

Charles-Édouard Guillaume



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Won the Nobel Prize in 1920 (aged 59) "in recognition of the service he has rendered to precision measurements in Physics by his discovery of anomalies in nickel steel alloys".

The Directors of the BIPM (1875-1936)



Gilberto GOVI
1876-1877



Ole Jacob BROCH
1879-1889



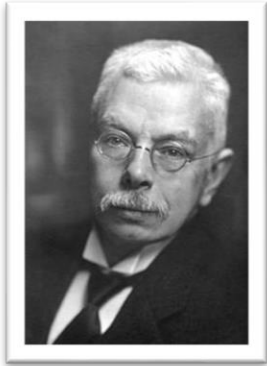
J.-René BENOÎT
1889-1915



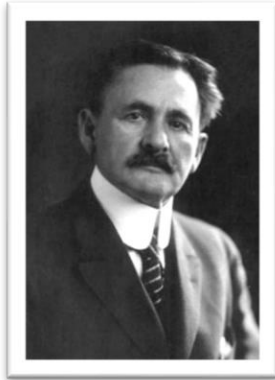
Charles-Édouard GUILLAUME
1915-1936

* Johannes Pernet was interim Director
from 1877 to 1879

The BIPM and the Nobel Prize



Pieter Zeeman
1902



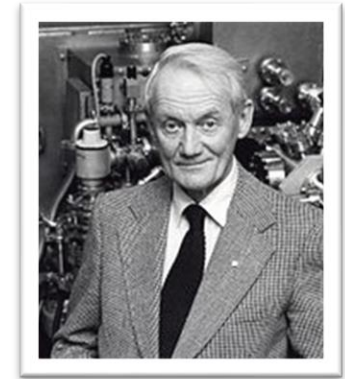
Albert Michelson
1907



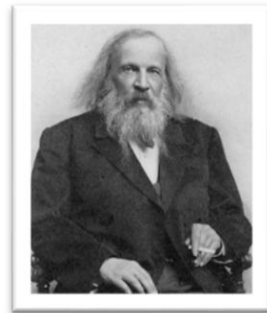
Manne Siegbahn
1924



Louis de Broglie
1929



Kai Siegbahn
1981



Dmitri Mendeleev
membre du CIPM
de 1895 à 1901



Marie Curie
1903, 1911

- 5 CIPM Members have been awarded the Nobel Prize in Physics.

International meetings at the Pavillon de Breteuil

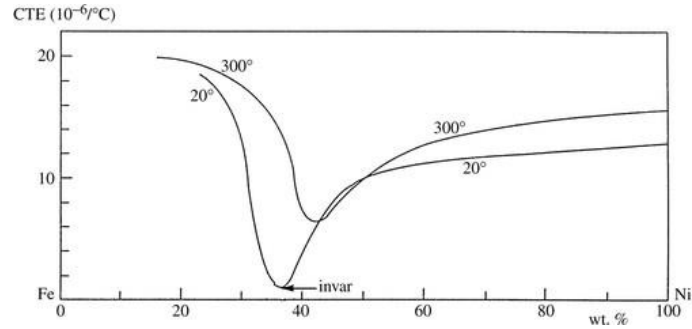
- During his 53 years at the BIPM, Charles-Édouard Guillaume was involved in eight meetings of the CGPM.



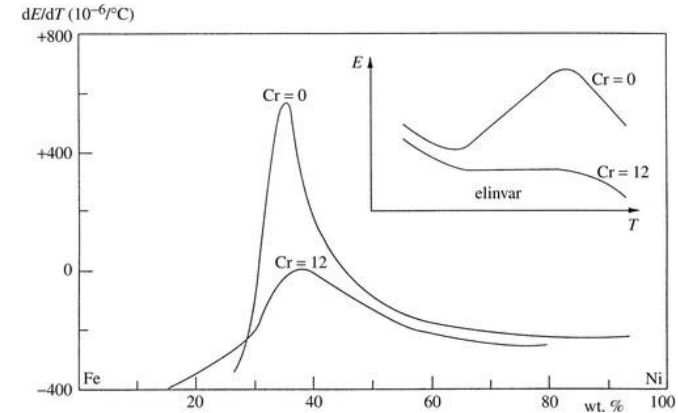
Meeting of the CGPM in 1927

Invar and Elinvar

- In 1896, C-EG discovered an alloy with a composition of 36% nickel and 64% iron with quite unexpected properties.



Thermal expansion coefficients in the Fe–Ni system (from Guillaume's Nobel Prize Lecture).



Temperature dependence of Young's modulus, E , in Fe–Ni and Fe–Ni–12Cr alloys. The variation of E with temperature is shown in the inset. (From Guillaume's Nobel Prize Lecture.)

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The temperature of space (1896)

LA NATURE.

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LA TEMPÉRATURE DE L'ESPACE

Il règne, au sujet de la température de l'espace interplanétaire ou interstellaire, les opinions les plus diverses. Quelques astronomes, se fondant sur l'idée que l'espace étant dépourvu de matière ne peut pas posséder à proprement parler une température, admettent que l'espace entier se comporte comme s'il était au zéro absolu, c'est-à-dire à 273 degrés C. au-dessous de la température de la glace fondante. D'autres pensent au contraire que la température de l'espace est celle que l'on rencontre dans les plus hautes régions de l'atmosphère, où l'on passe insensiblement de la matière au vide. On serait alors conduit à attribuer à l'espace une température comprise entre 50 et 100 degrés au-dessous du zéro vulgaire.

Cette divergence repose, en réalité, sur un malentendu qu'il n'est pas très aisé de dissiper. On se représente difficilement, en effet, qu'un espace vide puisse posséder une température, et on pourra pen-

« a better definition of the kg » (1927)

“...It thus seems that the unit of mass is assured to about 1×10^{-8} for more than 10 000 years, and this period has scarcely begun.

“No doubt, well before it ends, work carried out by metrologists in future centuries will have led to even more flawless solutions.”

Ch.-Éd. Guillaume, 1927



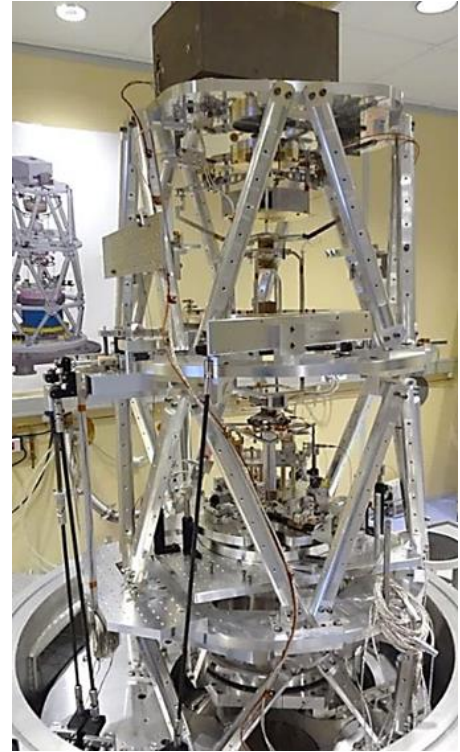
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« a better definition of the kg »

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The “metrologist”

“The man of ideas [might be compared] to a racehorse and the metrologist to a plough horse. When the race has been run, what remains of it? A little dust raised, the lingering cheers of the crowd, some money shifted; but where the horse has ploughed today, a nourishing crop will grow tomorrow.

That is the very idea that inspires those who work at the Pavillon de Breteuil and makes them gladly take on the type of research that requires the gift of patience to complete.”



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Thank you

