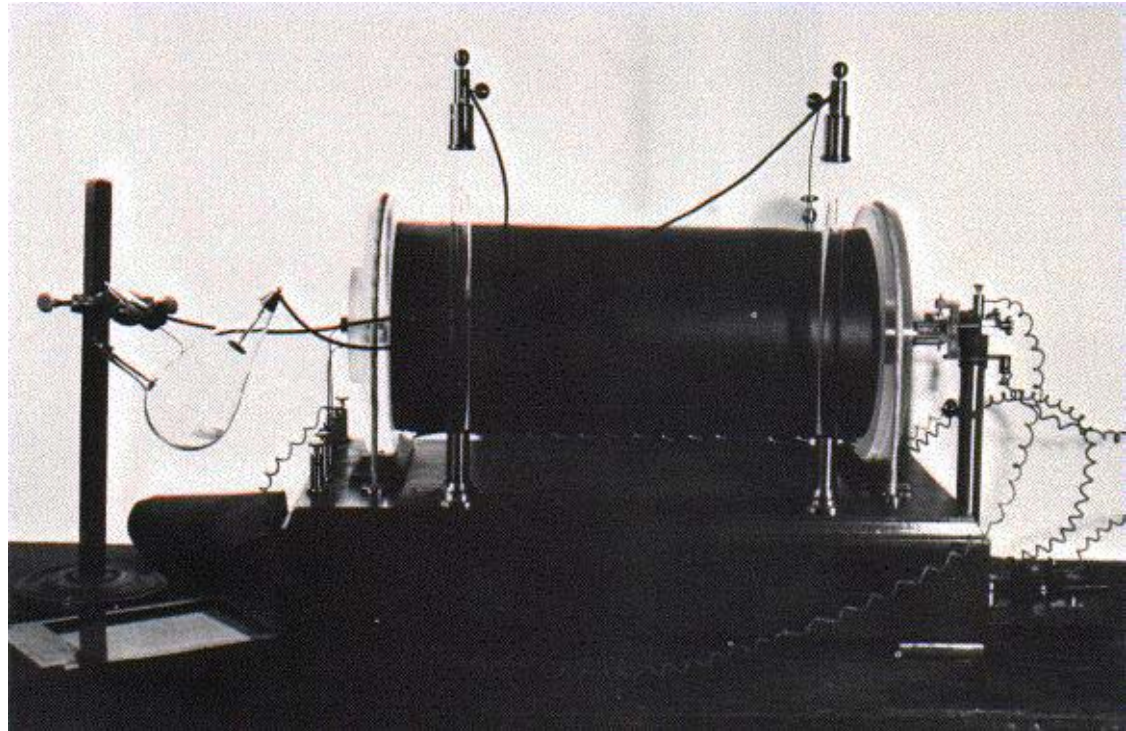


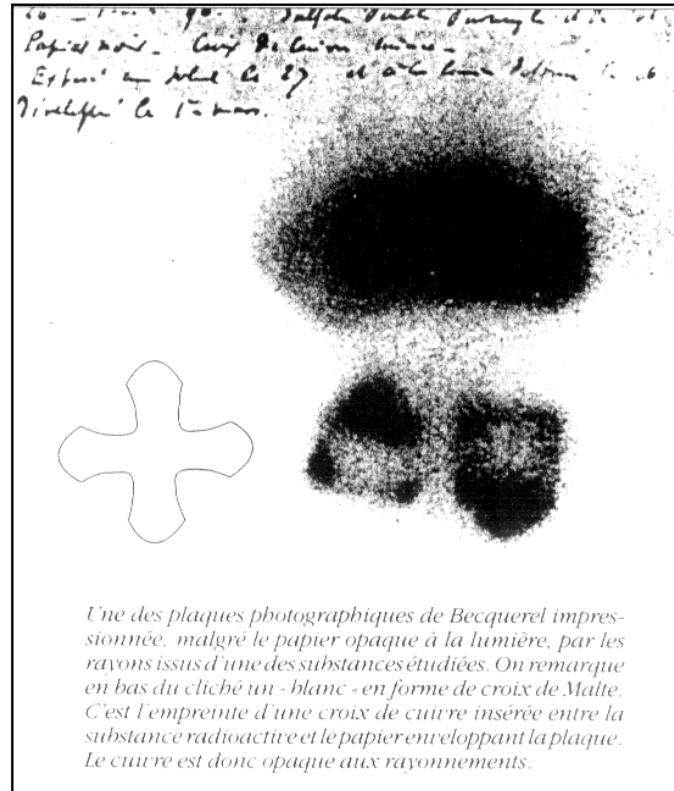
Licence professionnelle
Maintenance en milieu nucléaire

Introduction historique sur la neutronique

1895 : RÖNTGEN découvre les rayons X



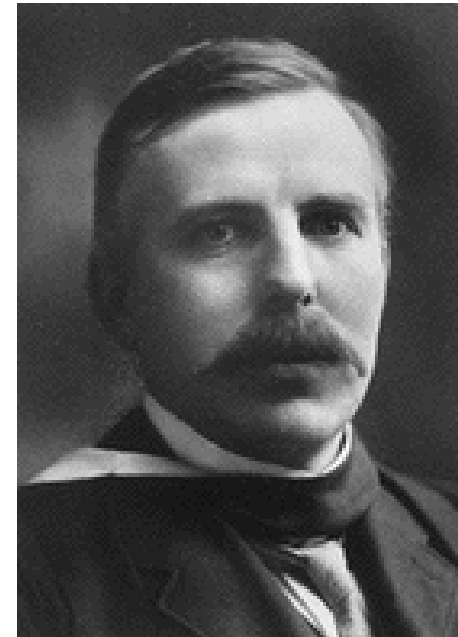
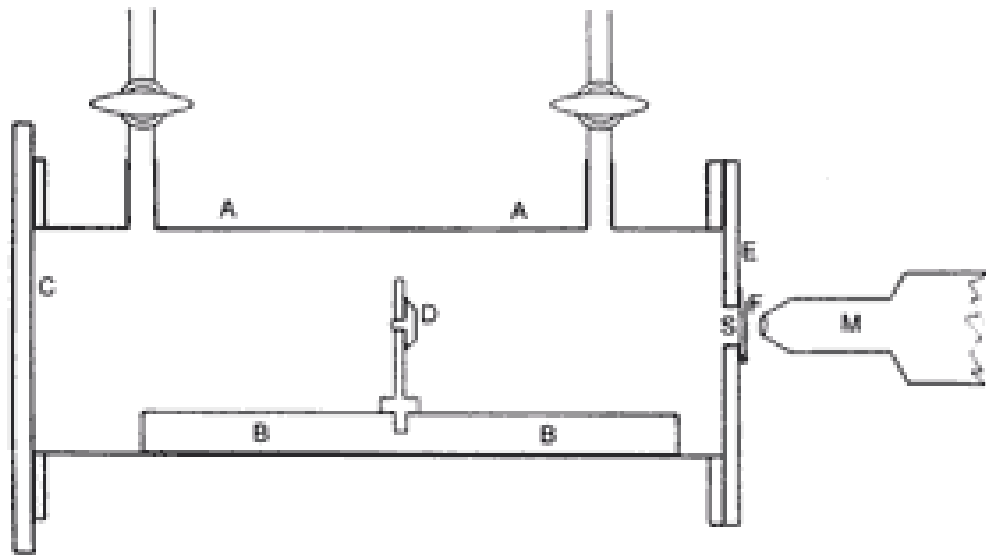
1896 : BECQUEREL découvre la radioactivité naturelle de l'U



1898 : Pierre et Marie **CURIE** découvre le Polonium et le Radium

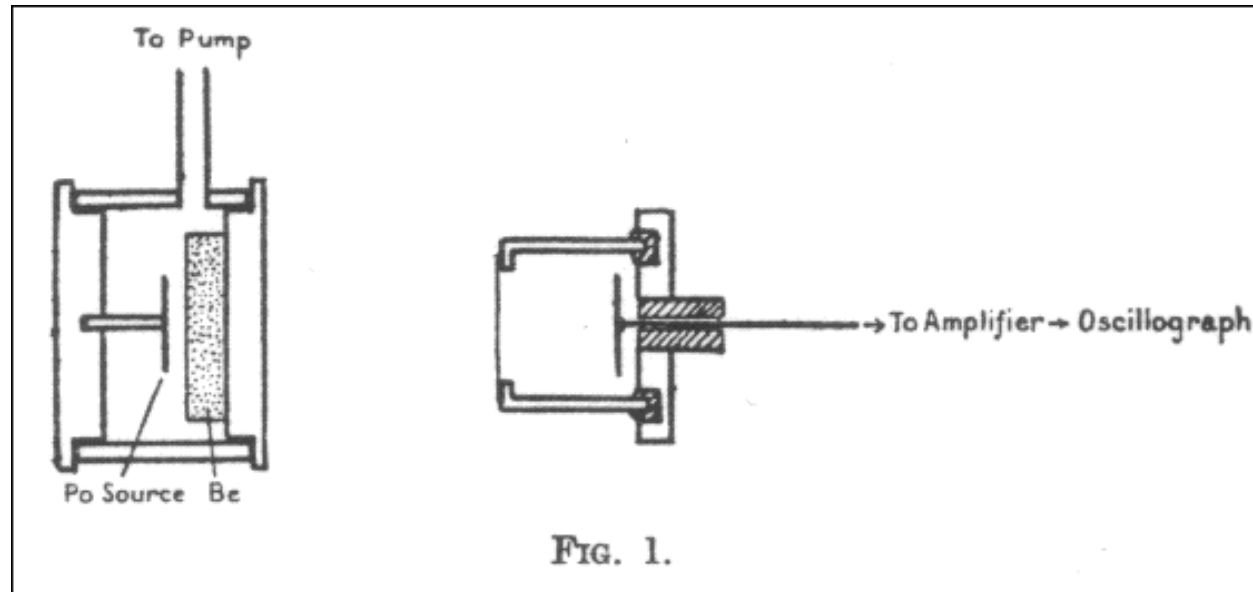
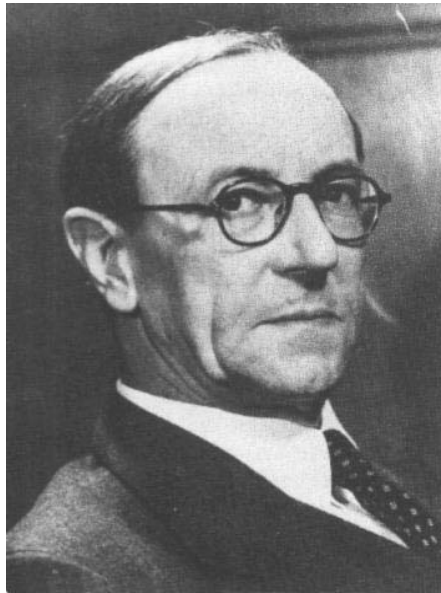


1919 : RUTHERFORD transmute l'Azote en Oxygène $N(\alpha, p)O$



1932 : CHADWICK "naissance" du neutron ${}^9\text{Be} (\alpha, n) {}^{12}\text{C}$.

Découverte du neutron par bombardement α du Béryllium

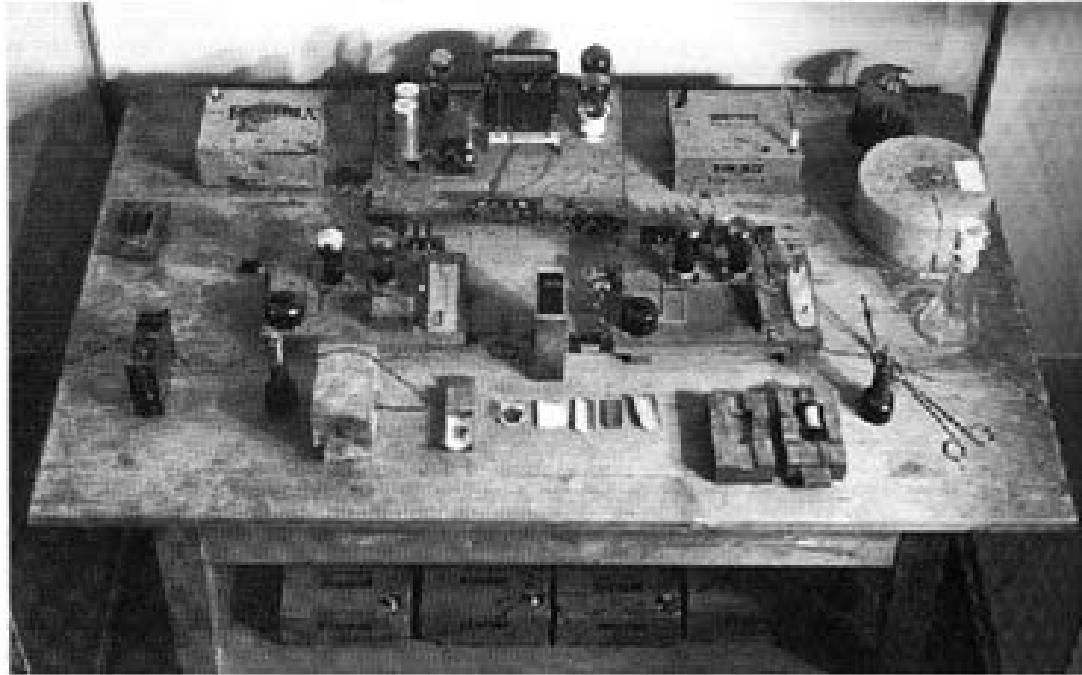
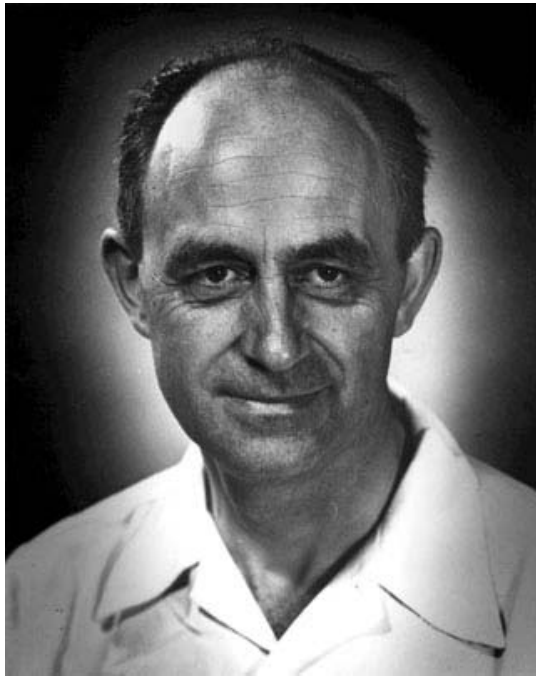


Curie montre que ce rayonnement est particulaire neutre.

1934 : CURIE découvre la radioactivité artificielle.

1934 : la première fission

FERMI bombarde des noyaux d'uranium avec des neutrons
Il obtient des transuraniens inconnus **au tableau de Mendeleiev**



Découverte de la première fission

1938: Hahn, Strassman et Meitner étudient le phénomène

"Verification of the Creation of Radioactive Barium Isotopes from Uranium and Thorium by Neutron Irradiation; Identification of Additional Radioactive Fragments from Uranium Fission"

O. HAHN AND F. STRASSMANN

Naturwissenschaften, Volume 27, pp. 89–95
(10 February 1939)
translated by H. Graetzer

. . . Summary:

1. The creation of barium isotopes from uranium was conclusively demonstrated.
2. For thorium, the formation of barium isotopes was also established.
3. Some suggestions are made regarding the atomic weights of the barium isotopes.
4. Evidently, some of the barium isotopes produced from thorium and uranium are identical.
5. It is our belief that the "transuranic elements" still retain their placement without change, as previously described.
6. A second group of fission fragments, Strontium [element 38] and Yttrium [element 39], was determined.
7. By an appropriate experimental arrangement, the formation of a noble gas was established, which in turn decays into an alkali metal. It has not been possible yet to show if the substances in question are xenon-cesium or krypton-rubidium.

In a rather short time it has been possible to identify numerous new reaction products described above—with considerable certainty, we believe—only because of the previous experience we had gathered, in association with L. Meitner, from the systematic study of uranium and thorium reaction products.

le phénomène dégage environ 200 MeV...

**1939 : JOLIOT Découverte de la réaction en chaîne
premiers brevets secrets...**

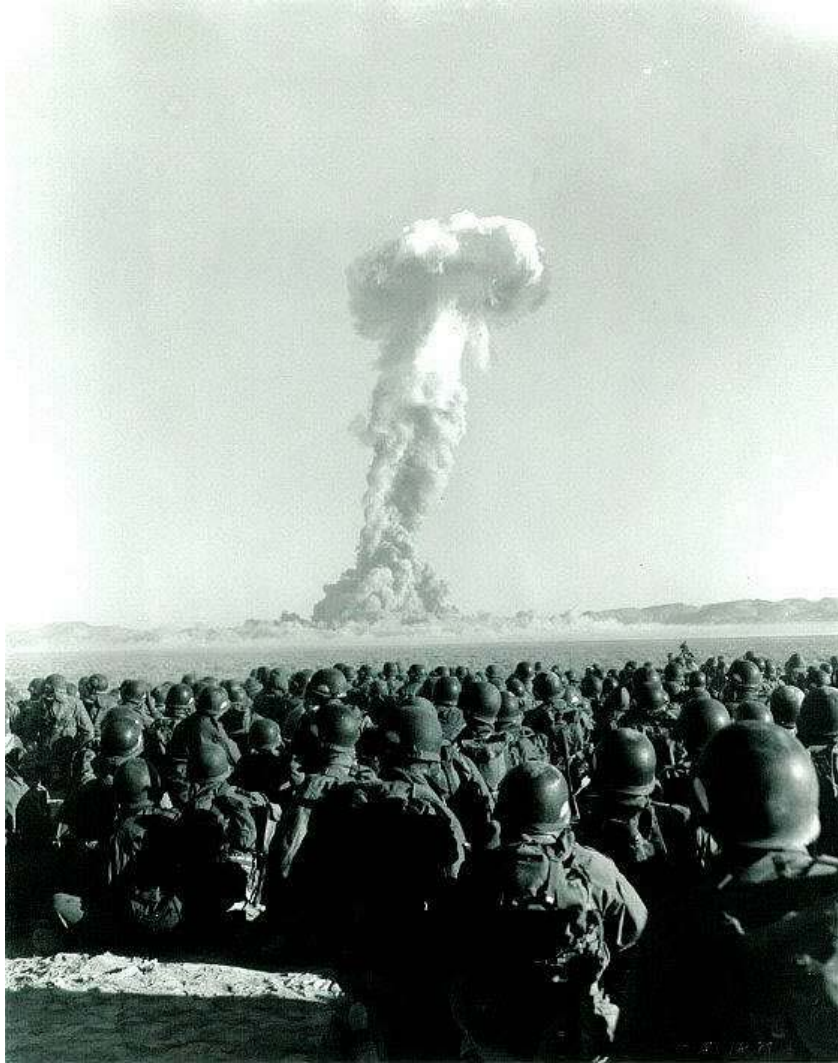
1942 : FERMI Première pile atomique (Chicago pile n°1)



**Empilement de graphite, d'UO₂ et d'uranium naturel
à peu près en forme de sphère
Barres de contrôle en Cadmium**

Production de 0,5 W...

1945 : Bombe atomique



(photo Yucca Flat 1951)