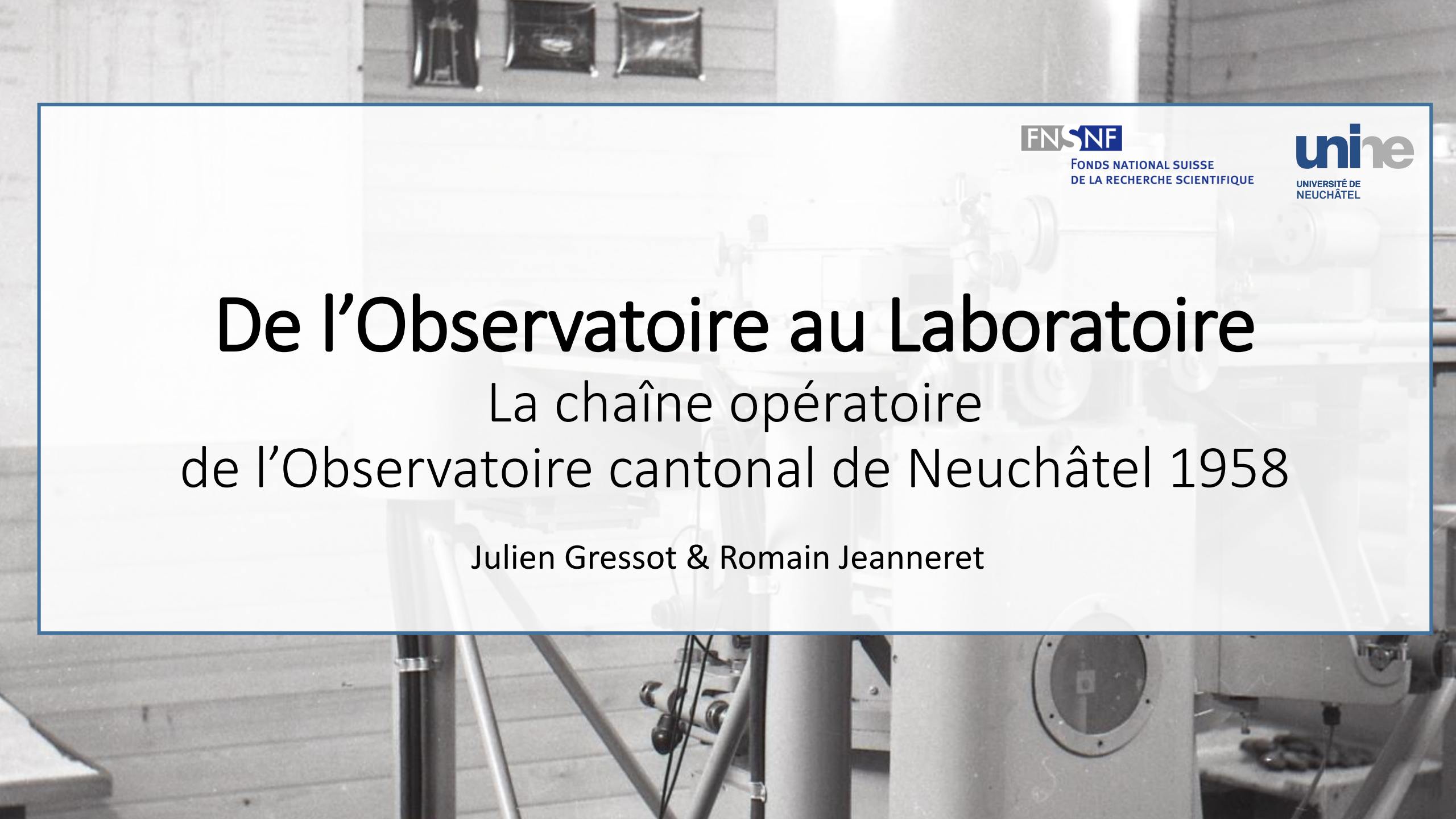

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unine
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NEUCHÂTEL

De l'Observatoire au Laboratoire

La chaîne opératoire de l'Observatoire cantonal de Neuchâtel 1958

Julien Gressot & Romain Jeanneret

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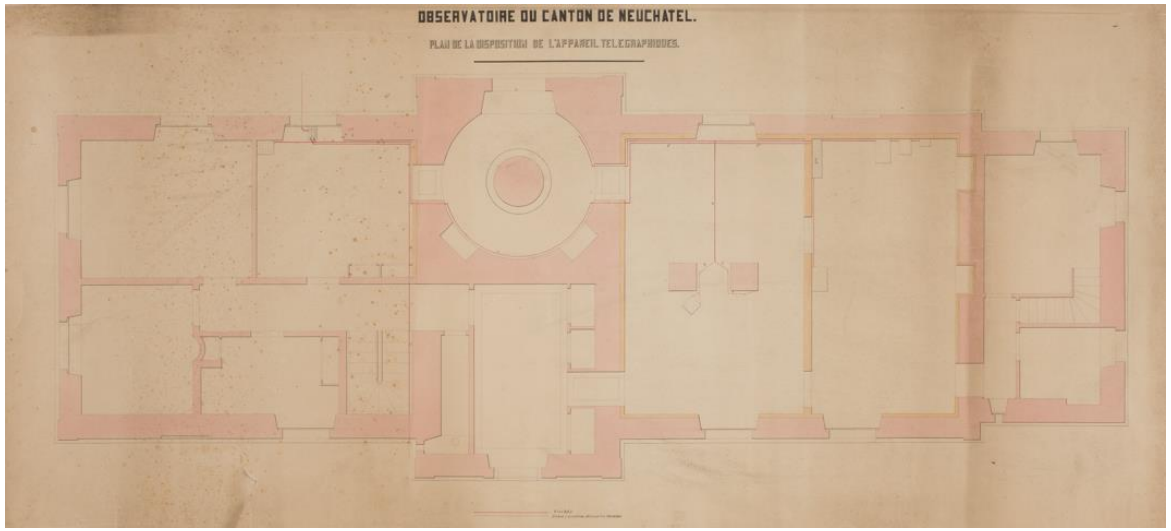
NEUCHÂTEL

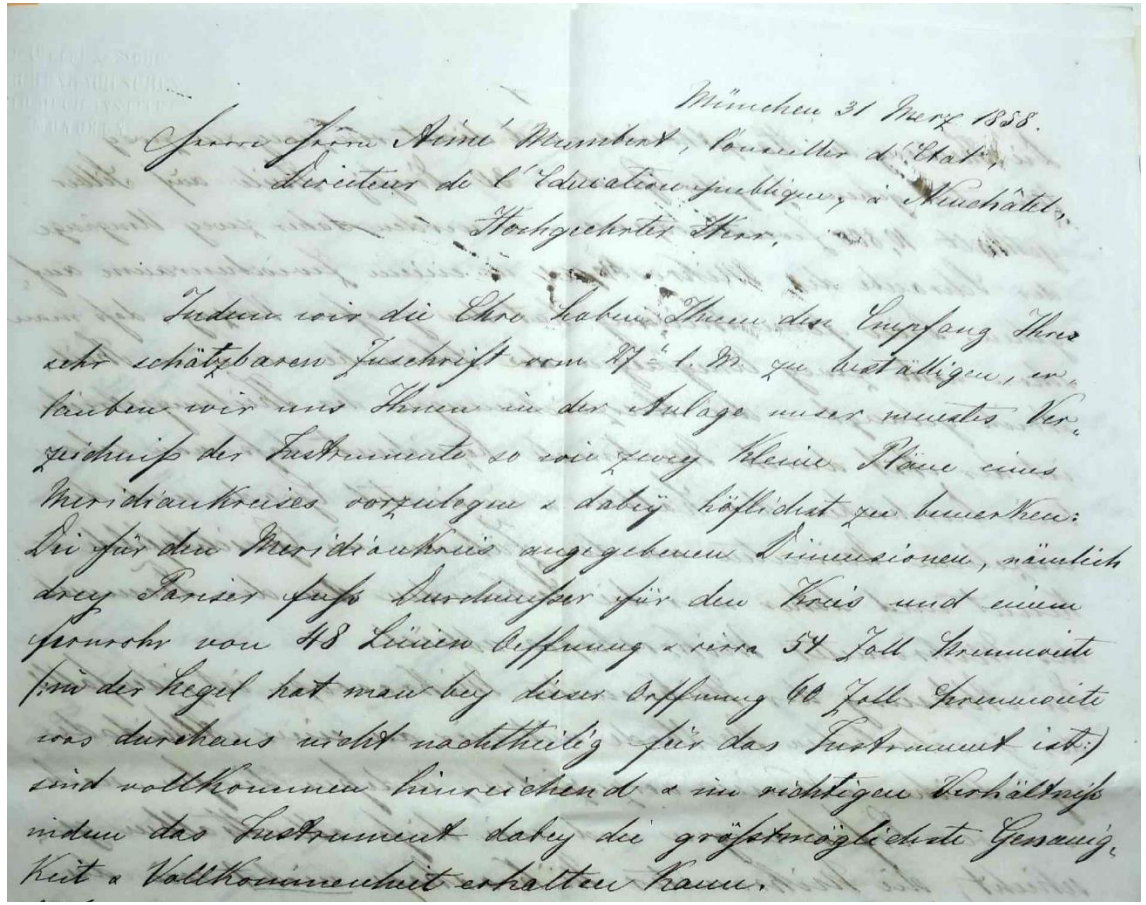
OBSERVATORY OF NEUCHÂTEL (1858-2007)

Prix de série - Les concours de chronomètres en 1913 de l'Observatoire de Neuchâtel,. https://notrehistoire.ch/entries/gQYAnpPJBwv - Stéphane Thurnherr

2-IND-87



SOURCES



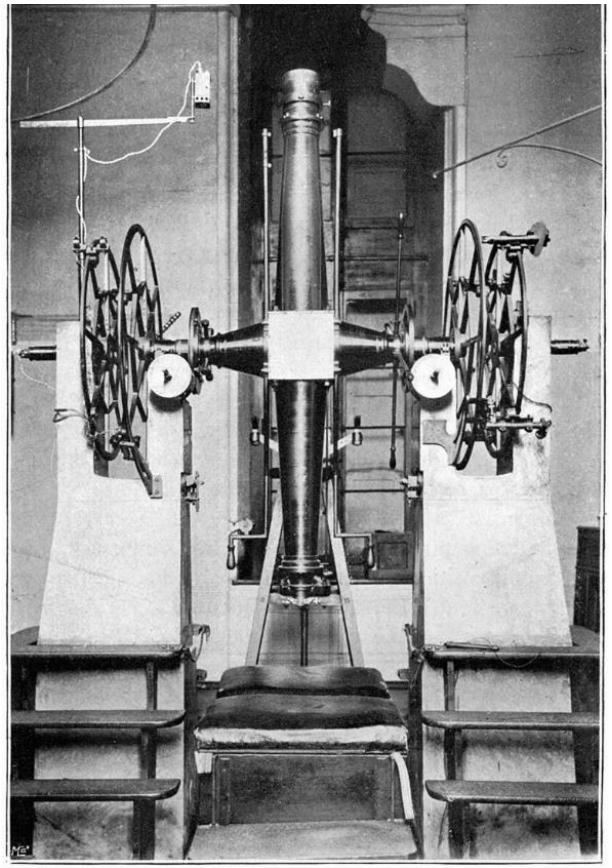
München 31 März 1858.

Source: *Lettre de Ertel à Aimé Humbert du 31 mars 1858, Archives de l'État de Neuchâtel (ci-après AEN), 2IND-6*

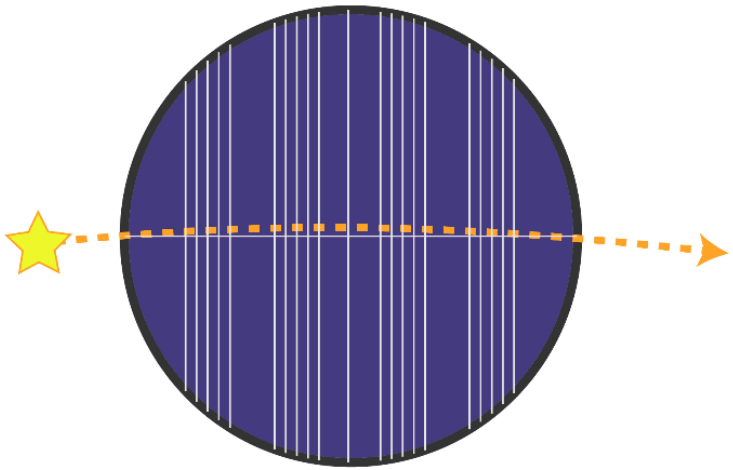
Detail of the traces of an old unknown device present on the plate of the Winnerl sidereal clock

TIME DETERMINATION BEFORE MID-XXTH

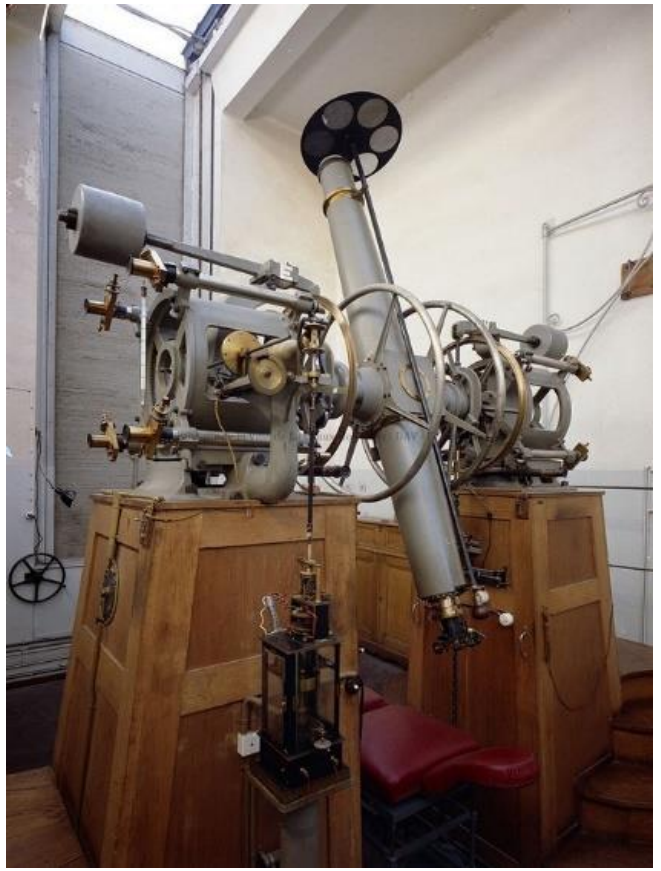
Ertel & Sohn, Meridian circle (1858-1912)



DÉPARTEMENT DE L'INSTRUCTION PUBLIQUE. *L'Observatoire cantonal neuchâtelois, 1858-1912. Souvenir de son cinquantenaire et de l'inauguration du Pavillon Hirsch*. Valangin: HBN, 2012 [1912].



«SIP» Meridian circle. 1912



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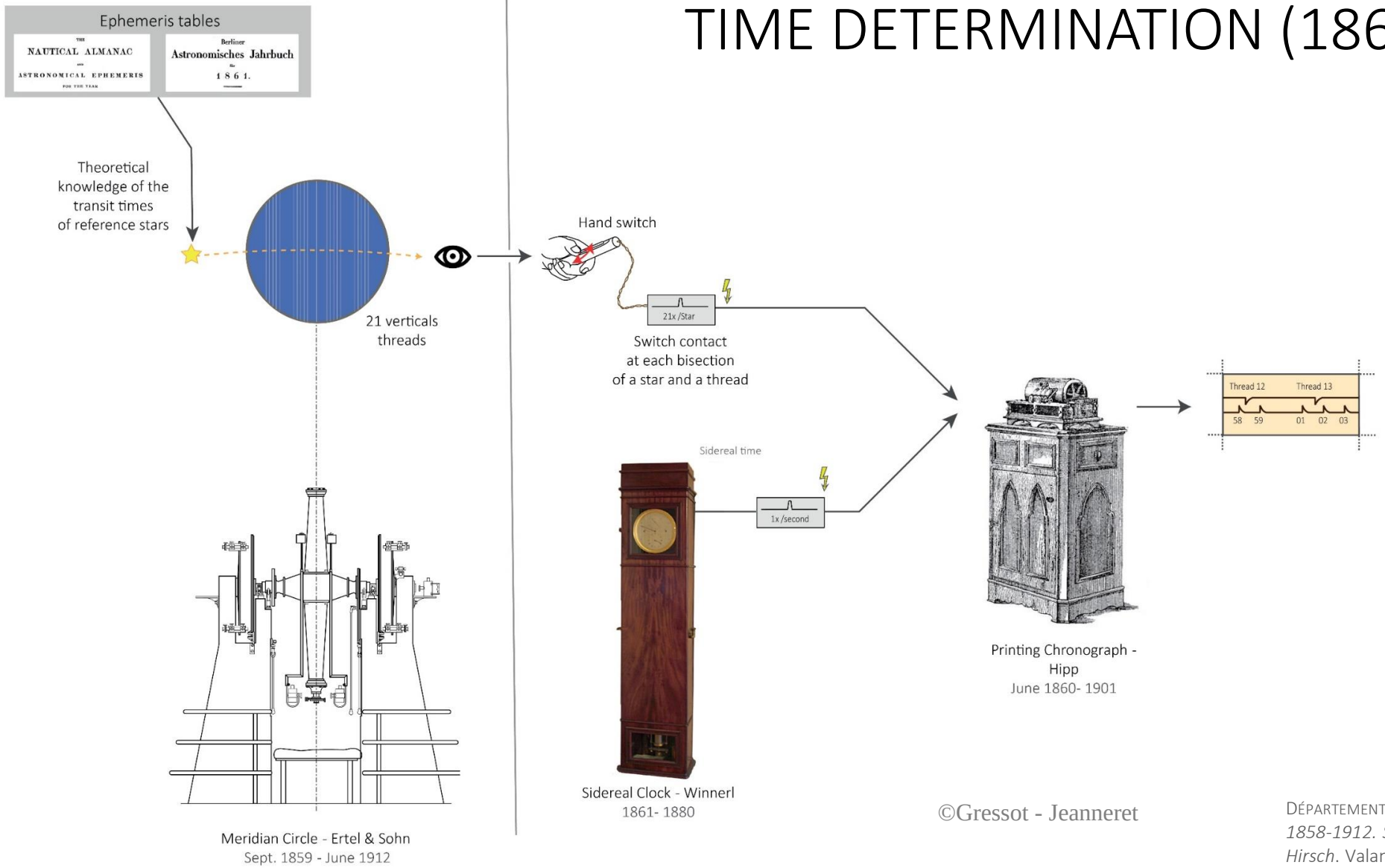
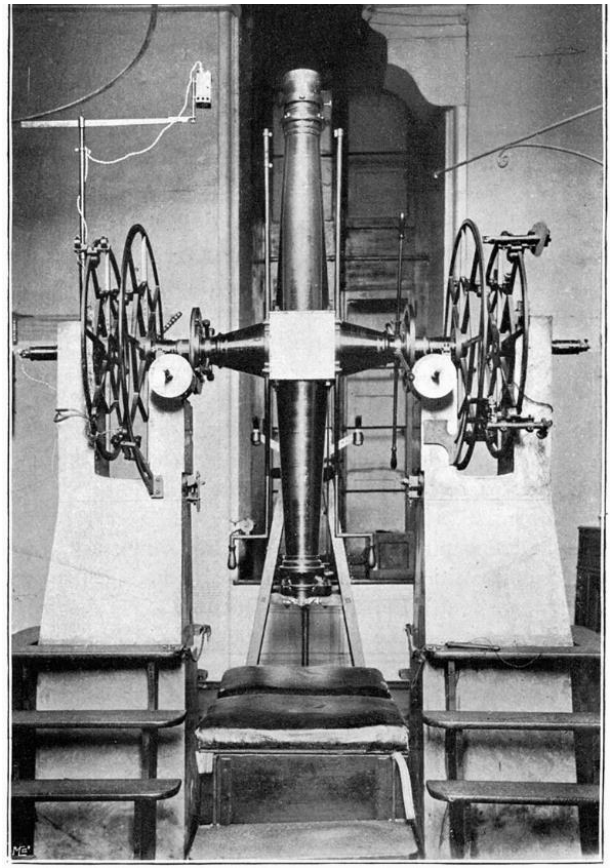
TIME DETERMINATION (1861)

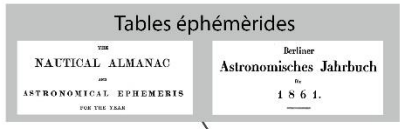


Ertel & Sohn, Meridian circle. 1858



DÉPARTEMENT DE L'INSTRUCTION PUBLIQUE. *L'Observatoire cantonal neuchâtelois, 1858-1912. Souvenir de son cinquantenaire et de l'inauguration du Pavillon Hirsch*. Valangin: HBN, 2012 [1912].

FROM 1913 - REPSOLD IMPERSONAL MICROMETER



Connaissance théorique des temps de passages d'étoiles de référence

Observation du soleil au midi moyen possible avec des filtres

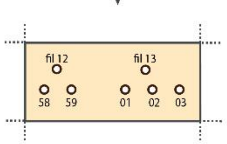
12 fils horaires et un fil mobile

Interrupteur à main

12x /astre

Fermeture d'un contact à chaque bissection de l'astre et d'un fil

Appareil de relevé



Chronographe à pointes sèches Peyer-Favarger
1901-1955 ?

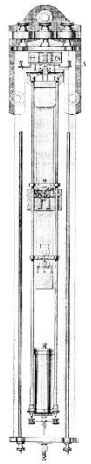
Réduction des calculs

Déterminer l'état de marche de la pendule sidérale, soit le décalage entre l'heure sidérale exacte et l'heure sidérale conservée

La pendule n'est pas remise à l'heure, seul son état de marche est déterminé

Temps sidéral

1x /seconde

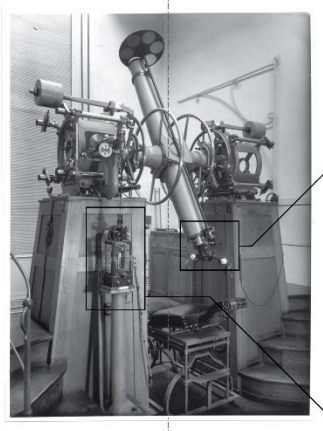


Pendule électrique de précision Hipp
1880 - 1921

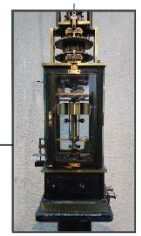
Ce dispositif ne sera pas fonctionnel avant 1926

Micromètre impersonnel Repsold
1913 - 1958

Avance manuelle du fil mobile



Lunette méridienne SIP
1913 - 1958

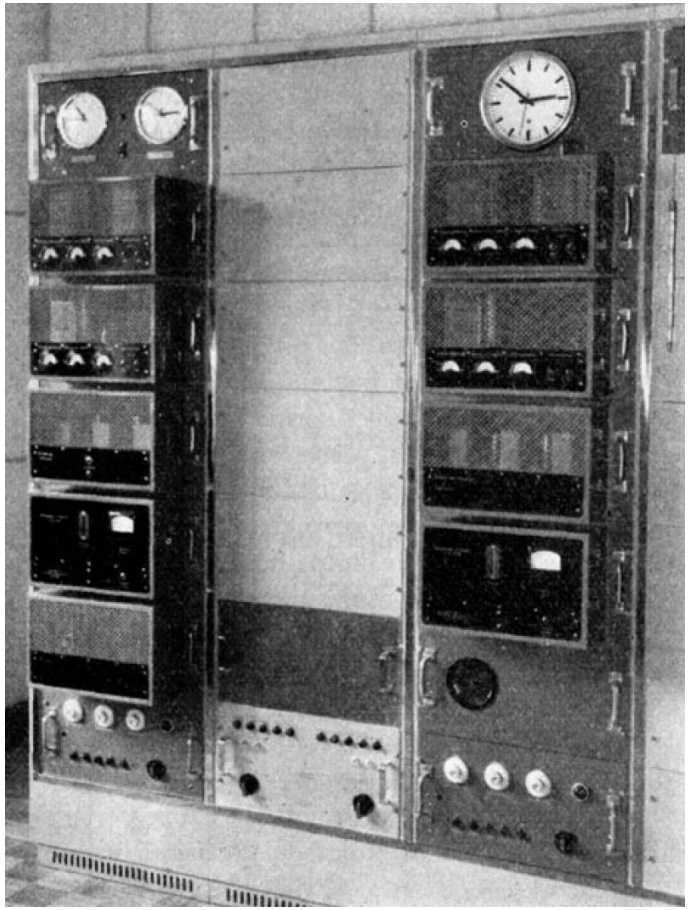


Moteur de Thury
1913 - 1958

FROM MECHANICAL CLOCK TO QUARTZ

Zénith III precision clock
1924 – 1960

Leroy precision clock
1924 – 1960

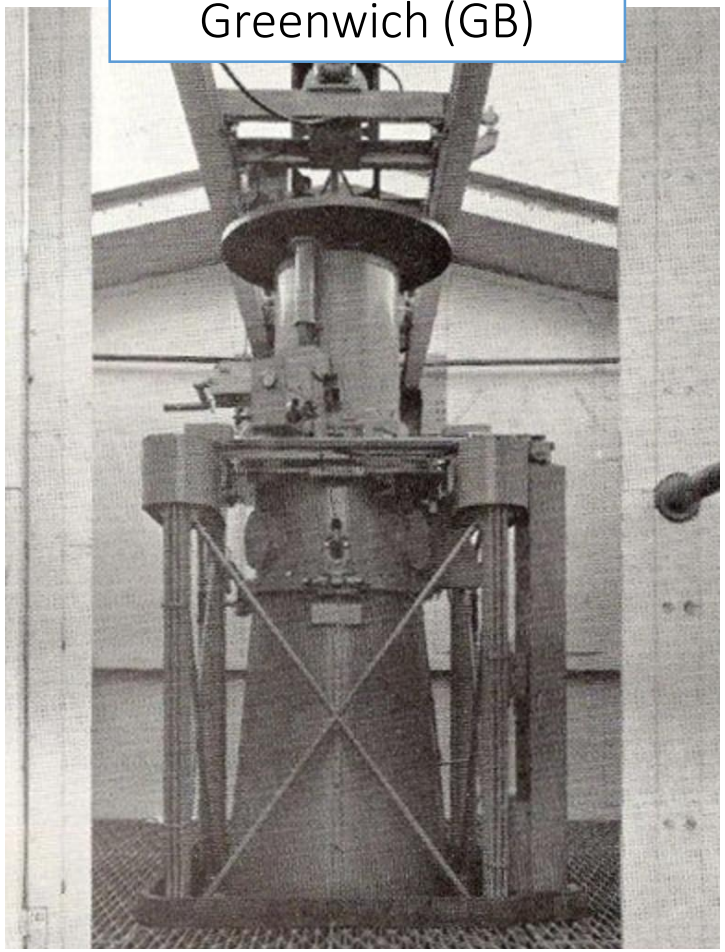


Quartz clocks Q1 et Q2
1949

In Edmond Guyot, la conservation de l'heure avec les horloges à quartz, 1953.

1946 - UIA COPENHAGUEN

Greenwich (GB)

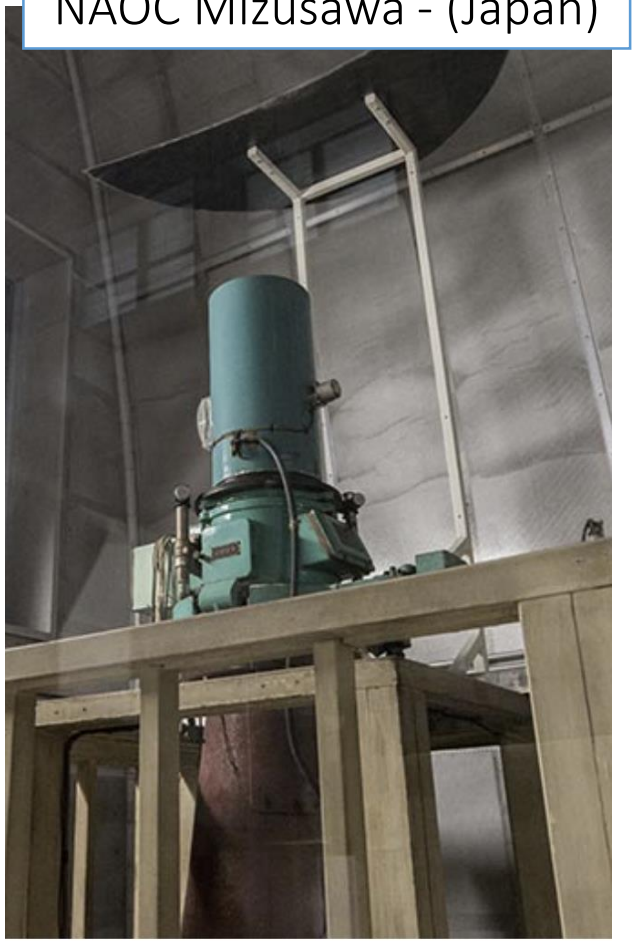


The Photographic Zenith Tube. From an RGO photo published in 1958. Image courtesy of Phillip Gething

Mount Stromlo (Australia)

Zenith tube at Mount Stromlo in 1962. © National Archives Australia series A1200, control symbol L42631, Barcode 8832462.

NAOC Mizusawa - (Japan)



https://www.nao.ac.jp/study/mitaka-guide/en/audio.html?area=14&audio=48

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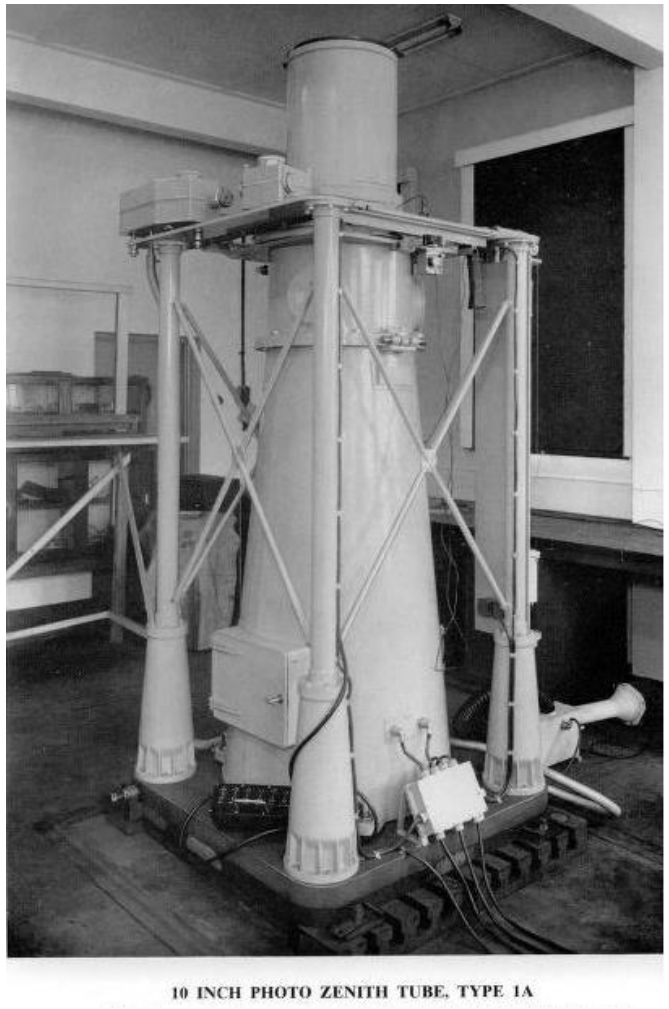
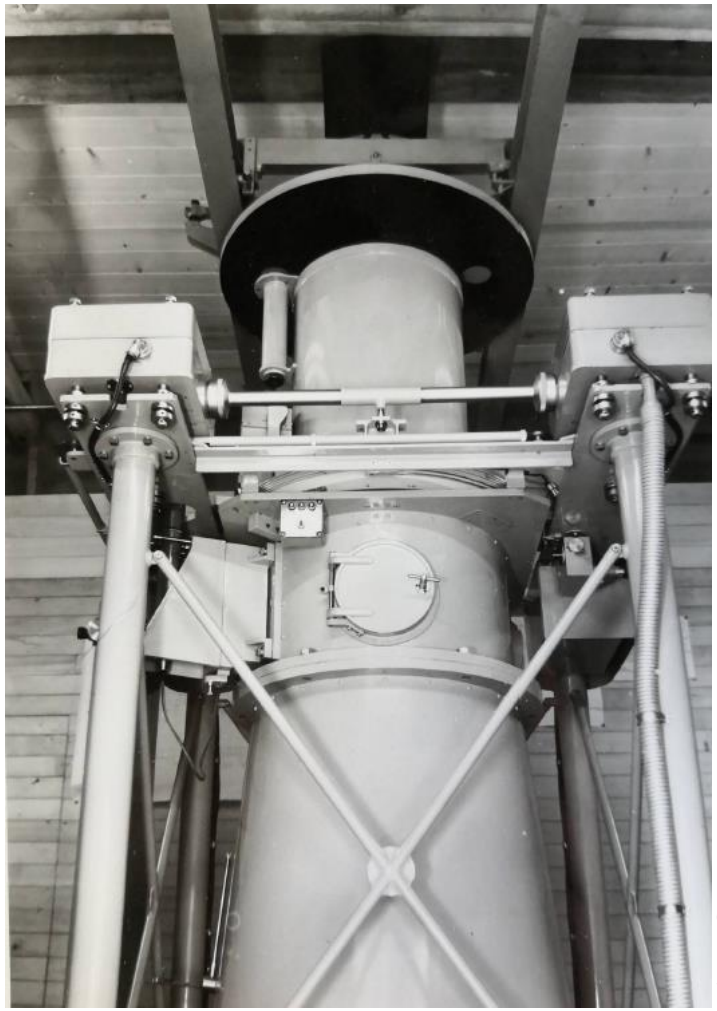
GRUBB & PARSONS' PHOTOGRAPHIC ZENITH TUBE - 1954



10 INCH PHOTO ZENITH TUBE, TYPE 1A

©Grubb&Parsons



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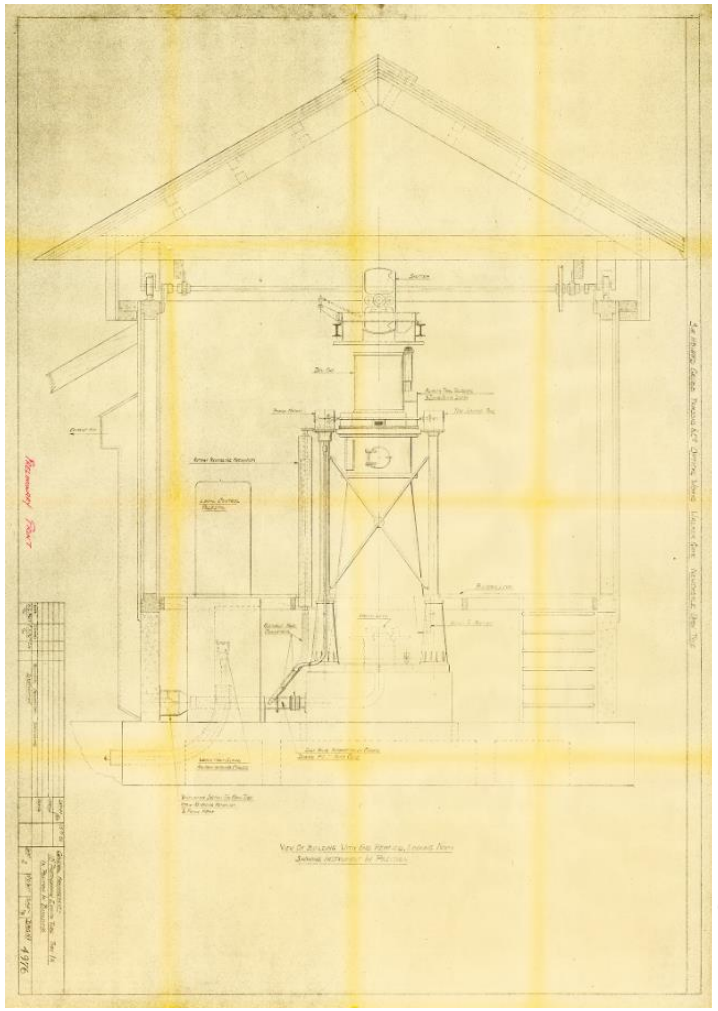
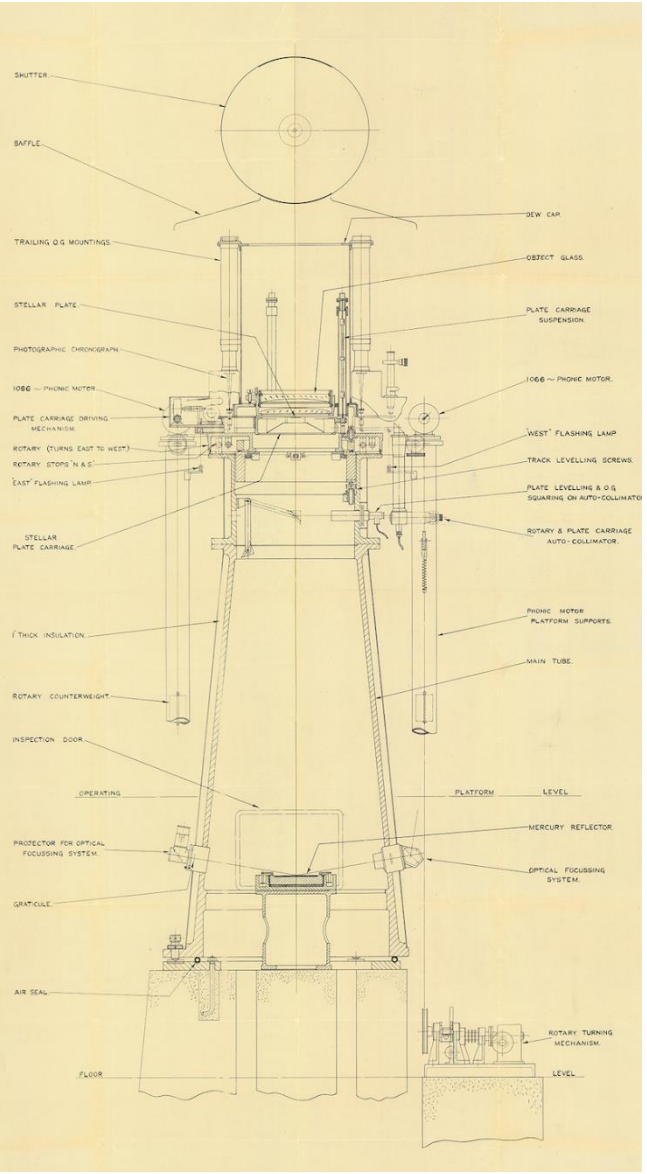


©MIH

PZT EXPECTED IMPROVEMENTS

- Elimination of the personal equation,
- Longer focal length,
- The observation leaves a document that can be archived and consulted at any time,
- The instrument being strictly is much more stable,
- Most of the instrumental errors of meridian circles are eliminated,
- Weaknesses of meridian circles such as bending of the telescope or inequality of the trunnions wear are no longer present.



Source: Guyot Edmond. Rapport sur le projet de l'achat d'une lunette zénithale photographie pour l'Observatoire de Neuchâtel. Annexe 1. 02 décembre 1947.

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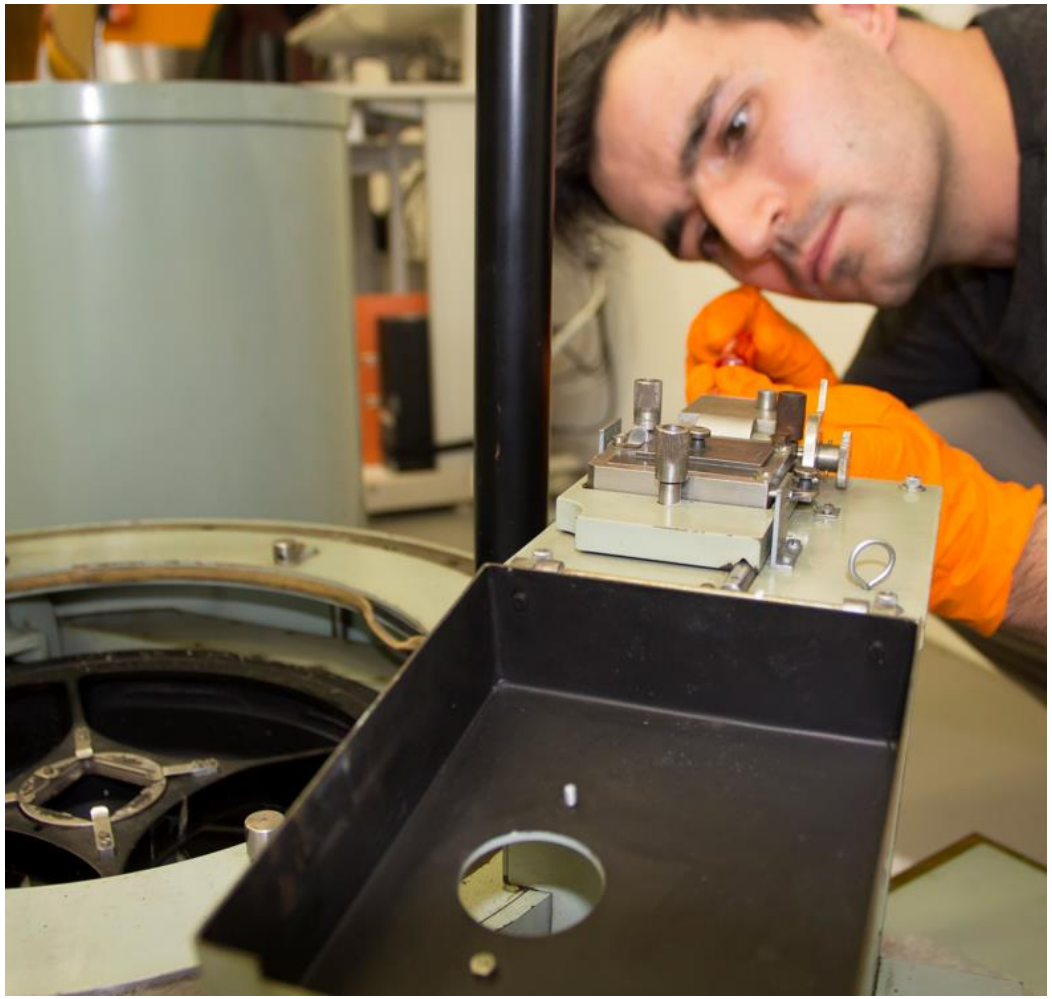
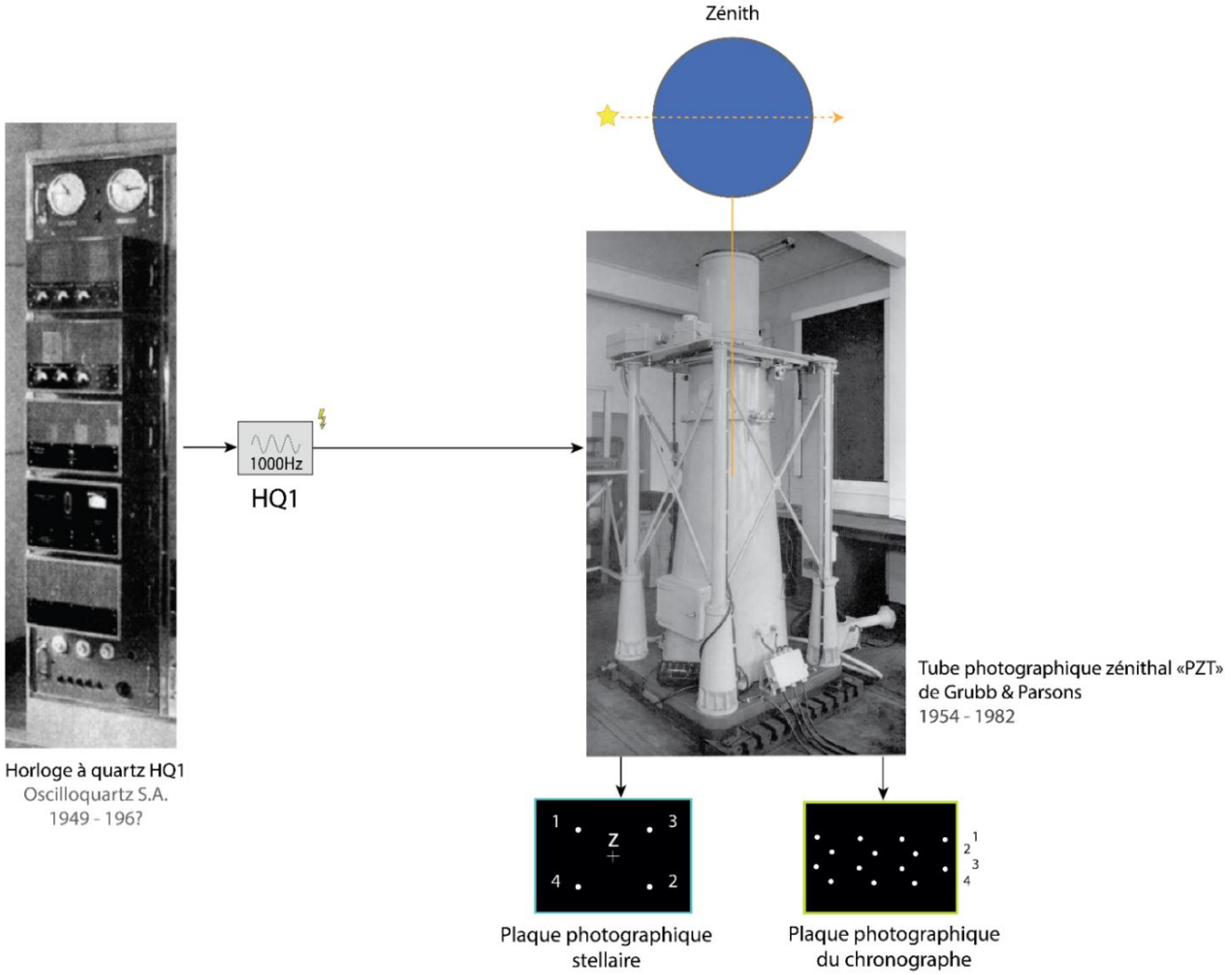
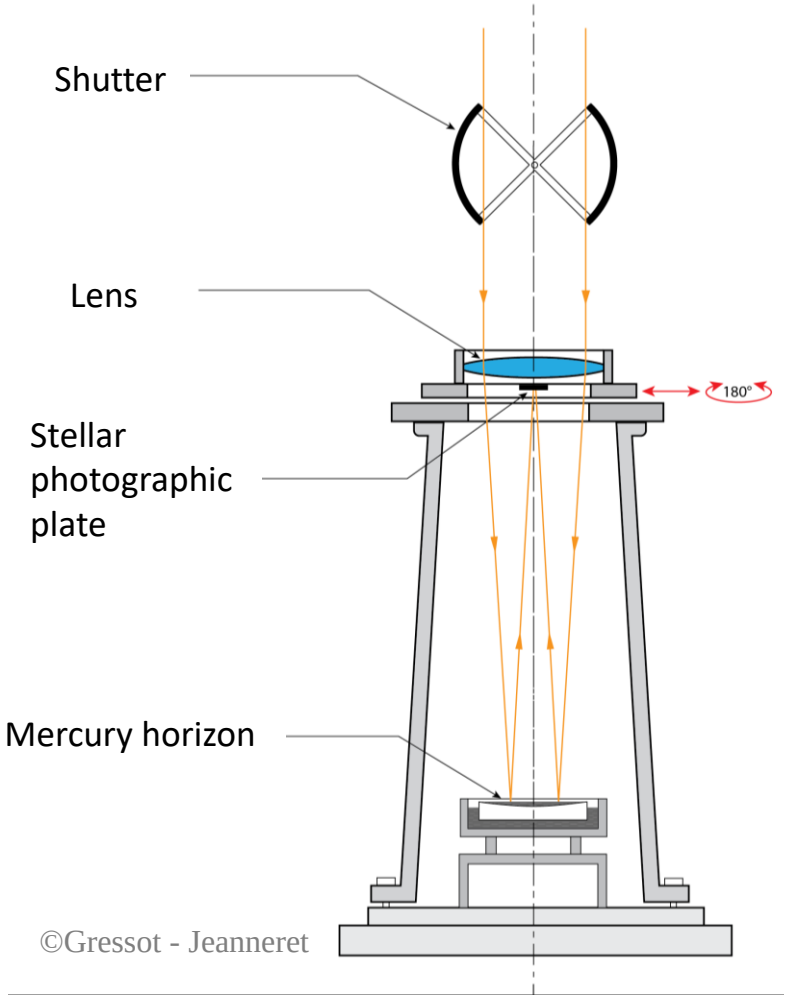
MATERIAL STUDY OF COMPLEX INSTRUMENT

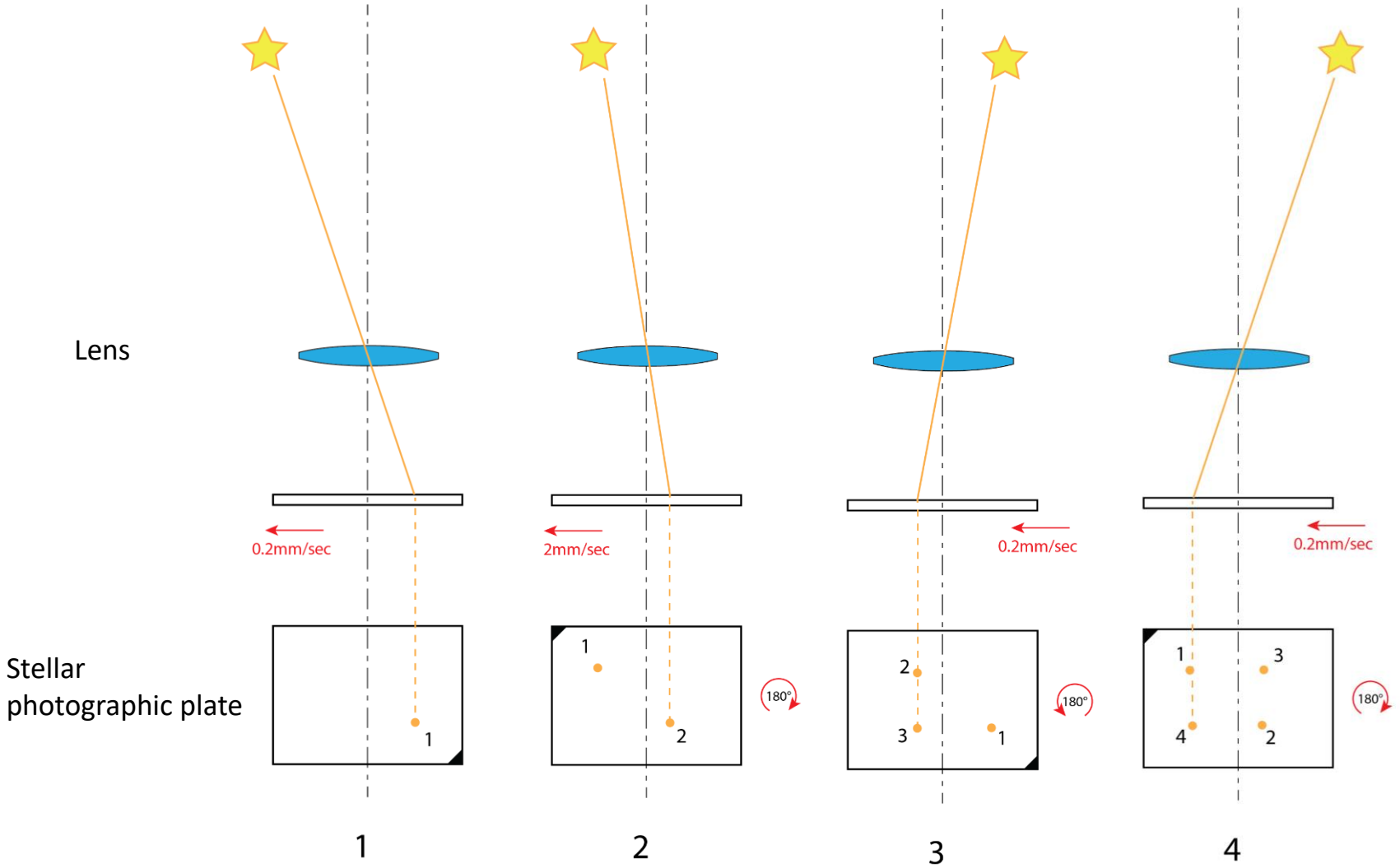


TIME DETERMINATION USING PZT



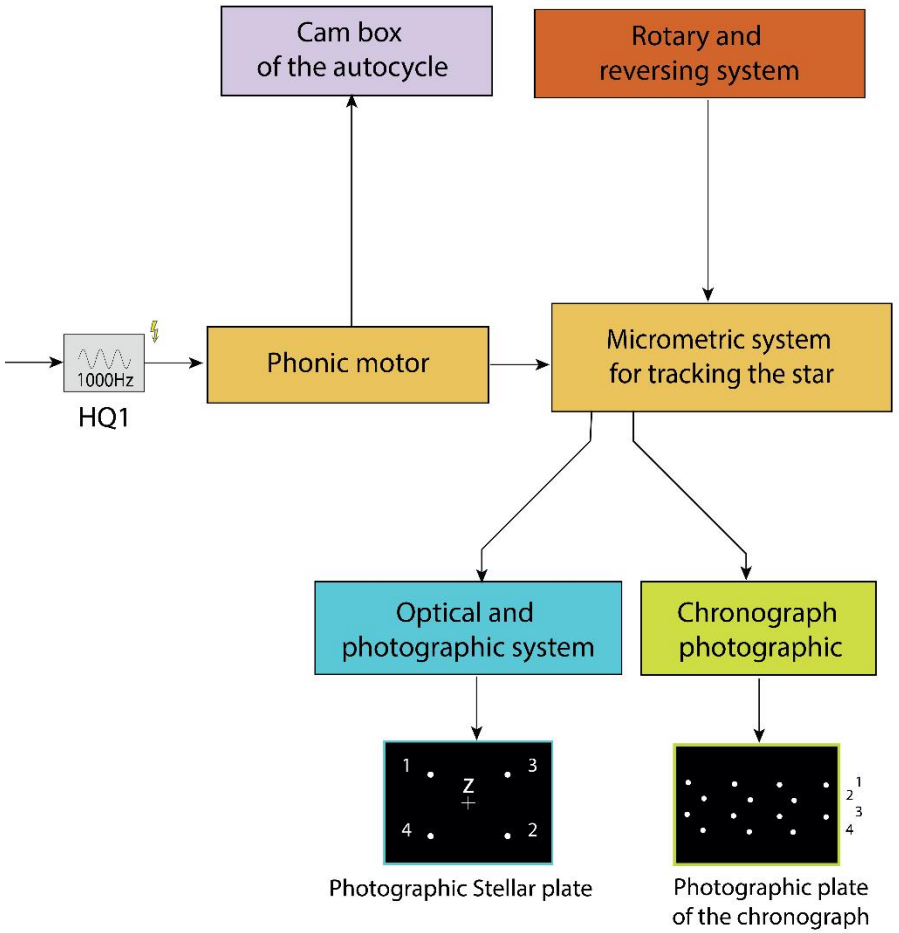
FUNDAMENTAL PRINCIPLES OF A PZT

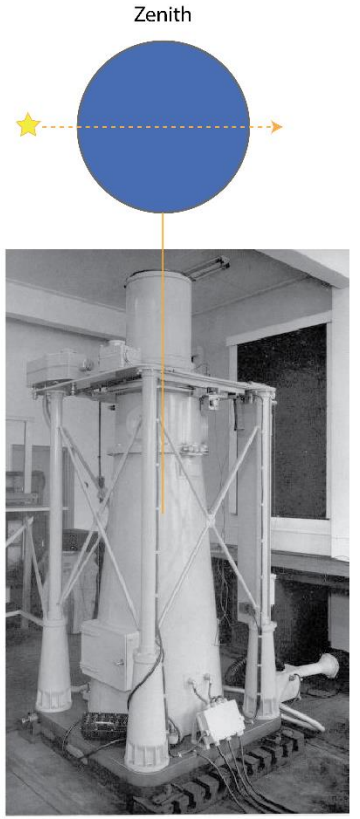




FUNCTIONAL ORGANS OF A PZT

Quartz clock HQ1
Oscilloquartz S.A.
1949 - 196?

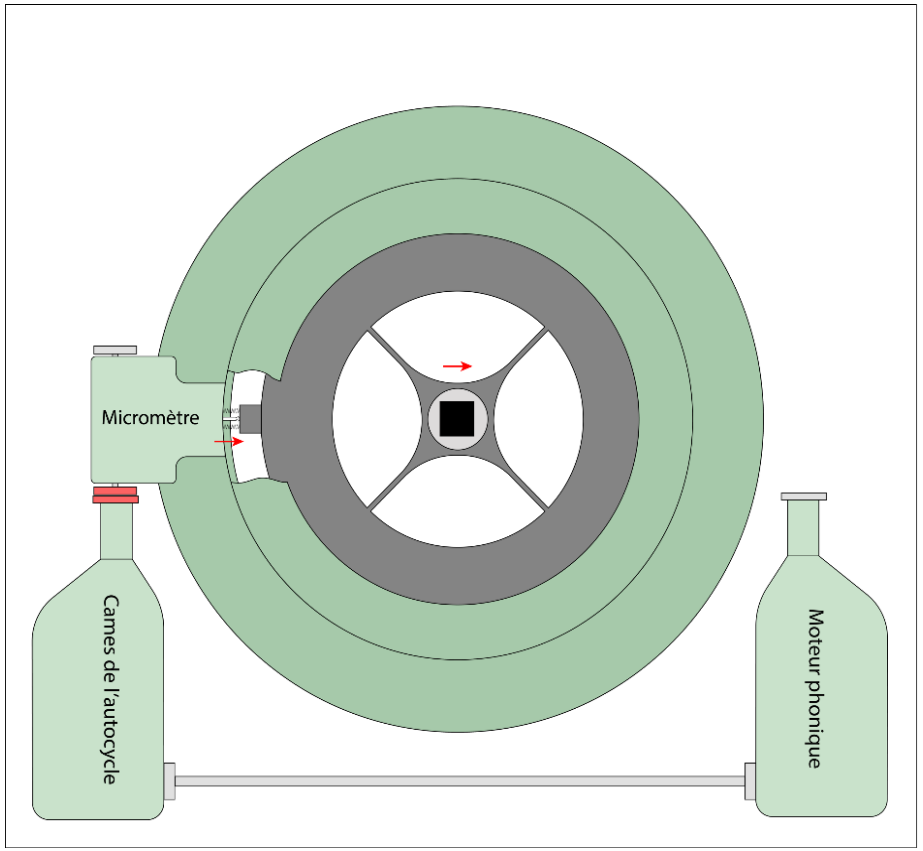


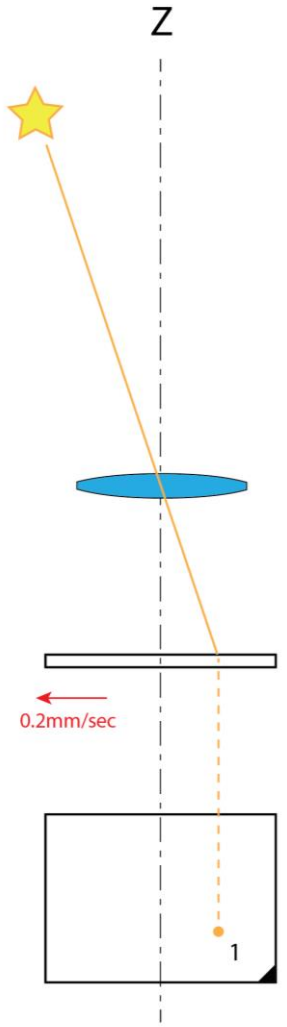


Photographique Zenithal Tube «PZT»
Grubb & Parsons
1954 - 1982

CARRIAGE AND ROTARY: MOVEMENT OF THE PHOTOGRAPHIC PLATE

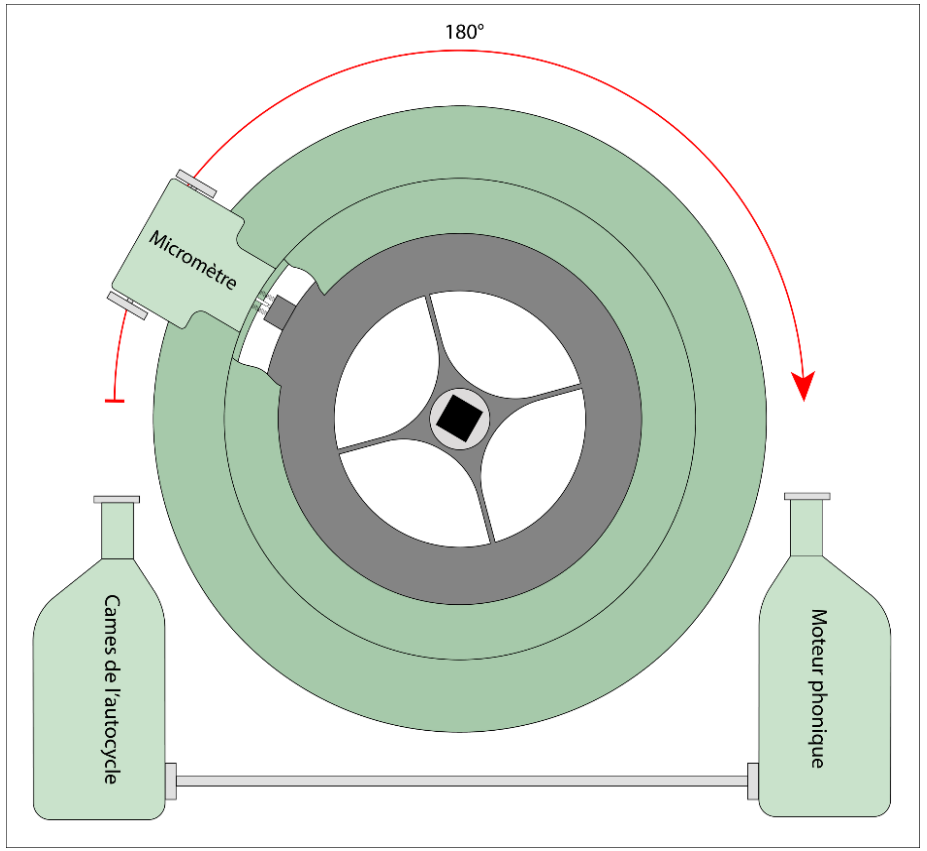
Details of the rotary

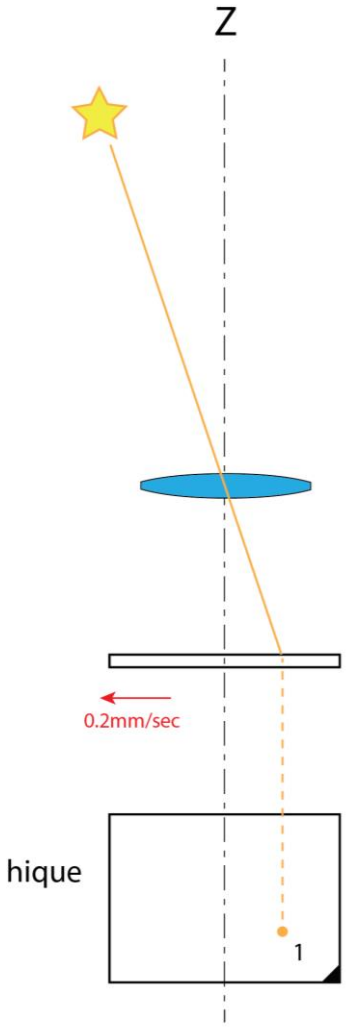




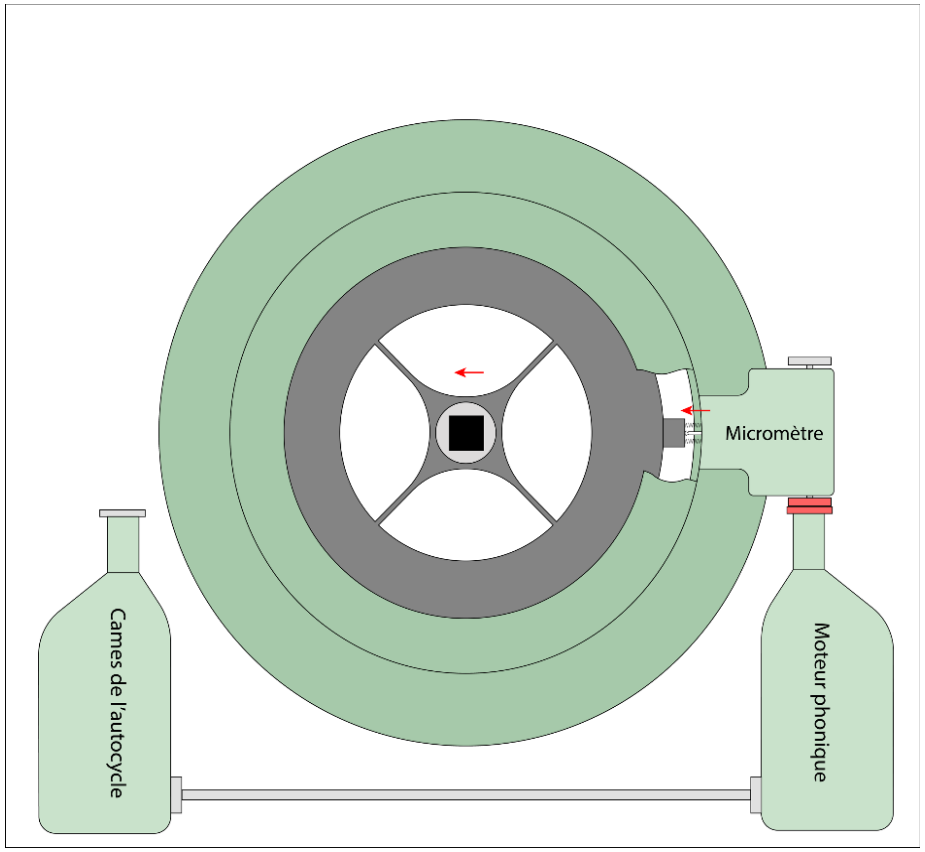
CARRIAGE AND ROTARY: MOVEMENT OF THE PHOTOGRAPHIC PLATE

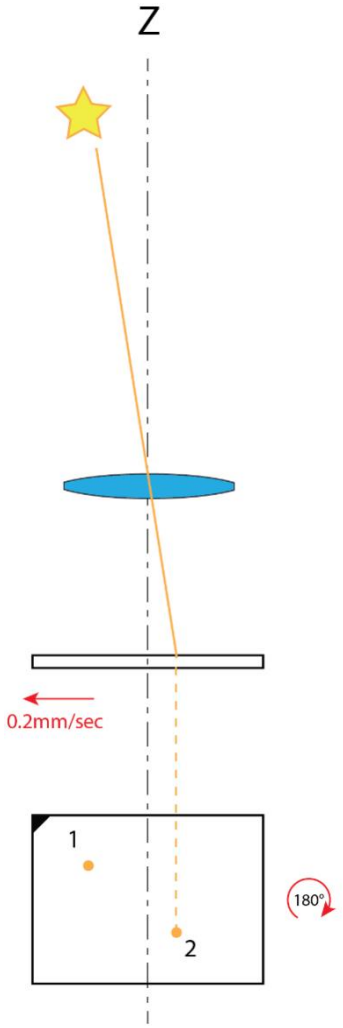
Details of the rotary





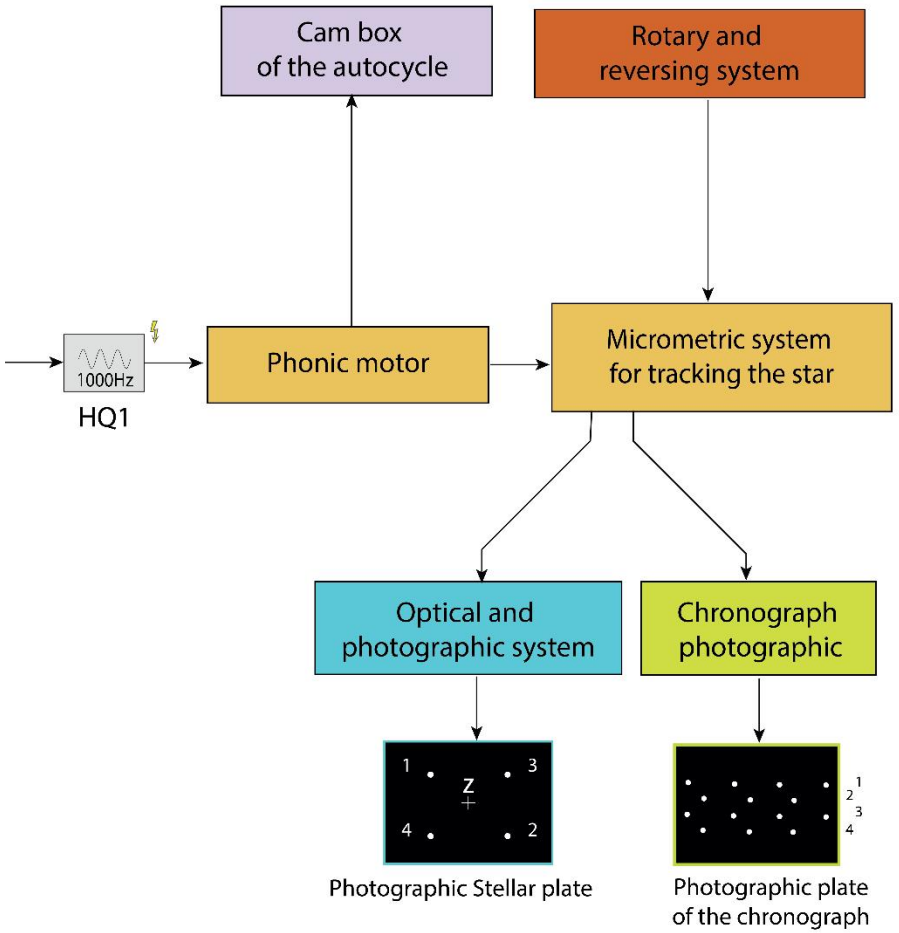
CARRIAGE AND ROTARY: MOVEMENT OF THE PHOTOGRAPHIC PLATE

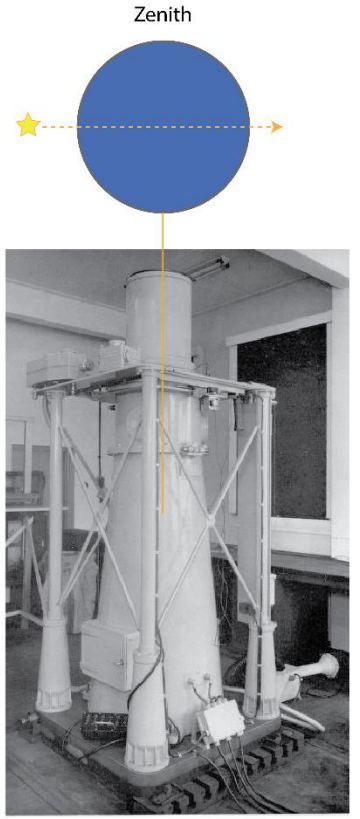




FUNCTIONAL ORGANS OF A PZT

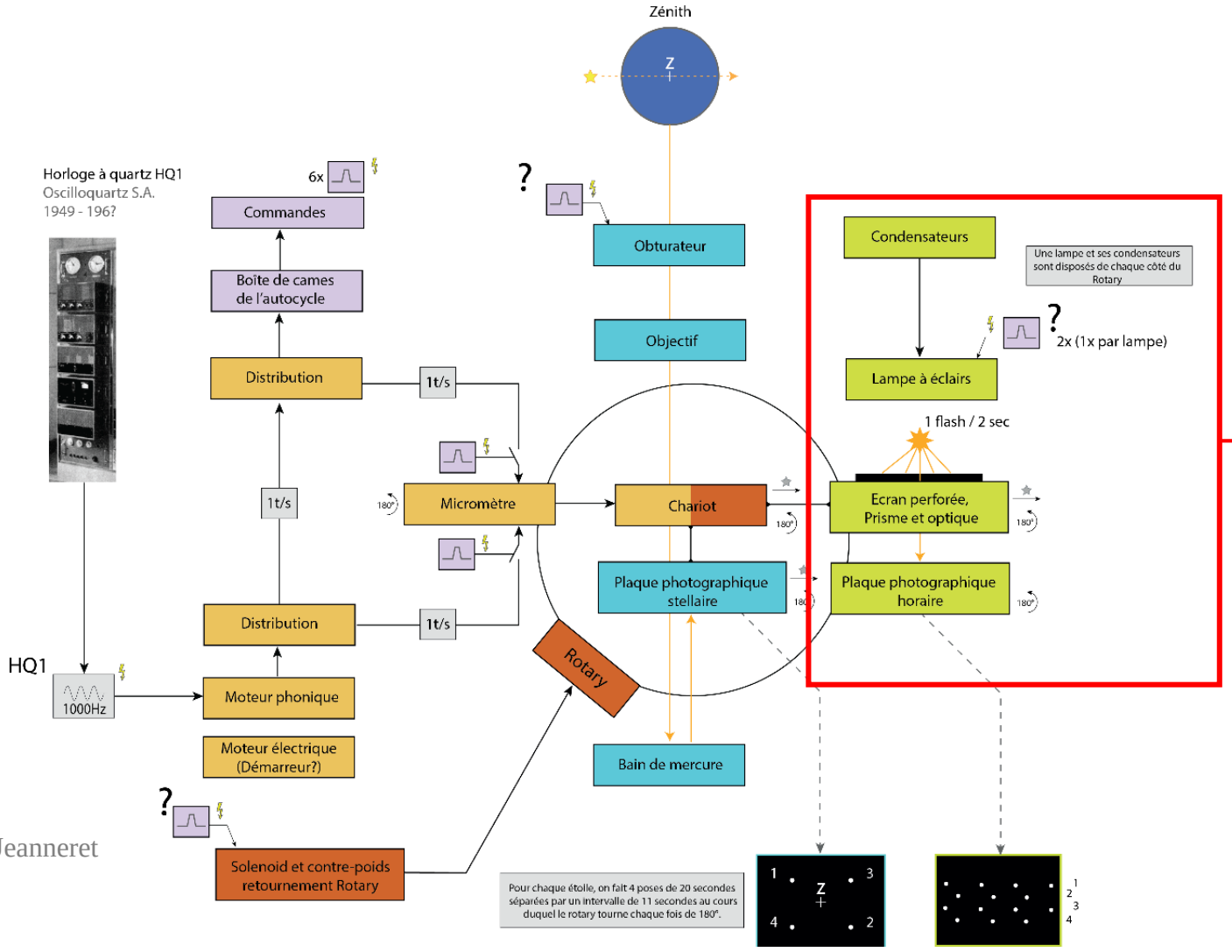
Quartz clock HQ1
Oscilloquartz S.A.
1949 - 196?

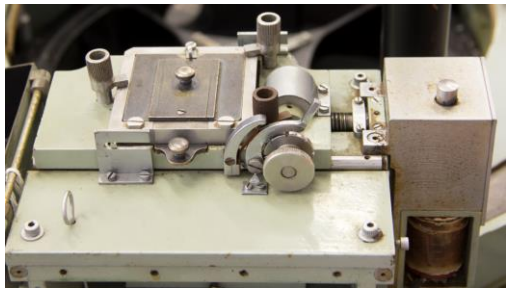




Photographique Zenithal Tube «PZT»
Grubb & Parsons
1954 - 1982

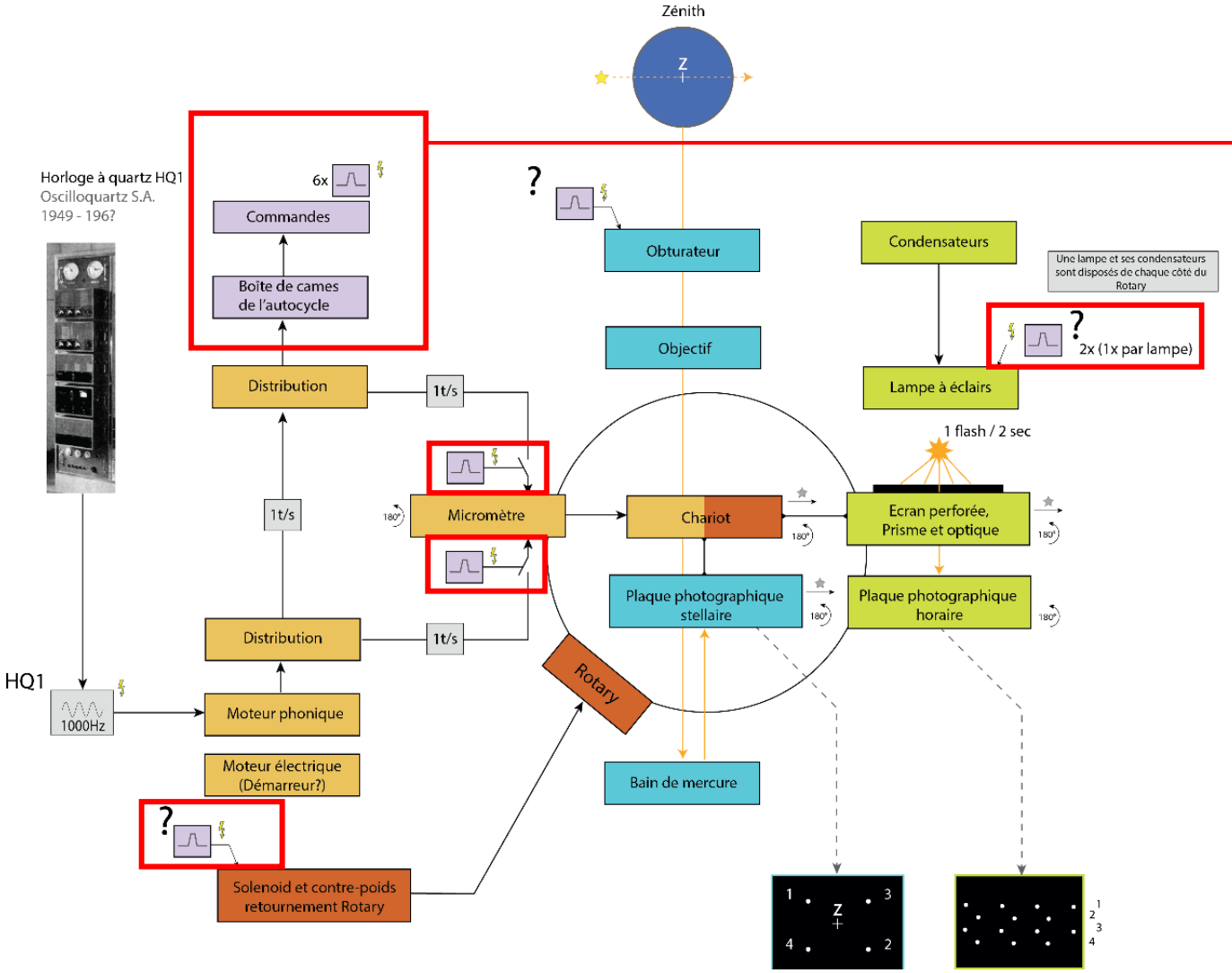
MORE BOXES INSIDE THE BOX

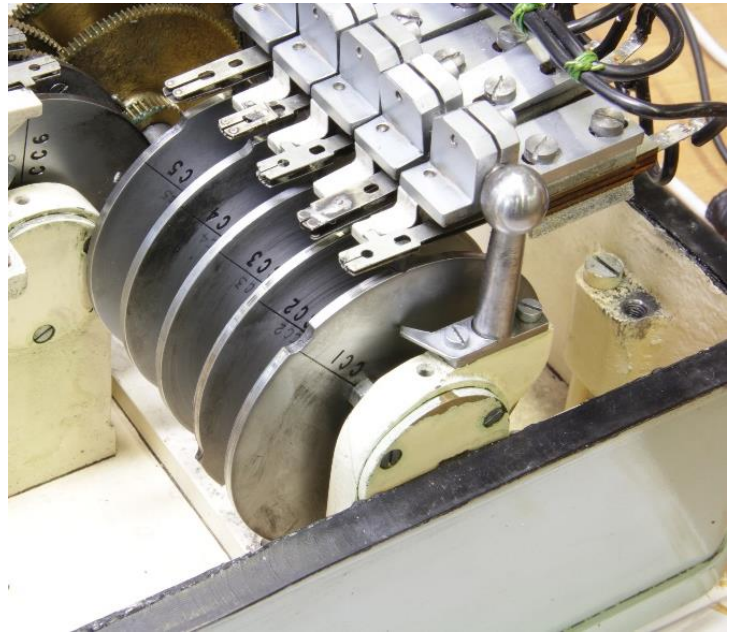




Photographic chronograph

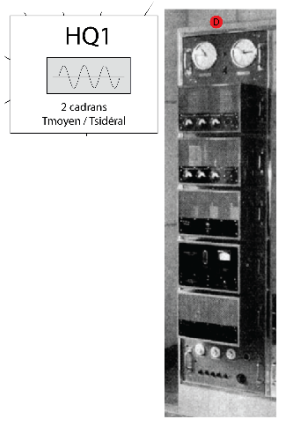
AUTOMATION OF THE MEASUREMENT



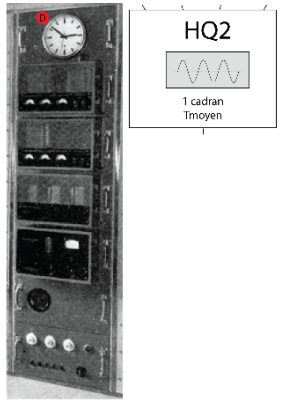


Details of the autocycle cams

Time conservation in 1958

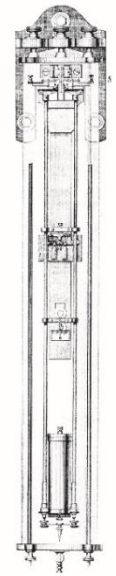


Horloge à quartz HQ1
Oscilloquartz S.A.
1949 - 196?



Horloge à quartz HQ2
Oscilloquartz S.A.
1950 - 196?

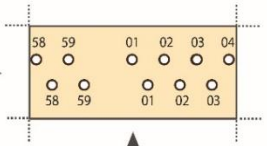
Time conservation in 1912



Hipp Clock
1880 - 1921

1x /second

Chronographs by Peyer-Favarger
1901 - 1955?



Measurement device

1x /second

1x /second

Second switch
Rosat system
1903

Winnerl Clock
1958 - 1961

Riefler Clock
1901- 1953

+

Correction according to the working state of the the sidereal clock

+

Correction of the working state of the clocks between the time determination and correction depending on the climatic conditions

Determine the working state of the timekeepers

FROM THE OBSERVATORY TO THE LABORATORY

L'Observatoire cantonal neuchâtelois, 1858-1912 : souvenir de son cinquantenaire et de l'inauguration du Pavillon Hirsch Département de l'instruction publique.

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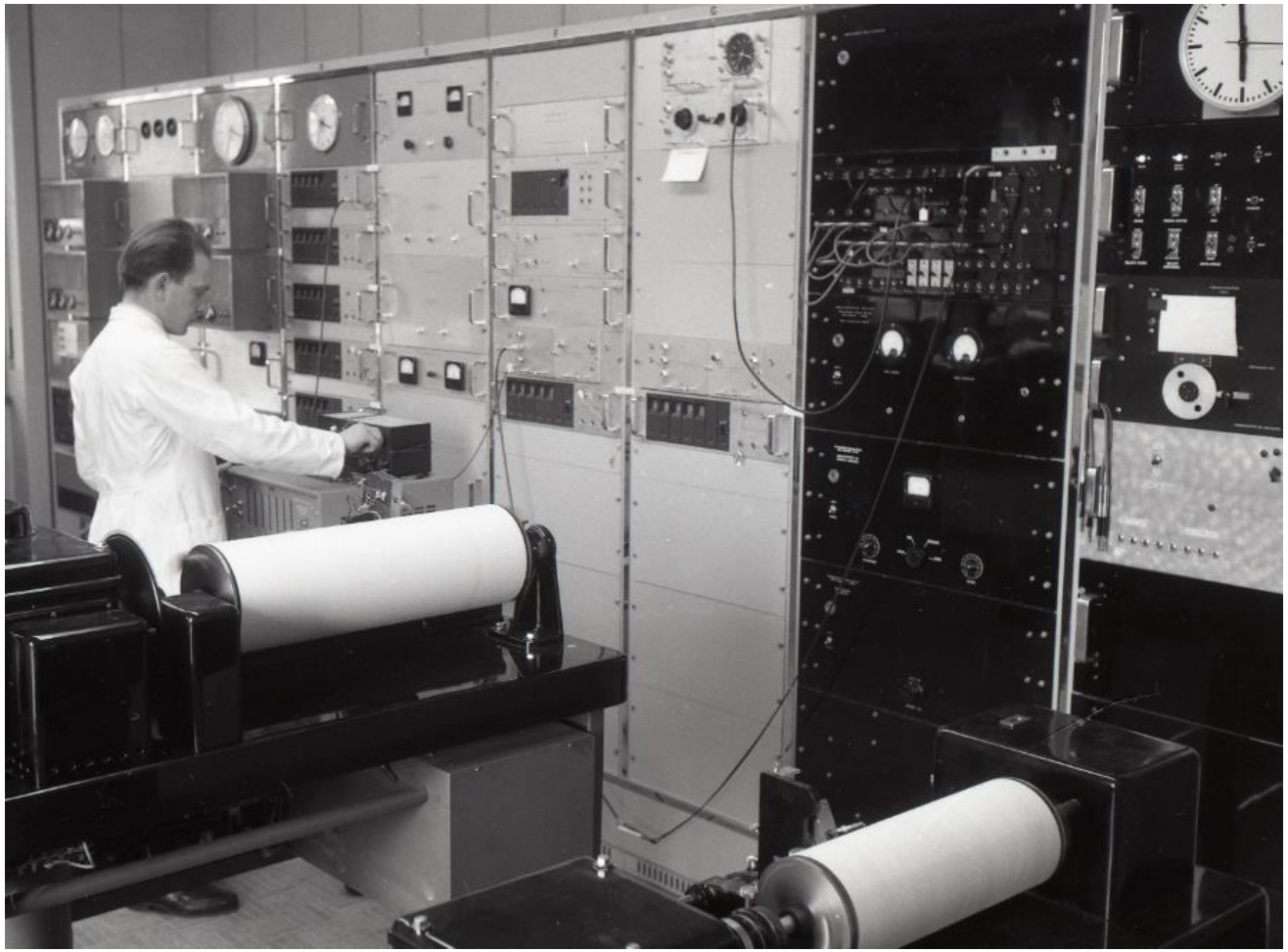

Quartz clocks room in 1961. Source: FP-NEG-2858-21

Quartz clocks room in 1961. Source: FP-NEG-2859-16

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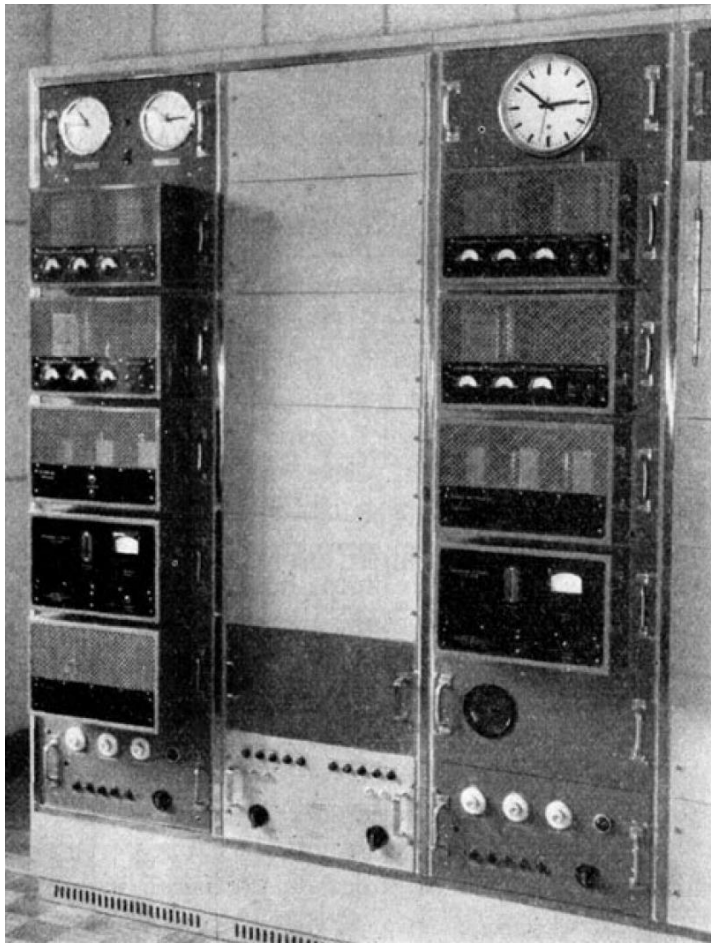
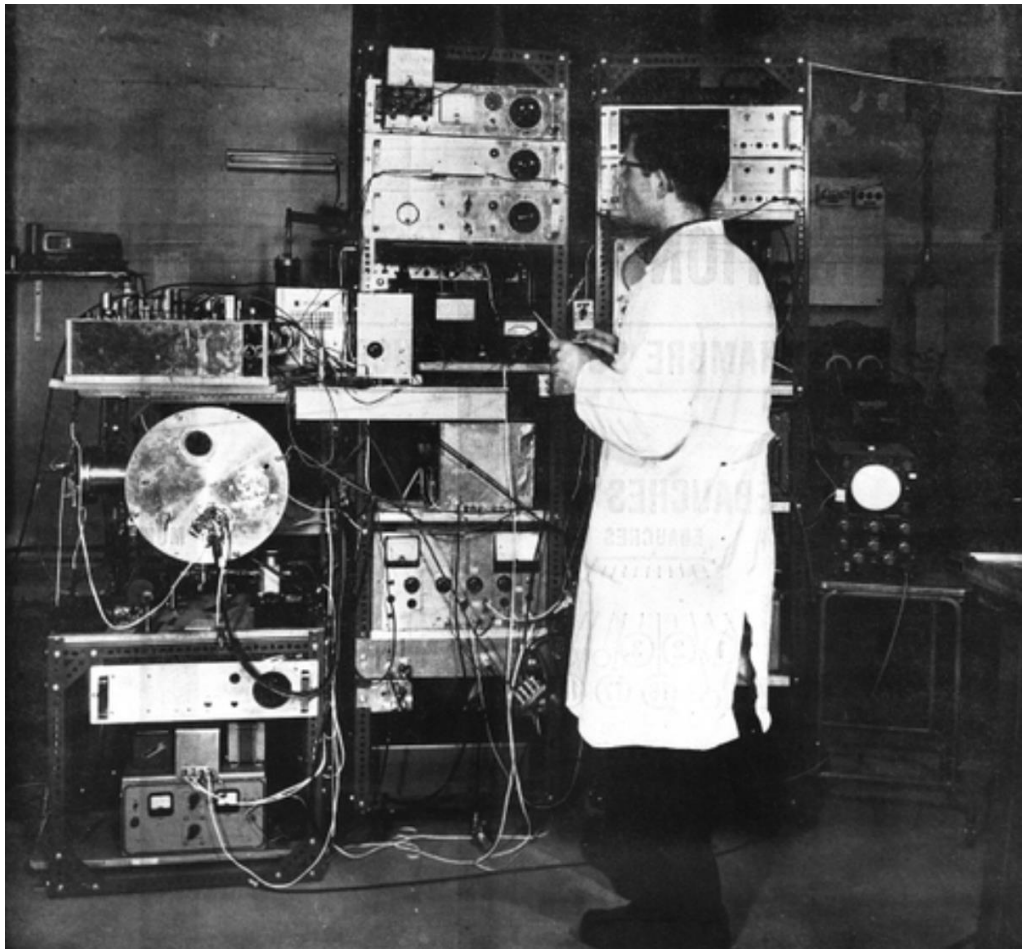


Edmond Guyot, la conservation de l'heure avec les horloges à quartz, 1953.

Quartz clocks Q1 et Q2
1949



La Gazette technique, industrielle et scientifique, 12 décembre 1963.

Atomic clock
1963

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