



Questions about Lyot's coronagraphic research

- Why/how did Lyot take on the challenge of finding a way to observe the coronal in full daylight?
- How did he follow up on his promising start?
- How did he win astronomers' confidence in his findings?
- Why did but one astronomer follow his lead before World War II?
- Relevance?















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BERNARD LYOT SCIENTIFIC ACHIEVEMENTS between 1939 and 1952.

By Audouin DOLLFUS, Astronomere Emeritus, Observatoire de Paris.



BERNARD LYOT (1897-1952).







Several such plates are added, of thicknesses increasing by factor two. The channelled spectra produces by each plates imbricate each others so that only one transmitted band remains.













Several observatories were willing to use such filter and Lyot decided to ask a private company to design commercially the birefringent filter.

From 1949 to 1965, twenty nine Lyot's filters or derived versions were designed by the French company OPL and used for solar observations in several stations through the world.



Details about the filter



The OPL filter and its thermostat.

THE AUTOMATED HELIOGRAPHIC TELESCOPE

The success of the birefringent filter incited International Astronomical Union to organize a world wide survey of the solar chromosphere activity. B. Lyot conceived an automated telescope taking in sequences chormospheric images on films each minutes through the day.















In order to shift very quickly from one position to the other and record the fluxes with all the sensibility of the newly available photomultiplier detectors, Lyot designed a new instrument.

The photoelectric polarimeter was able to detect on faint sources a modulated flux of 0.01%. The instrument was operational In 1948. Lyot used his photoelectric polarimeter in conjunction with his birefringent filter, to detect the solar corona directly from Meudon, without coronagraph and without the need to observe from a high mountain.





• A refractor telescope of 16 cm diameter, bore sighted with the 1m telescope ef Meudon observatory, was followed by the birefringent filter and then by the photoelectric polarimeter.



Bernard Lyot detected for the first time the solar corona from Meudon observatory with his coronameter on May 6, 1950.





THE HIGH RESOLUTION PLANETARY TELESCOPE

 In 1941, Bernard Lyot decided to initiate a project of planetary exploration with a telescope specially dedicated to high magnification. Benefit was taken of the exceptional stability of the atmosphere at the top of the high





















