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الجمهورية التونسية  
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المركز القومي  
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MINISTÈRE DE L'AGRICULTURE

CENTRE DE DOCUMENTATION AGRICOLE

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DIVISION DES RESSOURCES EN EAU

COMPTE RENDU DE FIN DE L'ESSAI DE DEBIT  
DU FORAGE EL. BQ. 1A

N° PIRM : 11333/5

Octobre 1977

A. GASSARA

REPUBLIQUE TUNISIENNE  
MINISTRE DE L'AGRICULTURE  
DIRECTION DES RESSOURCES  
EN EAU ET DU SOL  
DIVISION DES RESSOURCES EN EAU  
ARRONDISSEMENT DE K'SSERINE  
SECTION DE SIDI BOUZID

COMPTE RENDU DE FIN DE L'ESSAI & DEBIT

DU FORAGE EL BOUA

N° BIRI : 11333/5

—:5:—

Octobre 1977

Par : A. GASSARA  
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S. AMRI

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## 1 - INTRODUCTION -

Les travaux de reconnaissance de ce forage ont été exécutés du 14/8/1969 au 19/3/1970 par les soins de la S.S.E à l'aide d'une Pailing WW1 N° 4 appartenant à l'administration.

## 2 - ETAT DU PUIT -

Reconnaissance en 6" 1/4 jusqu'à 85 m puis en 8" 1/2 jusqu'à 75 m.

Alésage en 12" 1/4 jusqu'à 41 m puis en 15" jusqu'à 36 m.

Tubage en 9" 5/8 : 40,60 m.

- Tubes pleins de + 0,60 m jusqu'à 29 m.

- Tubes lanternés de 29 m jusqu'à 40 m.

Cimentation à la tête sur 4 m.

## 3 - ESSAIS DE DEBIT -

A la fin des travaux d'exécution, un essai de réception a été effectué à l'aide d'une pompe DEMING 8" immergée à 37,80 m, Prise d'air : 36,15 m.

Au cours de cet essai le débit maximum obtenu était 32,8 l/s pour 0,40 m de rabattement soit un débit spécifique de 82 l/s/m.

L'analyse chimique complète, d'un échantillon d'eau prélevé à la fin des essais, a donné un résidu sec 1780 mg/l. Après l'essai de réception, le forage a été fermé.

Suite à la demande des autorités locales pour l'exploitation de ce forage en vue de l'alimentation en eau potable et éventuellement l'irrigation de la zone d'El Boua et environs ; vu les bonnes caractéristiques hydrauliques et chimiques que présente ce forage ; un 2ème essai de débit a été effectué.

L'essai a été commencé le 3/10/1977 à 14h et il n'a duré que 16 h suite à une panne mécanique de la pompe.

### Matériel de pompage -

Moteur Stayer : 54 CV

Pompe KIB 8" immergée à 37,80 m/Tubage

Immersion de la prise d'air : 36,20 m/Tubage

Niveau statique initial mesuré à la clochette : 28,75 m/Tubage

Tubage : 0,60 m.

Débit mesuré à l'aide d'un fût de 230 l

Au cours du pompage, les dépressions ont été mesurées à l'aide d'un manomètre à mercure.

Résultats obtenus -

| FALIER | Q : l/s | i : m | ICKEE : h | OBSERVATIONS  |
|--------|---------|-------|-----------|---------------|
| 1      | 25      | 0,20  | 2         | Stabilisation |
| 2      | 34,3    | 0,36  | 6         | Stabilisation |
| 3      | 35,4    | 0,505 | 6         | Stabilisation |

4 - ANALYSE CHIMIQUE -

Caractéristiques chimiques de l'échantillon prélevé le 19.3.1970

| Ca  | Mg | Na  | So4 | Cl  | Co3 | R.S. | C    | OH   | D°H |
|-----|----|-----|-----|-----|-----|------|------|------|-----|
| 144 | 53 | 379 | 230 | 692 | 162 | 1780 | 2,55 | 8,94 | 58  |

Caractéristiques chimiques de l'échantillon prélevé le 3/10/1977

| Ca  | Mg  | Na   | K  | So4  | Cl   | Co3 <sup>++</sup> | Co3S <sup>++</sup> | R.S  | C     | pH   | D°H   |
|-----|-----|------|----|------|------|-------------------|--------------------|------|-------|------|-------|
| 614 | 170 | 1817 | 40 | 2592 | 2929 | 0                 | 195                | 8614 | 11,68 | 7,40 | 215,5 |

La comparaison des 3 analyses montre que le résidu sec a évolué de 1,78 g/l en 1970 à 8,61 g/l en 1977, donc 5 fois plus, sa valeur initiale. Mais les deux diagrammes logarithmiques dressés pour les deux analyses ont montré qu'il s'agit toujours de la même famille d'eau.

5 - CONCLUSION -

On ne peut pas avoir des doutes au sujet de l'analyse récente : l'eau de la nappe captée par le forage est salée. Reste à expliquer l'écart entre l'analyse initiale et récente. Une faute de calcul paraît improbable, vu la coïncidence géochimique entre les deux eaux. L'explication du phénomène réside peut être dans l'effet des crues de l'année 1969 sur la nappe. Le forage est implanté à côté de l'important Oued Douara. L'essai de réception et le prélèvement initial pour analyse complète ont eu lieu en Mars 1970, c'est-à-dire 5 mois après les pluies et crues de l'automne 1969. Cet événement aurait provoqué une infiltration d'eau douce dans la nappe du forage, se superposant sur une masse d'eau souterraine salée. Aujourd'hui, c'est-à-dire neuf ans plus tard, cet effet ne serait plus perceptible.

CONCLUSION

R. KOCHER

L'Hydrogéologue

A. GASSARA

## ESSAI DE RECEPTION AU FORAGE EL BOUA

## Abaissement 1er Palier

| DATE   | Heures et minutes | Temps en secondes | Lecture Sy en mm | Conversion en m | Rabatement S en m | Débit Q en l/s | OBSERVATIONS               |
|--------|-------------------|-------------------|------------------|-----------------|-------------------|----------------|----------------------------|
| 0.1977 | 1400              | 00                | 555              | 7.54            | -                 |                | Eau colorée rouille<br>14e |
|        |                   | 10                | 536              | 7.28            | 0.26              |                |                            |
|        |                   | 20                | 534              | 7.26            | 0.28              |                |                            |
|        |                   | 30                | "                | "               | "                 |                |                            |
|        |                   | 40                | 534,5            | 7.265           | 0.275             |                |                            |
|        |                   | 50                | "                | "               | "                 | 40             |                            |
|        |                   | 60                | 535              | 7.27            | 0.27              |                |                            |
|        |                   | 70                | "                | "               | "                 |                |                            |
|        |                   | 80                | "                | "               | "                 |                |                            |
|        |                   | 90                | "                | "               | "                 |                |                            |
|        | 2'                | 100               | "                | "               | "                 |                | Eau parfaitement<br>claire |
|        |                   | 110               | "                | "               | "                 |                |                            |
|        |                   | 120               | "                | "               | "                 |                |                            |
|        | 3'                | 150               | "                | "               | "                 |                |                            |
|        |                   | 180               | 534,5            | 7.265           | 0.275             |                |                            |
|        | 4'                | 210               | "                | "               | "                 |                |                            |
|        |                   | 240               | 536,5            | 7.29            | 0.25              |                |                            |
|        | 5'                | 270               | 541              | 7.35            | 0.19              | 25             |                            |
|        |                   | 300               | "                | "               | "                 |                |                            |
|        | 6'                | 330               | "                | "               | "                 |                |                            |
|        |                   | 360               | 540,5            | 7.345           | 0.195             |                |                            |
|        | 7'                | 390               | "                | "               | "                 |                |                            |
|        |                   | 420               | "                | "               | "                 |                |                            |
|        | 8'                | 450               | "                | "               | "                 |                |                            |
|        |                   | 480               | "                | "               | "                 |                |                            |
|        | 9'                | 510               | "                | "               | "                 |                |                            |
|        |                   | 540               | 541              | 7.35            | 0.19              |                |                            |
|        | 10                | 570               | "                | "               | "                 |                |                            |
|        |                   | 600               | "                | "               | "                 |                |                            |
|        | 11                | 660               | "                | "               | "                 |                |                            |
|        | 12                | 720               | 541,5            | 7.36            | 0.18              |                |                            |
|        | 13                | 780               | "                | "               | "                 |                |                            |
|        | 14                | 840               | "                | "               | "                 |                |                            |
|        | 15                | 900               | "                | "               | "                 |                |                            |
|        | 16                | 960               | "                | "               | "                 |                |                            |
|        | 17                | 1020              | "                | "               | "                 |                |                            |
|        | 18                | 1080              | "                | "               | "                 |                |                            |
|        | 19                | 1140              | "                | "               | "                 |                |                            |
|        | 20                | 1200              | "                | "               | "                 |                |                            |
|        | 22                | 1320              | 540,5            | 7.345           | 0.195             |                |                            |
|        | 24                | 1440              | "                | "               | "                 |                |                            |
|        | 26                | 1560              | "                | "               | "                 |                |                            |
|        | 28                | 1680              | "                | "               | "                 |                |                            |
|        | 30                | 1800              | "                | "               | "                 |                |                            |
|        | 35                | 2100              | "                | "               | "                 |                |                            |
|        | 40                | 2400              | "                | "               | "                 |                |                            |
|        | 45                | 2700              | "                | "               | "                 |                |                            |
|        | 50                | 3000              | "                | "               | "                 |                |                            |
|        | 55                | 3300              | "                | "               | "                 |                |                            |
|        | 1500              | 3600              | "                | "               | "                 |                |                            |
|        | 10                | 4200              | "                | "               | "                 |                | Eau claire                 |
|        | 20                | 4800              | 540              | 7.34            | 0.20              | 25             |                            |
|        | 30                | 5400              | "                | "               | "                 |                |                            |
|        | 40                | 6000              | "                | "               | "                 |                |                            |
|        | 50                | 6600              | "                | "               | "                 |                |                            |
|        | 1600              | 7200              | "                | "               | "                 | 25             |                            |

ABAISSMENT 2ème PALIER

- 4 -

| DATE    | Heures et minutes | Temps en secondes | Lecture Hg en mm | Conversion en m | Rabatement B en m | Débit Q en l/s | S/Q  | OBSERVAT. |
|---------|-------------------|-------------------|------------------|-----------------|-------------------|----------------|------|-----------|
| 12/1977 | 16H00             | 00                | 5.40             | 7.34            | 0.20              | 35,3           | 5,67 | Eau clair |
|         |                   | 10                | 5.39             | 7.33            | 0.21              |                | 5,95 |           |
|         |                   | 20                | "                | "               | "                 |                | "    |           |
|         |                   | 30                | "                | "               | "                 |                | "    |           |
|         |                   | 40                | "                | "               | "                 |                | "    |           |
|         |                   | 50                | 5.38             | 7.31            | 0.23              |                | 6.52 |           |
|         |                   | 60                | 5.35             | 7.27            | 0.27              |                | 7.65 |           |
|         |                   | 70                | 5.36             | 7.28            | 0.26              |                | 7.37 |           |
|         |                   | 80                | 5.35             | 7.27            | 0.27              |                | 7.65 |           |
|         |                   | 90                | "                | "               | "                 |                | "    |           |
|         | 1'                | 100               | "                | "               | "                 |                | "    |           |
|         |                   | 110               | "                | "               | "                 |                | "    |           |
|         |                   | 120               | "                | "               | "                 |                | "    |           |
|         | 2'                | 150               | "                | "               | "                 |                | "    |           |
|         |                   | 180               | "                | "               | "                 |                | "    |           |
|         | 3'                | 210               | "                | "               | "                 |                | "    |           |
|         |                   | 240               | "                | "               | "                 |                | "    |           |
|         | 4'                | 270               | "                | "               | "                 |                | "    |           |
|         |                   | 300               | "                | "               | "                 |                | "    |           |
|         | 5'                | 330               | "                | "               | "                 |                | "    |           |
|         |                   | 360               | "                | "               | "                 |                | "    |           |
|         | 6'                | 390               | "                | "               | "                 |                | "    |           |
|         |                   | 420               | "                | "               | "                 |                | "    |           |
|         | 7'                | 450               | "                | "               | "                 |                | "    |           |
|         |                   | 480               | "                | "               | "                 |                | "    |           |
|         | 8'                | 510               | "                | "               | "                 |                | "    |           |
|         |                   | 540               | "                | "               | "                 |                | "    |           |
|         | 9'                | 570               | "                | "               | "                 |                | "    |           |
|         |                   | 600               | "                | "               | "                 |                | "    |           |
|         | 10                | 660               | "                | "               | "                 |                | "    |           |
|         | 11                | 720               | "                | "               | "                 |                | "    |           |
|         | 12                | 780               | "                | "               | "                 |                | "    |           |
|         | 13                | 840               | "                | "               | "                 |                | "    |           |
|         | 14                | 900               | "                | "               | "                 |                | "    |           |
|         | 15                | 960               | "                | "               | "                 |                | "    |           |
|         | 16                | 1020              | "                | "               | "                 |                | "    |           |
|         | 17                | 1080              | "                | "               | "                 |                | "    |           |
|         | 18                | 1140              | "                | "               | "                 |                | "    |           |
|         | 19                | 1200              | "                | "               | "                 |                | "    |           |
|         | 20                | 1320              | "                | "               | "                 | 34.28          | "    |           |
|         | 22                | 1440              | "                | "               | "                 |                | "    |           |
|         | 24                | 1560              | "                | "               | "                 |                | "    |           |
|         | 26                | 1680              | 5.34             | 7.26            | 0.28              |                | 8.17 |           |
|         | 30                | 1800              | "                | "               | "                 |                | "    |           |
|         | 35                | 2100              | 5.35             | 7.27            | 0.27              |                | 7.88 |           |
|         | 40                | 2400              | 5.34             | 7.26            | 0.28              |                | 8.17 |           |
|         | 45                | 2700              | "                | "               | "                 |                | "    |           |
|         | 50                | 3000              | 5.33             | 7.24            | 0.30              |                | 8.75 |           |
|         | 55                | 3300              | "                | "               | "                 |                | "    |           |
|         | 17H00             | 3600              | 5.335            | 7.25            | 0.27              | 34.28          | 7.88 |           |
|         | 10                | 4200              | 5.335            | 7.25            | 0.29              |                | 8.46 |           |
|         | 20                | 4800              | "                | "               | "                 |                | "    |           |
|         | 30                | 5400              | 5.32             | 7.23            | 0.31              |                | 9.04 |           |
|         | 40                | 6000              | "                | "               | "                 |                | "    |           |
|         | 50                | 6600              | "                | "               | "                 |                | "    |           |
|         | 18H00             | 7200              | 5.31             | 7.22            | 0.32              |                | 9.33 |           |
|         | 15                | 8100              | 5.32             | 7.23            | 0.31              |                | 9.04 |           |
|         | 30                | 9000              | "                | "               | "                 |                | "    |           |
|         | 45                | 9900              | "                | "               | "                 |                | "    |           |
|         | 19H00             | 10800             | 5.31             | 7.22            | 0.32              |                | 9.33 |           |

ABAISSMENT (Suite 2° Palier)

- 5 -

| DATE   | Heures et minutes | Temps en secondes | Lecture<br>Hg en mm | Conversion<br>en m | Rabattement<br>s en m | Debit Q<br>en l/s | S/Q   | OBSERVAT. |
|--------|-------------------|-------------------|---------------------|--------------------|-----------------------|-------------------|-------|-----------|
| C/1977 | 19H30             | 12600             | 5.30                | 7.20               | 0.34                  |                   | 9.92  |           |
|        | 20H00             | 14400             | 5.295               | 7.195              | 0.345                 |                   | 10.06 |           |
|        | 30                | 16200             | 5.29                | 7.19               | 0.35                  |                   | 10.21 |           |
|        | 21H00             | 18000             | 5.285               | 7.185              | 0.355                 |                   | 10.36 |           |
|        | 30                | 19800             | 5.28                | 7.18               | 0.36                  | 33.33             | 10.50 |           |
|        | 22H00             | 21600             | "                   | "                  | "                     |                   | "     |           |

ABAISSMENT (Suite 2° Palier)

- 5 -

| DATE   | Heures et minutes | Temps en secondes | Lecture Hg en mm | Conversion en m | Rabatement S en m | Débit q en l/s | S/Q   | OBSERVAT. |
|--------|-------------------|-------------------|------------------|-----------------|-------------------|----------------|-------|-----------|
| 0/1977 | 19H30             | 12600             | 5.30             | 7.20            | 0.34              |                | 9.92  |           |
|        | 20H00             | 14400             | 5.295            | 7.195           | 0.345             |                | 10.06 |           |
|        | 30                | 16200             | 5.29             | 7.19            | 0.35              |                | 10.21 |           |
|        | 21H00             | 18000             | 5.285            | 7.185           | 0.355             |                | 10.36 |           |
|        | 30                | 19800             | 5.26             | 7.18            | 0.36              | 33.33          | 10.50 |           |
|        | 22H00             | 21600             | "                | "               | "                 |                | "     |           |

| DATE    | Heures et minutes | Temps en secondes | Lecture $h_g$ en mm | Conversion en m | Rabatement $S$ en m | Débit $Q$ en l/s | OBSERVATIONS |
|---------|-------------------|-------------------|---------------------|-----------------|---------------------|------------------|--------------|
| 10.1977 | 22H00             | 00                | 528                 | 7.18            | 0.36                | 33.33            |              |
|         |                   | 10                | "                   | "               | "                   |                  |              |
|         |                   | 20                | 529                 | 7.19            | 0.35                |                  |              |
|         |                   | 30                | 520                 | 7.07            | 0.47                |                  |              |
|         |                   | 40                | "                   | "               | "                   |                  |              |
|         | 1'                | 50                | "                   | "               | "                   | 37.50            |              |
|         |                   | 60                | 524                 | 7.12            | 0.42                |                  |              |
|         |                   | 70                | "                   | "               | "                   |                  |              |
|         |                   | 80                | "                   | "               | "                   |                  |              |
|         |                   | 90                | "                   | "               | "                   |                  |              |
|         | 2'                | 100               | "                   | "               | "                   |                  |              |
|         |                   | 110               | "                   | "               | "                   |                  |              |
|         |                   | 120               | 524                 | "               | "                   |                  |              |
|         |                   | 130               | "                   | "               | "                   |                  |              |
|         |                   | 140               | "                   | "               | "                   |                  |              |
|         | 3'                | 150               | "                   | "               | "                   |                  |              |
|         |                   | 160               | "                   | "               | "                   |                  |              |
|         |                   | 170               | "                   | "               | "                   |                  |              |
|         |                   | 180               | "                   | "               | "                   |                  |              |
|         |                   | 190               | "                   | "               | "                   |                  |              |
|         | 4'                | 200               | 523.5               | 7.115           | 0.425               |                  |              |
|         |                   | 210               | "                   | "               | "                   |                  |              |
|         |                   | 220               | "                   | "               | "                   |                  |              |
|         |                   | 230               | "                   | "               | "                   |                  |              |
|         |                   | 240               | "                   | "               | "                   |                  |              |
|         | 5'                | 250               | 524                 | 7.12            | 0.42                |                  |              |
|         |                   | 260               | "                   | "               | "                   |                  |              |
|         |                   | 270               | "                   | "               | "                   |                  |              |
|         |                   | 280               | "                   | "               | "                   |                  |              |
|         |                   | 290               | "                   | "               | "                   |                  |              |
|         | 6'                | 300               | 524.5               | 7.13            | 0.41                | 37.5             |              |
|         |                   | 310               | 523.5               | 7.115           | 0.425               |                  |              |
|         |                   | 320               | 524                 | 7.12            | 0.42                |                  |              |
|         |                   | 330               | 523.5               | 7.115           | 0.425               |                  |              |
|         |                   | 340               | "                   | "               | "                   |                  |              |
|         | 7'                | 350               | "                   | "               | "                   |                  |              |
|         |                   | 360               | 524                 | 7.12            | 0.42                |                  |              |
|         |                   | 370               | "                   | "               | "                   |                  |              |
|         |                   | 380               | "                   | "               | "                   |                  |              |
|         |                   | 390               | "                   | "               | "                   |                  |              |
|         | 8'                | 400               | 524                 | 7.12            | 0.42                |                  |              |
|         |                   | 410               | "                   | "               | "                   |                  |              |
|         |                   | 420               | "                   | "               | "                   |                  |              |
|         |                   | 430               | "                   | "               | "                   |                  |              |
|         |                   | 440               | "                   | "               | "                   |                  |              |
|         | 9'                | 450               | 524                 | 7.12            | 0.42                |                  |              |
|         |                   | 460               | "                   | "               | "                   |                  |              |
|         |                   | 470               | "                   | "               | "                   |                  |              |
|         |                   | 480               | "                   | "               | "                   |                  |              |
|         |                   | 490               | "                   | "               | "                   |                  |              |
|         | 10                | 500               | 524.5               | 7.13            | 0.41                |                  |              |
|         |                   | 510               | "                   | "               | "                   |                  |              |
|         |                   | 520               | "                   | "               | "                   |                  |              |
|         |                   | 530               | "                   | "               | "                   |                  |              |
| 540     |                   | "                 | "                   | "               |                     |                  |              |
| 11      | 550               | 523.5             | 7.115               | 0.425           |                     |                  |              |
|         | 560               | "                 | "                   | "               |                     |                  |              |
|         | 570               | "                 | "                   | "               |                     |                  |              |
|         | 580               | "                 | "                   | "               |                     |                  |              |
|         | 590               | "                 | "                   | "               |                     |                  |              |
| 12      | 600               | 523               | 7.11                | 0.43            |                     |                  |              |
|         | 610               | "                 | "                   | "               |                     |                  |              |
|         | 620               | "                 | "                   | "               |                     |                  |              |
|         | 630               | "                 | "                   | "               |                     |                  |              |
|         | 640               | "                 | "                   | "               |                     |                  |              |
| 13      | 650               | 524               | 7.12                | 0.42            |                     |                  |              |
|         | 660               | "                 | "                   | "               |                     |                  |              |
|         | 670               | "                 | "                   | "               |                     |                  |              |
|         | 680               | "                 | "                   | "               |                     |                  |              |
|         | 690               | "                 | "                   | "               |                     |                  |              |
| 14      | 700               | 524.5             | 7.13                | 0.41            |                     |                  |              |
|         | 710               | "                 | "                   | "               |                     |                  |              |
|         | 720               | "                 | "                   | "               |                     |                  |              |
|         | 730               | "                 | "                   | "               |                     |                  |              |
|         | 740               | "                 | "                   | "               |                     |                  |              |
| 15      | 750               | 524               | 7.12                | 0.42            |                     |                  |              |
|         | 760               | "                 | "                   | "               |                     |                  |              |
|         | 770               | "                 | "                   | "               |                     |                  |              |
|         | 780               | "                 | "                   | "               |                     |                  |              |
|         | 790               | "                 | "                   | "               |                     |                  |              |
| 16      | 800               | "                 | "                   | "               |                     |                  |              |
|         | 810               | "                 | "                   | "               |                     |                  |              |
|         | 820               | "                 | "                   | "               |                     |                  |              |
|         | 830               | "                 | "                   | "               |                     |                  |              |
|         | 840               | "                 | "                   | "               |                     |                  |              |
| 17      | 850               | "                 | "                   | "               |                     |                  |              |
|         | 860               | "                 | "                   | "               |                     |                  |              |
|         | 870               | "                 | "                   | "               |                     |                  |              |
|         | 880               | "                 | "                   | "               |                     |                  |              |
|         | 890               | "                 | "                   | "               |                     |                  |              |
| 18      | 900               | "                 | "                   | "               |                     |                  |              |
|         | 910               | "                 | "                   | "               |                     |                  |              |
|         | 920               | "                 | "                   | "               |                     |                  |              |
|         | 930               | "                 | "                   | "               |                     |                  |              |
|         | 940               | "                 | "                   | "               |                     |                  |              |
| 19      | 950               | "                 | "                   | "               |                     |                  |              |
|         | 960               | "                 | "                   | "               |                     |                  |              |
|         | 970               | "                 | "                   | "               |                     |                  |              |
|         | 980               | "                 | "                   | "               |                     |                  |              |
|         | 990               | "                 | "                   | "               |                     |                  |              |
| 20      | 1000              | "                 | "                   | "               |                     |                  |              |
|         | 1010              | "                 | "                   | "               |                     |                  |              |
|         | 1020              | "                 | "                   | "               |                     |                  |              |
|         | 1030              | "                 | "                   | "               |                     |                  |              |
|         | 1040              | "                 | "                   | "               |                     |                  |              |
| 21      | 1050              | "                 | "                   | "               |                     |                  |              |
|         | 1060              | "                 | "                   | "               |                     |                  |              |
|         | 1070              | "                 | "                   | "               |                     |                  |              |
|         | 1080              | "                 | "                   | "               |                     |                  |              |
|         | 1090              | "                 | "                   | "               |                     |                  |              |
| 22      | 1100              | "                 | "                   | "               |                     |                  |              |
|         | 1110              | "                 | "                   | "               |                     |                  |              |
|         | 1120              | "                 | "                   | "               |                     |                  |              |
|         | 1130              | "                 | "                   | "               |                     |                  |              |
|         | 1140              | "                 | "                   | "               |                     |                  |              |
| 23      | 1150              | "                 | "                   | "               |                     |                  |              |
|         | 1160              | "                 | "                   | "               |                     |                  |              |
|         | 1170              | "                 | "                   | "               |                     |                  |              |
|         | 1180              | "                 | "                   | "               |                     |                  |              |
|         | 1190              | "                 | "                   | "               |                     |                  |              |
| 24      | 1200              | "                 | "                   | "               |                     |                  |              |
|         | 1210              | "                 | "                   | "               |                     |                  |              |
|         | 1220              | "                 | "                   | "               |                     |                  |              |
|         | 1230              | "                 | "                   | "               |                     |                  |              |
|         | 1240              | "                 | "                   | "               |                     |                  |              |
| 25      | 1250              | "                 | "                   | "               |                     |                  |              |
|         | 1260              | "                 | "                   | "               |                     |                  |              |
|         | 1270              | "                 | "                   | "               |                     |                  |              |
|         | 1280              | "                 | "                   | "               |                     |                  |              |
|         | 1290              | "                 | "                   | "               |                     |                  |              |
| 26      | 1300              | "                 | "                   | "               |                     |                  |              |
|         | 1310              | "                 | "                   | "               |                     |                  |              |
|         | 1320              | "                 | "                   | "               |                     |                  |              |
|         | 1330              | "                 | "                   | "               |                     |                  |              |
|         | 1340              | "                 | "                   | "               |                     |                  |              |
| 27      | 1350              | "                 | "                   | "               |                     |                  |              |
|         | 1360              | "                 | "                   | "               |                     |                  |              |
|         | 1370              | "                 | "                   | "               |                     |                  |              |
|         | 1380              | "                 | "                   | "               |                     |                  |              |
|         | 1390              | "                 | "                   | "               |                     |                  |              |
| 28      | 1400              | "                 | "                   | "               |                     |                  |              |
|         | 1410              | "                 | "                   | "               |                     |                  |              |
|         | 1420              | "                 | "                   | "               |                     |                  |              |
|         | 1430              | "                 | "                   | "               |                     |                  |              |
|         | 1440              | "                 | "                   | "               |                     |                  |              |
| 29      | 1450              | "                 | "                   | "               |                     |                  |              |
|         | 1460              | "                 | "                   | "               |                     |                  |              |
|         | 1470              | "                 | "                   | "               |                     |                  |              |
|         | 1480              | "                 | "                   | "               |                     |                  |              |
|         | 1490              | "                 | "                   | "               |                     |                  |              |
| 30      | 1500              | "                 | "                   | "               |                     |                  |              |
|         | 1510              | "                 | "                   | "               |                     |                  |              |
|         | 1520              | "                 | "                   | "               |                     |                  |              |
|         | 1530              | "                 | "                   | "               |                     |                  |              |
|         | 1540              | "                 | "                   | "               |                     |                  |              |
| 31      | 1550              | "                 | "                   | "               |                     |                  |              |
|         | 1560              | "                 | "                   | "               |                     |                  |              |
|         | 1570              | "                 | "                   | "               |                     |                  |              |
|         | 1580              | "                 | "                   | "               |                     |                  |              |
|         | 1590              | "                 | "                   | "               |                     |                  |              |
| 32      | 1600              | "                 | "                   | "               |                     |                  |              |
|         | 1610              | "                 | "                   | "               |                     |                  |              |
|         | 1620              | "                 | "                   | "               |                     |                  |              |
|         | 1630              | "                 | "                   | "               |                     |                  |              |
|         | 1640              | "                 | "                   | "               |                     |                  |              |
| 33      | 1650              | "                 | "                   | "               |                     |                  |              |
|         | 1660              | "                 | "                   | "               |                     |                  |              |
|         | 1670              | "                 | "                   | "               |                     |                  |              |
|         | 1680              | "                 | "                   | "               |                     |                  |              |
|         | 1690              | "                 | "                   | "               |                     |                  |              |
| 34      | 1700              | "                 | "                   | "               |                     |                  |              |
|         | 1710              | "                 | "                   | "               |                     |                  |              |
|         | 1720              | "                 | "                   | "               |                     |                  |              |
|         | 1730              | "                 | "                   | "               |                     |                  |              |
|         | 1740              | "                 | "                   | "               |                     |                  |              |
| 35      | 1750              | "                 | "                   | "               |                     |                  |              |
|         | 1760              | "                 | "                   | "               |                     |                  |              |
|         | 1770              | "                 | "                   | "               |                     |                  |              |
|         | 1780              | "                 | "                   | "               |                     |                  |              |
|         | 1790              | "                 | "                   | "               |                     |                  |              |
| 36      | 1800              | "                 | "                   | "               |                     |                  |              |
|         | 1810              | "                 | "                   | "               |                     |                  |              |
|         | 1820              | "                 | "                   | "               |                     |                  |              |
|         | 1830              | "                 | "                   | "               |                     |                  |              |
|         | 1840              | "                 | "                   | "               |                     |                  |              |
| 37      | 1850              | "                 | "                   | "               |                     |                  |              |
|         | 1860              | "                 | "                   | "               |                     |                  |              |
|         | 1870              | "                 | "                   | "               |                     |                  |              |
|         | 1880              | "                 | "                   | "               |                     |                  |              |
|         | 1890              | "                 | "                   | "               |                     |                  |              |
| 38      | 1900              | "                 | "                   | "               |                     |                  |              |
|         | 1910              | "                 | "                   | "               |                     |                  |              |
|         | 1920              | "                 | "                   | "               |                     |                  |              |
|         | 1930              | "                 | "                   | "               |                     |                  |              |
|         | 1940              | "                 | "                   | "               |                     |                  |              |
| 39      | 1950              | "                 | "                   | "               |                     |                  |              |
|         | 1960              | "                 | "                   | "               |                     |                  |              |
|         | 1970              | "                 | "                   | "               |                     |                  |              |
|         | 1980              | "                 | "                   | "               |                     |                  |              |
|         | 1990              | "                 | "                   | "               |                     |                  |              |
| 20H00   | 2000              | "                 | "                   | "               |                     |                  |              |
|         | 2010              | "                 | "                   | "               |                     |                  |              |
|         | 2020              | "                 | "                   | "               |                     |                  |              |
|         | 2030              | "                 | "                   | "               |                     |                  |              |
|         | 2040              | "                 | "                   | "               |                     |                  |              |
| 21H00   | 2050              | "                 | "                   | "               |                     |                  |              |
|         | 2100              | "                 | "                   | "               |                     |                  |              |
|         | 2110              | "                 | "                   | "               |                     |                  |              |
|         | 2120              | "                 | "                   | "               |                     |                  |              |
|         | 2130              | "                 | "                   | "               |                     |                  |              |
| 22H00   | 2140              | "                 | "                   | "               |                     |                  |              |
|         | 2150              | "                 | "                   | "               |                     |                  |              |
|         | 2200              | "                 | "                   | "               |                     |                  |              |
|         | 2210              | "                 | "                   | "               |                     |                  |              |
|         | 2220              | "                 | "                   | "               |                     |                  |              |
| 23H00   | 2230              | "                 | "                   | "               |                     |                  |              |
|         | 2240              | "                 | "                   | "               |                     |                  |              |
|         | 2250              | "                 | "                   | "               |                     |                  |              |
|         | 2300              | "                 | "                   | "               |                     |                  |              |
|         | 2310              | "                 | "                   | "               |                     |                  |              |
| 24H00   | 2320              | "                 | "                   | "               |                     |                  |              |
|         | 2330              | "                 | "                   | "               |                     |                  |              |
|         | 2340              | "                 | "                   | "               |                     |                  |              |
|         | 2350              | "                 | "                   | "               |                     |                  |              |
|         | 2400              | "                 | "                   | "               |                     |                  |              |
| 25H00   | 2410              | "                 | "                   | "               |                     |                  |              |
|         | 2420              | "                 | "                   | "               |                     |                  |              |
|         | 2430              | "                 | "                   | "               |                     |                  |              |
|         | 2440              | "                 | "                   | "               |                     |                  |              |
|         | 2450              | "                 | "                   | "               |                     |                  |              |
| 26H00   | 2460              | "                 | "                   | "               |                     |                  |              |
|         | 2470              | "                 | "                   | "               |                     |                  |              |
|         | 2480              | "                 | "                   | "               |                     |                  |              |
|         | 2490              | "                 | "                   | "               |                     |                  |              |
|         | 2500              | "                 | "                   | "               |                     |                  |              |
| 27H00   | 2510              | "                 | "                   | "               |                     |                  |              |
|         | 2520              | "                 | "                   | "               |                     |                  |              |
|         | 2530              | "                 | "                   | "               |                     |                  |              |
|         | 2540              | "                 | "                   | "               |                     |                  |              |
|         | 2550              | "                 | "                   | "               |                     |                  |              |
| 28H00   | 2560              | "                 | "                   | "               |                     |                  |              |
|         | 2570              | "                 | "                   | "               |                     |                  |              |
|         | 2580              | "                 | "                   | "               |                     |                  |              |
|         | 2590              | "                 | "                   | "               |                     |                  |              |
|         | 2600              | "                 | "                   | "               |                     |                  |              |
| 29H00   | 2610              | "                 | "                   | "               |                     |                  |              |
|         | 2620              | "                 | "                   | "               |                     |                  |              |
|         | 2630              | "                 | "                   | "               |                     |                  |              |
|         | 2640              | "                 | "                   | "               |                     |                  |              |
|         | 2650              | "                 | "                   | "               |                     |                  |              |
| 30H00   | 2660              | "                 | "                   | "               |                     |                  |              |
|         | 2670              | "                 | "                   | "               |                     |                  |              |
|         | 2680              | "                 | "                   | "               |                     |                  |              |
|         | 2690              | "                 | "                   | "               |                     |                  |              |
|         | 2700              | "                 | "                   | "               |                     |                  |              |
| 31H00   | 2710              | "                 | "                   | "               |                     |                  |              |
|         | 2720              | "                 | "                   | "               |                     |                  |              |
|         | 2730              | "                 | "                   | "               |                     |                  |              |
|         | 2740              | "                 | "                   | "               |                     |                  |              |
|         | 2750              | "                 | "                   | "               |                     |                  |              |
| 32H00   | 2760              | "                 | "                   | "               |                     |                  |              |
|         | 2770              | "                 | "                   | "               |                     |                  |              |
|         | 2780              | "                 | "                   | "               |                     |                  |              |
|         | 2790              | "                 | "                   | "               |                     |                  |              |
|         | 2800              | "                 | "                   | "               |                     |                  |              |
| 33H00   | 2810              | "                 | "                   | "               |                     |                  |              |
|         | 2820              | "                 | "                   | "               |                     |                  |              |
|         | 2830              | "                 | "                   | "               |                     |                  |              |
|         | 2840              | "                 | "                   | "               |                     |                  |              |
|         | 2850              | "                 | "                   | "               |                     |                  |              |
| 34H00   | 2860              | "                 | "                   | "               |                     |                  |              |
|         | 2870              | "                 | "                   | "               |                     |                  |              |
|         | 2880              | "                 | "                   | "               |                     |                  |              |
|         | 2890              | "                 | "                   | "               |                     |                  |              |
|         | 2900              | "                 | "                   | "               |                     |                  |              |
| 35H00   | 2910              | "                 | "                   | "               |                     |                  |              |
|         | 2920              | "                 | "                   | "               |                     |                  |              |
|         | 2930              | "                 | "                   | "               |                     |                  |              |
|         | 2940              | "                 | "                   | "               |                     |                  |              |
|         | 2950              | "                 | "                   | "               |                     |                  |              |
| 36H00   | 2960              | "                 | "                   | "               |                     |                  |              |
|         | 2970              | "                 | "                   | "               |                     |                  |              |
|         | 2980              | "                 | "                   | "               |                     |                  |              |
|         | 2990              | "                 | "                   | "               |                     |                  |              |
|         | 3000              | "                 | "                   | "               |                     |                  |              |
| 37H00   | 3010              | "                 | "                   | "               |                     |                  |              |
|         | 3020              | "                 | "                   | "               |                     |                  |              |
|         | 3030              | "                 | "                   | "               |                     |                  |              |
|         | 3040              | "                 | "                   | "               |                     |                  |              |
|         | 3050              | "                 | "                   | "               |                     |                  |              |
| 38H00   | 3060              | "                 | "                   | "               |                     |                  |              |
|         | 3070              | "                 | "                   | "               |                     |                  |              |
|         | 3080              | "                 | "                   | "               |                     |                  |              |
|         | 3090              | "                 | "                   | "               |                     |                  |              |
|         | 3100              | "                 | "                   | "               |                     |                  |              |
| 39H00   | 3110              | "                 | "                   | "               |                     |                  |              |
|         | 3120              | "                 | "                   | "               |                     |                  |              |
|         | 3130              | "                 | "                   | "               |                     |                  |              |
|         | 3140              | "                 | "                   | "               |                     |                  |              |
|         | 3150              | "                 | "                   | "               |                     |                  |              |
| 40H00   | 3160              | "                 | "                   | "               |                     |                  |              |
|         | 3170              | "                 | "                   | "               |                     |                  |              |
|         | 3180              | "                 | "                   | "               |                     |                  |              |
|         | 3190              | "                 | "                   | "               |                     |                  |              |
|         | 3200              | "                 | "                   | "               |                     |                  |              |
| 41H00   | 3210              | "                 | "                   | "               |                     |                  |              |
|         | 3220              | "                 | "                   | "               |                     |                  |              |
|         | 3230              | "                 | "                   | "               |                     |                  |              |
|         | 3240              | "                 | "                   | "               |                     |                  |              |
|         | 3250              | "                 | "                   | "               |                     |                  |              |
| 42H00   | 3260              | "                 | "                   | "               |                     |                  |              |
|         | 3270              | "                 | "                   | "               |                     |                  |              |
|         | 3280              | "                 | "                   | "               |                     |                  |              |
|         | 3290              | "                 | "                   | "               |                     |                  |              |
|         | 3300              | "                 | "                   | "               |                     |                  |              |
| 43H00   | 3310              | "                 | "                   | "               |                     |                  |              |
|         | 3320              | "                 | "                   | "               |                     |                  |              |
|         | 3330              | "                 | "                   | "               |                     |                  |              |
|         | 3340              | "                 | "                   | "               |                     |                  |              |
|         | 3350              | "                 | "                   | "               |                     |                  |              |
| 44H00   | 3360              | "                 | "                   | "               |                     |                  |              |
|         | 3370              | "                 | "                   | "               |                     |                  |              |
|         | 3380              | "                 | "                   | "               |                     |                  |              |
|         | 3390              | "                 | "                   | "               |                     |                  |              |
|         | 3400              | "                 | "                   | "               |                     |                  |              |
| 45H00   | 3410              | "                 | "                   | "               |                     |                  |              |
|         | 3420              | "                 | "                   | "               |                     |                  |              |
|         | 3430              | "                 | "                   | "               |                     |                  |              |
|         | 3440              | "                 | "                   | "               |                     |                  |              |
|         | 3450              | "                 | "                   | "               |                     |                  |              |
| 46H00   | 3460              | "                 | "                   | "               |                     |                  |              |
|         | 3470              | "                 | "                   | "               |                     |                  |              |
|         | 3480              | "                 | "                   | "               |                     |                  |              |
|         | 3490              | "                 | "                   | "               |                     |                  |              |
|         | 3500              | "                 | "                   | "               |                     |                  |              |
| 47H00   | 3510              | "                 | "                   | "               |                     |                  |              |
|         | 3520              | "                 | "                   | "               |                     |                  |              |
|         | 3530              | "                 | "                   | "               |                     |                  |              |
|         | 3540              | "                 | "                   | "               |                     |                  |              |
|         | 3550              | "                 | "                   | "               |                     |                  |              |
| 48H00   | 3560              | "                 | "                   | "               |                     |                  |              |
|         | 3570              | "                 | "                   | "               |                     |                  |              |
|         | 3580              | "                 | "                   | "               |                     |                  |              |
|         | 3590              | "                 | "                   | "               |                     |                  |              |
|         | 3600              | "                 | "                   | "               |                     |                  |              |
| 49H00   | 3610              | "                 | "                   | "               |                     |                  |              |
|         | 3620              | "                 | "                   | "               |                     |                  |              |
|         | 3630              | "                 | "                   | "               |                     |                  |              |
|         | 3640              | "                 | "                   | "               |                     |                  |              |
|         | 3650              | "                 | "                   | "               |                     |                  |              |
| 50H00   | 3660              | "                 | "                   | "               |                     |                  |              |
|         | 3670              | "                 | "                   | "               |                     |                  |              |
|         | 3680              | "                 | "                   | "               |                     |                  |              |
|         | 3690              | "                 | "                   | "               |                     |                  |              |
|         | 3700              | "                 | "                   | "               |                     |                  |              |
| 51H00   | 3710              | "                 | "                   | "               |                     |                  |              |
|         | 3720              | "                 | "                   | "               |                     |                  |              |
|         | 3730              | "                 | "                   | "               |                     |                  |              |
|         | 3740              | "                 | "                   | "               |                     |                  |              |
|         | 3750              | "                 | "                   | "               |                     |                  |              |
| 52H00   | 3760              | "                 | "                   | "               |                     |                  |              |
|         | 3770              | "                 | "                   | "               |                     |                  |              |
|         | 3780              | "                 | "                   | "               |                     |                  |              |
|         | 3790              | "                 | "                   | "               |                     |                  |              |
|         | 3800              | "                 | "                   | "               |                     |                  |              |
| 53H00   | 3810              | "                 | "                   | "               |                     |                  |              |
|         | 3820              | "                 | "                   | "               |                     |                  |              |
|         | 3830              | "                 | "                   | "               |                     |                  |              |
|         | 3840              | "                 | "                   | "               |                     |                  |              |
|         | 3850              | "                 | "                   | "               |                     |                  |              |
| 54H00   | 3860              | "                 | "                   | "               |                     |                  |              |
|         | 3870              | "                 | "                   | "               |                     |                  |              |
|         | 3880              | "                 | "                   | "               |                     |                  |              |
|         | 3890              | "                 | "                   | "               |                     |                  |              |
|         | 3900              | "                 | "                   | "               |                     |                  |              |
| 55H00   | 3910              | "                 | "                   | "               |                     |                  |              |
|         | 3920              | "                 | "                   | "               |                     |                  |              |
|         | 3930              | "                 | "                   | "               |                     |                  |              |
|         | 3940              | "                 | "                   | "               |                     |                  |              |
|         | 3950              | "                 | "                   | "               |                     |                  |              |
| 56H00   | 3960              | "                 | "                   | "               |                     |                  |              |
|         | 3970              | "                 | "                   | "               |                     |                  |              |
|         | 3980              | "                 |                     |                 |                     |                  |              |

ABAISSMENT DU 3ème PALIER (suite)

- 7 -

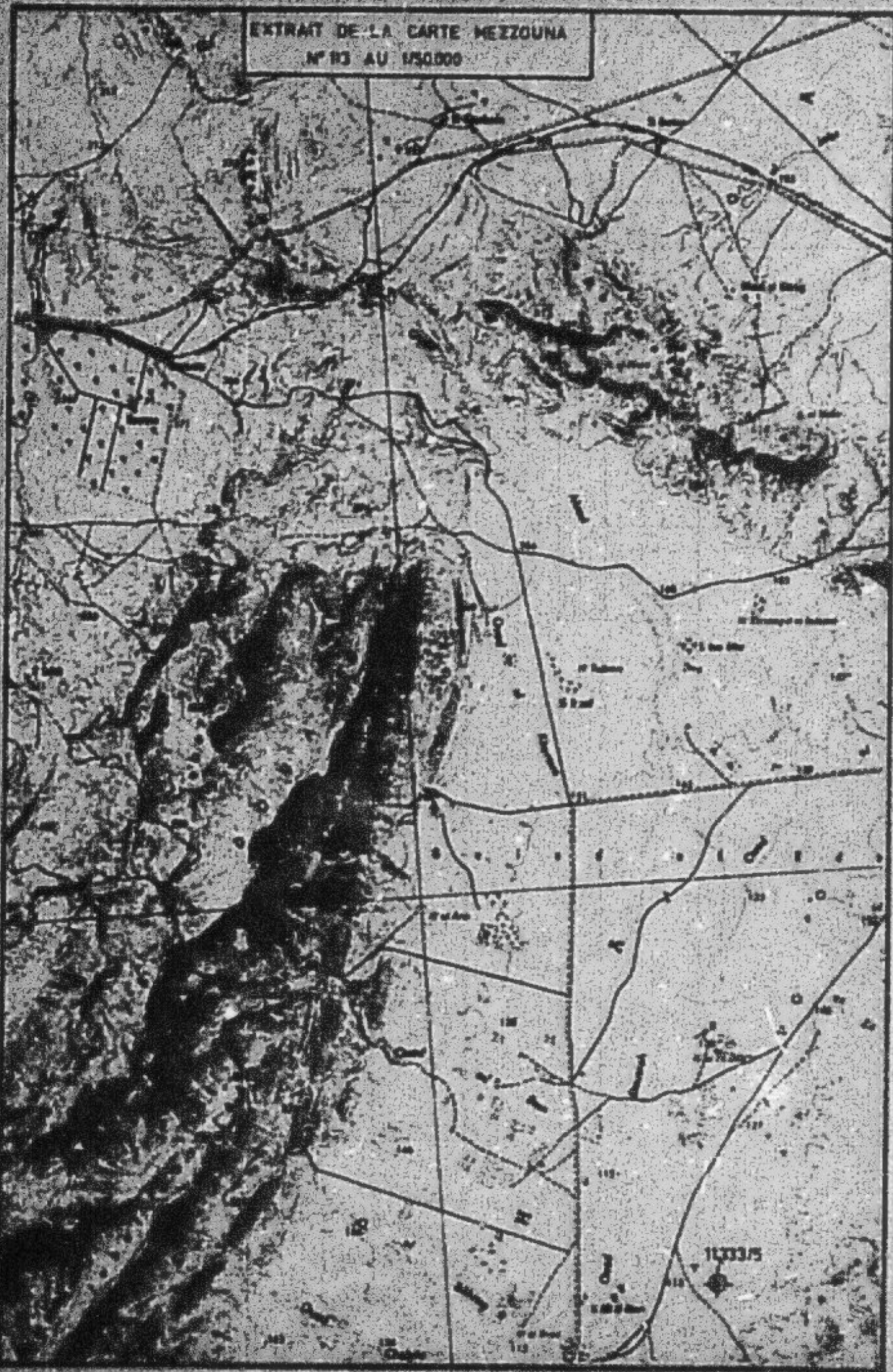
| DATE    | Heures et minutes | Temps en secondes | Lecture lig en mm | Conversion en m. | Rabatement S en m. | Débit Q en l/s | OBSERVATION |
|---------|-------------------|-------------------|-------------------|------------------|--------------------|----------------|-------------|
| 10.1977 | 1800              | 12600             | 520.5             | 7.075            | 0.465              |                |             |
|         | 30                | 14400             | 521               | 7.08             | 0.46               |                |             |
|         | 2100              | 16200             | "                 | "                | "                  |                |             |
|         | 30                | 18000             | "                 | "                | "                  |                |             |
|         | 3100              | 19800             | "                 | "                | "                  |                |             |
|         | 30                | 21600             | "                 | "                | "                  |                |             |
|         | 4100              | 23400             | 517.5             | 7.035            | 0.505              |                |             |
|         | 30                | 25200             | "                 | "                | "                  |                |             |
|         | 5100              | 27000             | "                 | "                | "                  |                |             |
|         | 30                | 28800             | "                 | "                | "                  |                |             |

| DATE    | Heures et minutes | Temps t <sup>1</sup> en secondes | $1 + \frac{t}{t'}$ | N.D en m<br>Lecture lig<br>en mm | Rabattement<br>résiduel<br>S' en m. | S'/Q  | OBSERVATIONS                          |
|---------|-------------------|----------------------------------|--------------------|----------------------------------|-------------------------------------|-------|---------------------------------------|
| 10.1977 | 6h30              | 00                               | -                  | 517.5                            | 0.506                               | 15.25 |                                       |
|         |                   | 10                               | 5941               |                                  |                                     |       |                                       |
|         |                   | 20                               | 2971               |                                  |                                     |       |                                       |
|         |                   | 30                               | 1981               | 535                              | 0.27                                | 8.15  | T <sup>2</sup> : 59400                |
|         |                   | 40                               | 1486               | "                                | "                                   | "     | Q <sub>0</sub> = 33,12 <sup>1</sup> / |
|         |                   | 50                               | 1109               | "                                | "                                   | "     | S = 7,54 m                            |
|         | 1'                | 60                               | 991                | "                                | "                                   | "     |                                       |
|         |                   | 70                               | 849.5              | "                                | "                                   | "     |                                       |
|         |                   | 80                               | 743.5              | "                                | "                                   | "     |                                       |
|         |                   | 90                               | 661                | "                                | "                                   | "     |                                       |
|         |                   | 100                              | 595                | "                                | "                                   | "     |                                       |
|         |                   | 110                              | 541                | "                                | "                                   | "     |                                       |
|         | 2'                | 120                              | 496                | "                                | "                                   | "     |                                       |
|         |                   | 150                              | 307                | "                                | "                                   | "     |                                       |
|         | 3'                | 180                              | 331                | "                                | "                                   | "     |                                       |
|         |                   | 210                              | 283.9              | "                                | "                                   | "     |                                       |
|         | 4'                | 240                              | 248.5              | 536                              | 0.26                                | 7.85  |                                       |
|         |                   | 270                              | 221                | "                                | "                                   | "     |                                       |
|         | 5'                | 300                              | 199                | "                                | "                                   | "     |                                       |
|         |                   | 330                              | 181                | "                                | "                                   | "     |                                       |
|         | 6'                | 360                              | 166                | 536.5                            | 0.255                               | 7.70  |                                       |
|         |                   | 390                              | 153.30             | "                                | "                                   | "     |                                       |
|         | 7'                | 420                              | 142.4              | "                                | "                                   | "     |                                       |
|         |                   | 450                              | 133                | "                                | "                                   | "     |                                       |
|         | 8'                | 480                              | 124.8              | 537                              | 0.25                                | 7.45  |                                       |
|         |                   | 510                              | 117.5              | "                                | "                                   | "     |                                       |
|         | 9'                | 540                              | 111                | "                                | "                                   | "     |                                       |
|         |                   | 570                              | 105.2              | "                                | "                                   | "     |                                       |
|         | 10                | 600                              | 100                | "                                | "                                   | "     |                                       |
|         | 11                | 660                              | 91                 | "                                | "                                   | "     |                                       |
|         | 12                | 720                              | 83.5               | "                                | "                                   | "     |                                       |
|         | 13                | 780                              | 77.2               | "                                | "                                   | "     |                                       |
|         | 14                | 840                              | 71.7               | "                                | "                                   | "     |                                       |
|         | 15                | 900                              | 67.                | "                                | "                                   | "     |                                       |
|         | 16                | 960                              | 62.9               | 537.5                            | 0.24                                | 7.25  |                                       |
|         | 17                | 1020                             | 59.2               | "                                | "                                   | "     |                                       |
|         | 18                | 1080                             | 56                 | "                                | "                                   | "     |                                       |
|         | 19                | 1140                             | 53.1               | "                                | "                                   | "     |                                       |
|         | 20                | 1200                             | 50.5               | "                                | "                                   | "     |                                       |
|         | 22                | 1320                             | 46                 | "                                | "                                   | "     |                                       |
|         | 24                | 1440                             | 42.3               | "                                | "                                   | "     |                                       |
|         | 26                | 1560                             | 39.1               | 538                              | 0.23                                | 6.94  |                                       |
|         | 28                | 1680                             | 36.4               | "                                | "                                   | "     |                                       |
|         | 30                | 1800                             | 34                 | 539                              | 0.22                                | 6.64  |                                       |
|         | 35                | 2100                             | 29.3               | "                                | "                                   | "     |                                       |
|         | 40                | 2400                             | 25.8               | 539.5                            | 0.21                                | 6.34  |                                       |
|         | 45                | 2700                             | 23                 | "                                | "                                   | "     |                                       |
|         | 50                | 3000                             | 20.8               | 540                              | 0.205                               | 6.19  |                                       |
|         | 55                | 3300                             | 19                 | "                                | "                                   | "     |                                       |
|         | 7h30              | 3600                             | 17.5               | 540.5                            | 0.195                               | 5.89  |                                       |
|         | 40                | 4200                             | 15.1               | "                                | "                                   | "     |                                       |
|         | 50                | 4800                             | 13.4               | 541                              | 0.19                                | 5.74  |                                       |
|         | 8h00              | 5400                             | 12                 | 541.5                            | 0.185                               | 5.59  |                                       |
|         | 10                | 6000                             | 10.9               | "                                | "                                   | "     |                                       |
|         | 20                | 6600                             | 10                 | 542                              | 0.175                               | 5.28  |                                       |
|         | 30                | 7200                             | 9.3                | 542.5                            | 0.17                                | 5.13  |                                       |
|         | 45                | 8100                             | 8.3                | 543                              | 0.165                               | 4.98  |                                       |
|         | 9h00              | 9000                             | 7.6                | "                                | "                                   | "     |                                       |
|         | 15                | 9900                             | 7                  | 544                              | 0.15                                | 4.53  |                                       |

RECAPITULE DU PORCE EL BOUA (suite)

| DATE  | Heures et minutes | Temps t' en secondes | $1 + \frac{t}{t'}$ | N.S en m<br>Lecture Hg en m. | Rabatement résiduel<br>S' en m. | S'/Q | OBSERVATION |
|-------|-------------------|----------------------|--------------------|------------------------------|---------------------------------|------|-------------|
| 10.77 | 9H30              | 10800                | 6.5                | 544                          | 0.15                            | 4.53 |             |
|       | 10H00             | 12600                | 5.7                | 545                          | 0.135                           | 4.08 |             |
|       | 30                | 14400                | 5.1                | "                            | "                               | "    |             |
|       | 11H00             | 16200                | 4.7                | 546                          | 0.12                            | 3.62 |             |

EXTRAIT DE LA CARTE MEZZOUNA  
N° 13 AU 1:50,000



# FORAGE D'EL BOUA

N° B.I.R.H 11333/5

COORD: 38° 35' 60"  
8° 23' 40"

14/8/1969 au 19/3/1970

Société de forage: Subdivision Spéciale des Sondages.

## COUPE GEOLOGIQUE

Gravillons avec sable

Calcaire

Très dur

0  
2

85

## ETAT DU PUIT

0.60

Cimentation à 4 m

Tube plein Ø 9" 5/8

29 m

Tube lanterne 9" 5/8

36 m Ø 15"

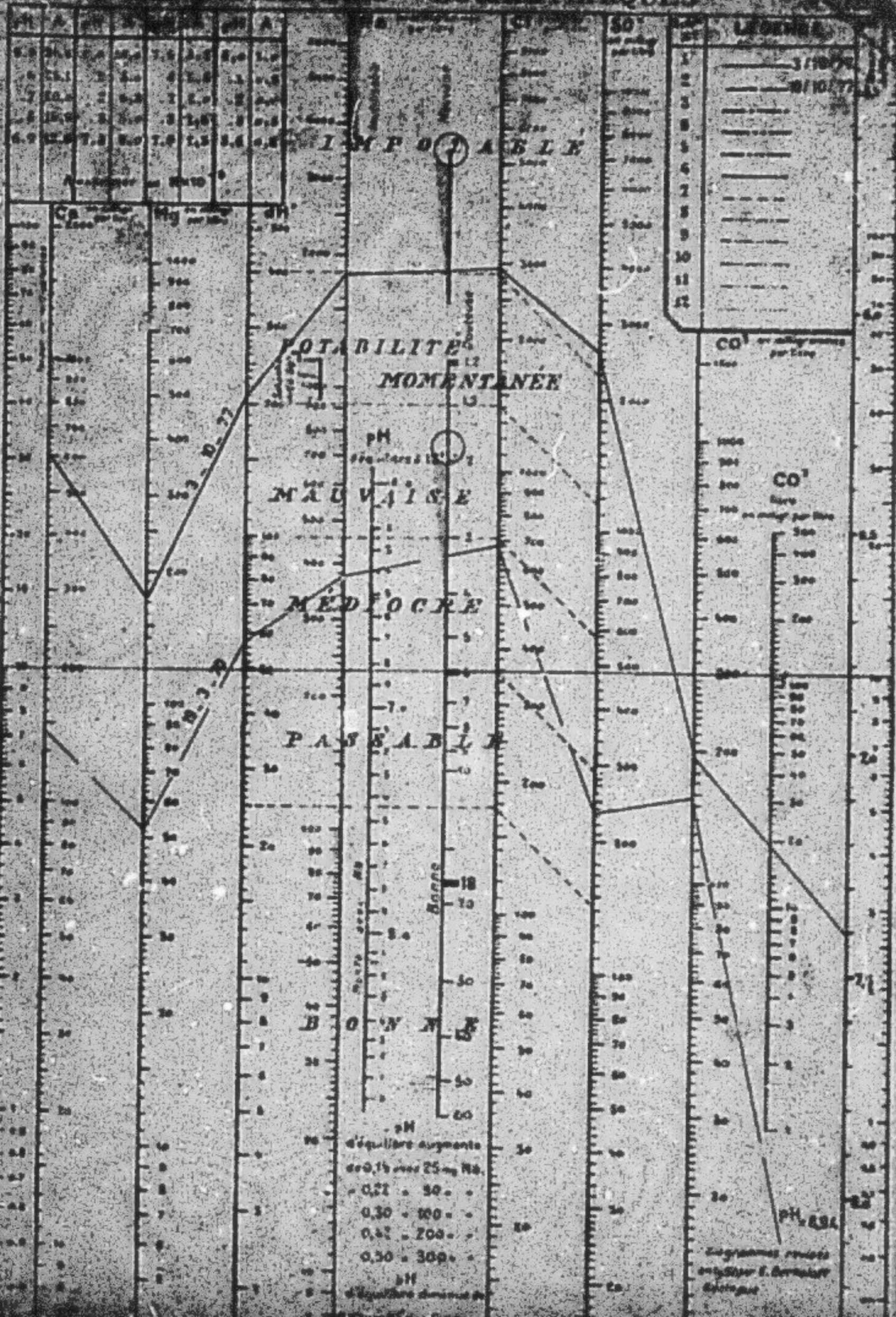
40 m

41 m Ø 12" 1/4

75 m Ø 8" 1/2

85 m Ø 6" 1/4

# DIAGRAMMES LOGARITHMIQUES



**FIN**

**14**

**VUES**