

Piazzì Smyth's Pictures of the Solar Spectrum in Lisbon, Sintra and Madeira: Analysis of Results and Instruments

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In the 2nd half of the 19th century the impact of spectroscopy span across several sciences like chemistry, physics and astronomy. One of the most eclectic scientists of that time was Charles Piazzì Smyth (1819-1900) who was appointed Astronomer Royal for Scotland, based at the Calton Hill Observatory in Edinburgh and professor of Astronomy in the University of Edinburgh. He is mostly known for his contributions to astrophysics and photography. His successful research on solar and terrestrial spectra with an emphasis on visual representation was a major achievement. He also developed spectroscopic techniques to use in weather forecast.

During the years 1877 to 1881 Piazzì Smyth made several scientific voyages to Portugal, namely Lisbon, Sintra and Madeira to carry out spectroscopic and meteorological research. The scientific results were detailed and published in the Edinburgh Philosophical Transactions.

An account of his expeditions and scientific results was also contained in the books, *Madeira Spectroscopic* (1882) and *Madeira Meteorologic* (1882).

In this paper we will discuss the experiments and instruments he used to observe record and map the solar spectrum in continental Portugal and in Madeira in the years 1877-1881 and how his research work contributed to the development of spectroscopy, photography and astronomy. We will also look into the relations he established with Portuguese scientific institutions, namely the Astronomical Observatory of Ajuda.

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