SPEED OF LIGHT DETERMINATION.

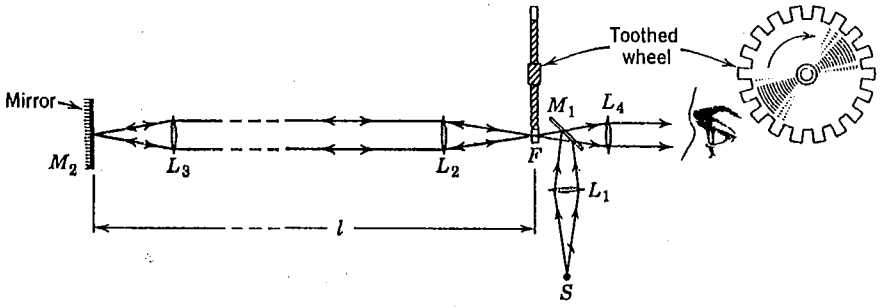
1638 Galileo - lanterns separated by large distance.

1675 Roemer (Danish) - observations of moons of Jupiter from which $c = 2 \times 10^8 ms^{-1}$.

1729 Bradley (English) - astronomical observations different to those of Roemer - $c = 3 \times 10^8 ms^{-1}$.

1849 H.L. Fizeau (French) - obtained a very accurate value of $c = 3.13 \times 10^8 ms^{-1}$ by a non-astronomical method.

Fizeau used a toothed wheel apparatus in which $c = \frac{2\omega\ell}{\theta}$ where ω = angular speed of wheel, ℓ is as shown below, θ = angular distance from centre of a gap to centre of a tooth. The observer measures the velocity of c by increasing the angular speed of the wheel until the image of the source S disappears.



Fizeau's apparatus for measuring the speed of light.

1862 Foucault (French) - greatly improved Fizeau's method by replacing the toothed wheel by a rotating mirror. By this method $c = 2.98 \times 10^8 ms^{-1}$.

1880 Michelson (U.S.A.) - used Rotating Mirror to obtain $c = 2.99910 \times 10^8 ms^{-1}$. Michelson conducted experiments on the velocity of light over a period of about 50 years and obtained many very accurate results.

1906 Rosa + Dorsey (U.S.A.) - from electromagnetic theory,
$c = 2.99781 \times 10^{8} ms^{-1}$.

1923 Mercier (French) - from standing waves on wires,
$c = 2.99782 \times 10^{8} ms^{-1}$.

1956 Edge (Sweden) - used a geodimeter, $c = (2.997929 \pm 0.000002) \times 10^{8} ms^{-1}$.

* Since about 1940, nearly all precise measurements of c have been made in the microwave or short wave radio region of the EM spectrum. e.g. Microwave cavity method used by Essen (England) and Bol + Hansen (U.S.A.) in 1950.

As of 1964, $c = (2.997925 \pm 0.000003) \times 10^{8} ms^{-1}$.

In **1983** the metre was defined as "the length of the path travelled by **light** in vacuum during a time interval of $^{1}/_{299792458}$ of a second", fixing the value of the **speed** of **light** at 2.99792458×10^{8} m/s by definition.