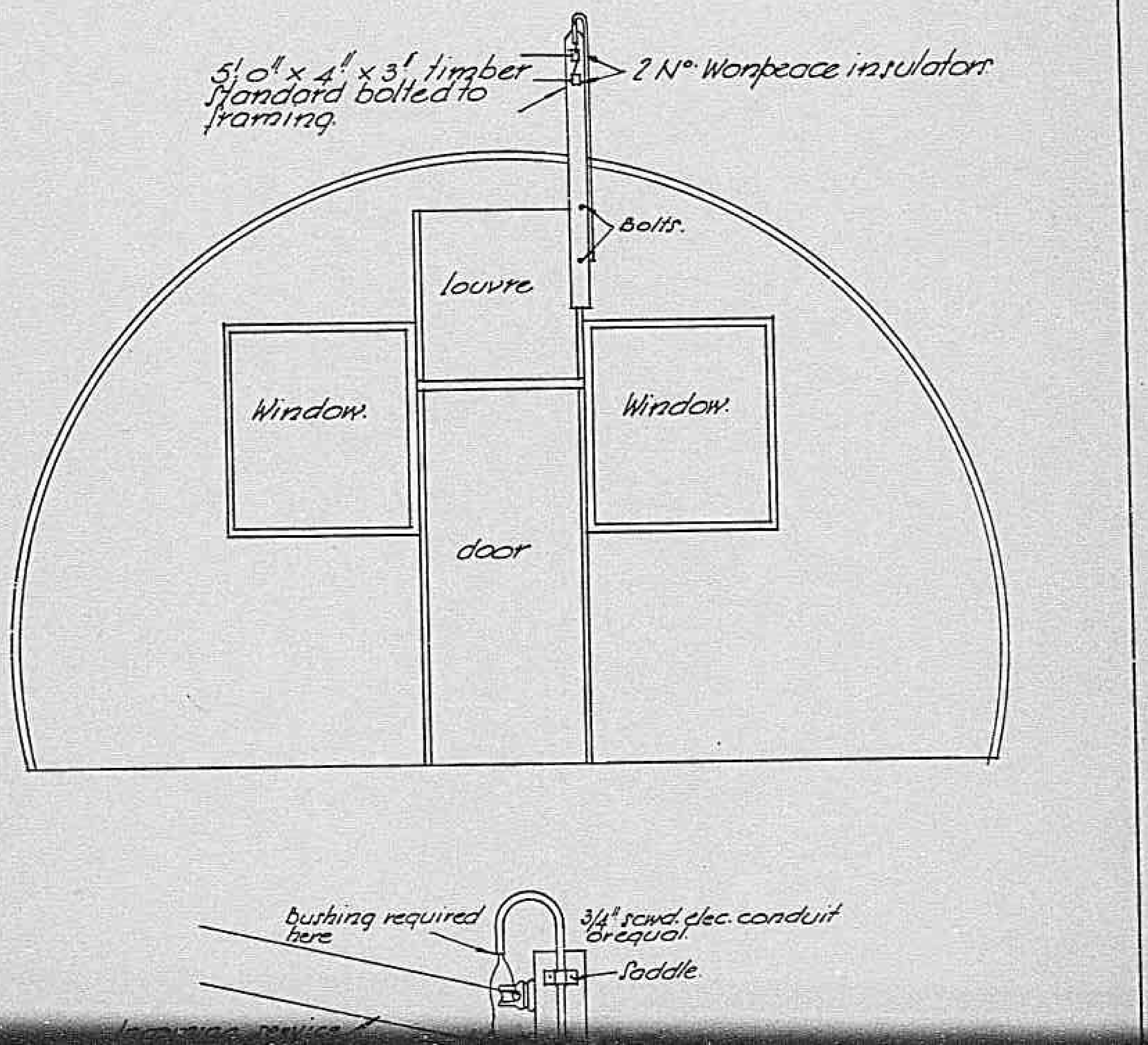


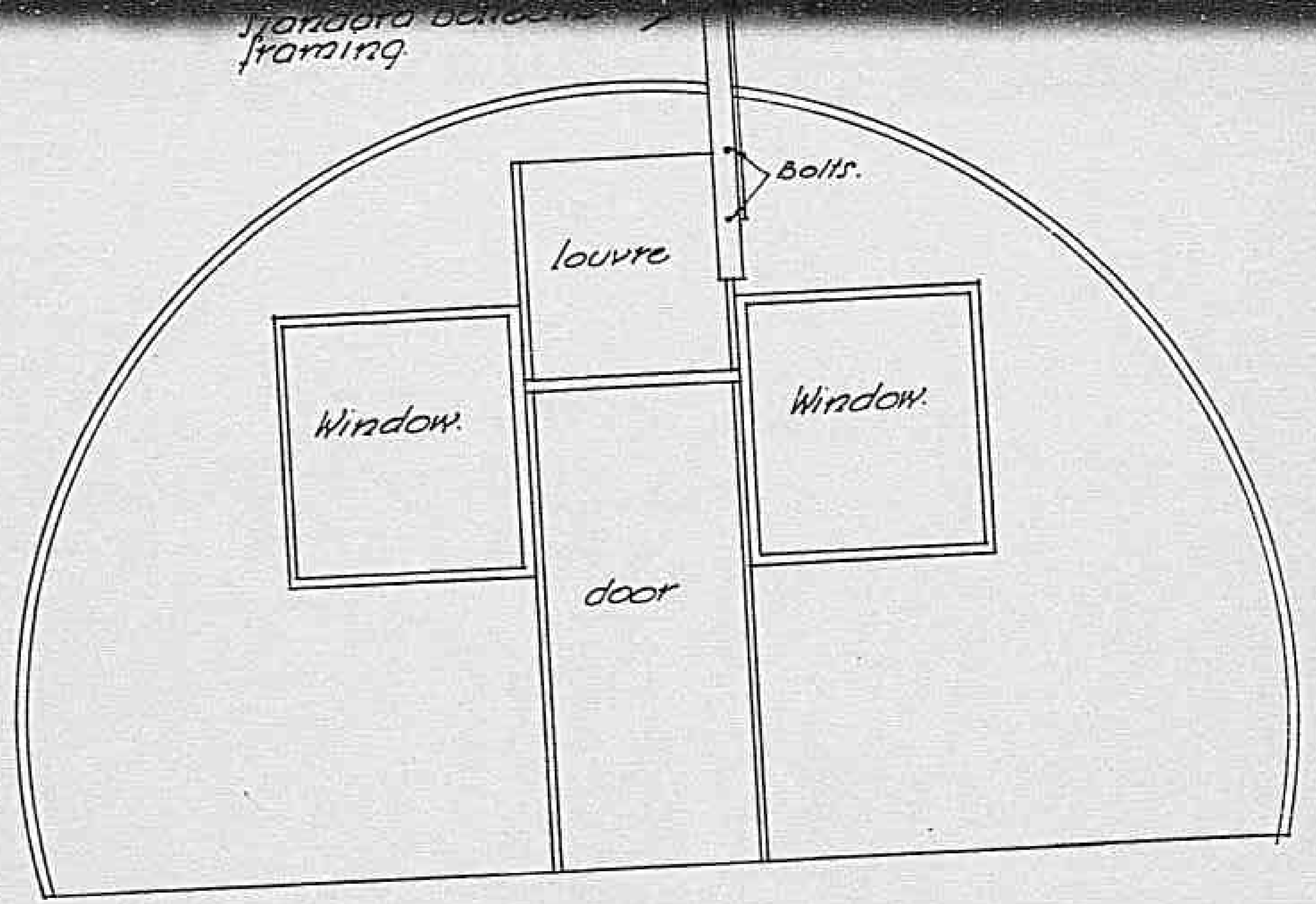
METHOD OF FIXING BRACKET.

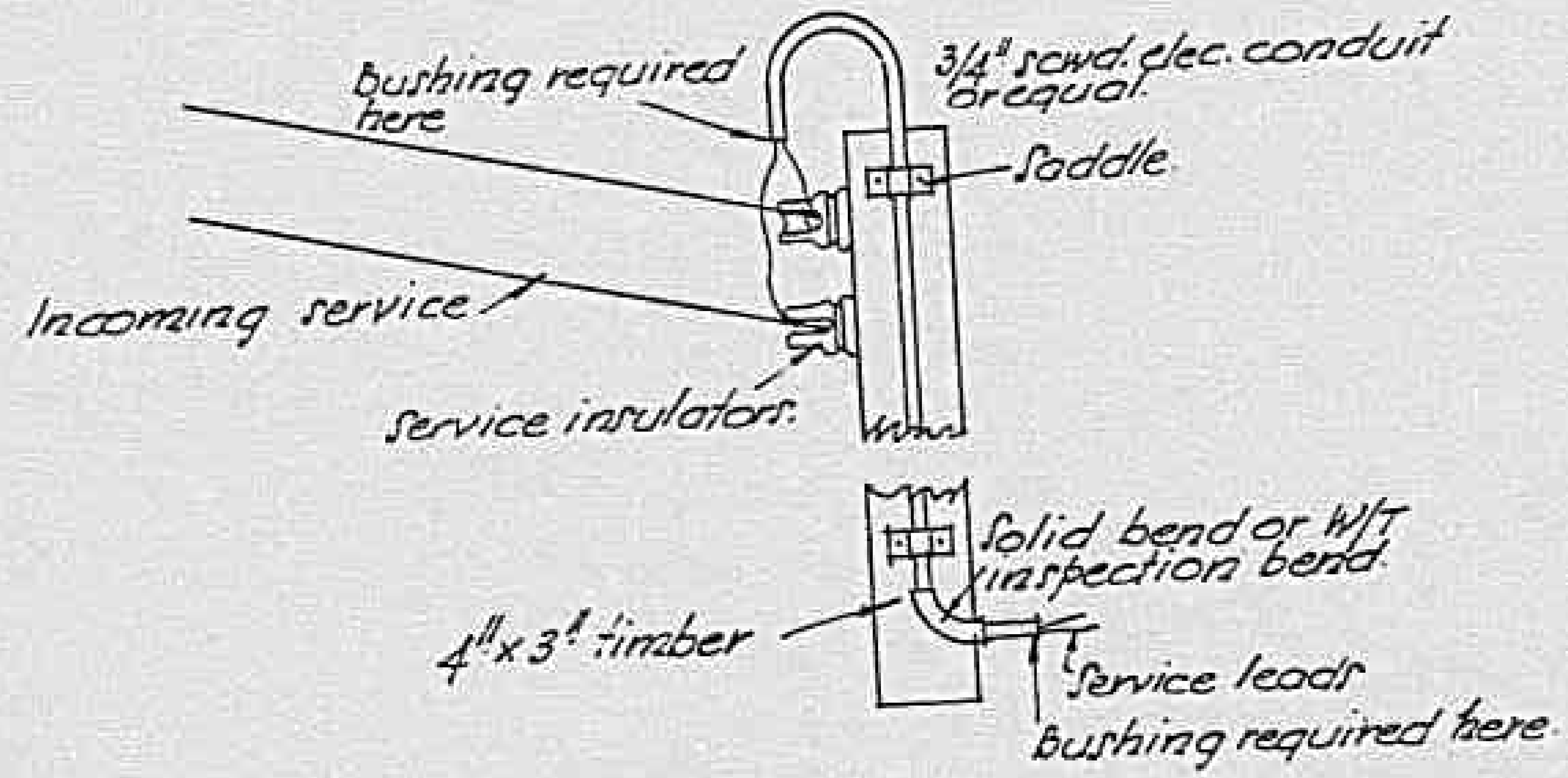
METHOD 2.


METHOD OF FIXING POST.
METHOD 1.
2" x 1/4" bracket bolted to 4" x 2" channel.
4" x 2" channel.
2'1"
6" 6" 6"
Brackets at 6" centres using P.B.J.
4" x 2" channel.
2½" x ½" ⌀ hex. head bolts.
2" x 1/4" M. steel to take 4 No. brackets & L.T. insulators.
brackets bolted to main bracket with 5/8" ⌀ bolts.
METHOD OF FIXING BRACKET.
2 No. Wonpeace insulators
METHOD 2.
4" x 3" x 6' 0" standard fixed to 4" x 2" channel with 2 No. U. bolts.
6" x 1½" x 1/4" M.S. plate
4" x 2" channel
½" diam. U bolt.
4" x 3"
4" x 3" post to be notched out to take M.S. U bolt.
METHOD OF FIXING POST.
METHOD 3.
LINE TERMINATIONS · ROMNEY HUTS.
D.W. A.F.H.Q.
RB

APPENDIX G.


5' 0" x 4" x 3" timber standard bolted to framing.
2 N° Wonpeace insulators
Bolts.
louvre
Window.
Window.
door
Bushing required here
3/4" scwd. elec. conduit or equal.
Saddle.





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DETAIL

LINE TERMINATIONS. 16' & 24' SPAN NISSENS WITH EITHER WOOD OR BRICK ENDS.

D.W. A.F.H.Q.

R.A.