

THE PHOTOGRAPHIC SELF-RECORDING OF NATURAL PHENOMENA IN THE NINETEENTH CENTURY

I. M. Peres^a, M.E. Jardim^b, F. M. Costa^a

^a Centre for Molecular Sciences and Materials of the University of Lisbon , Ed. C8, 1749-016 Lisboa, Portugal,
^b Depart. of Chemistry and Biochemistry of the Faculty of Sciences, University of Lisbon, Ed. C8, 1749-016 Lisboa,
Portugal
mariliaperes@ciberprof.com

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Abstract

From the time of its discovery, Photography participated in the production of evidence in many scientific fields. In the second half of the nineteenth century the quality of the photographic images as well as the discovery of easier and reliable photographic techniques, transformed photography in a precious tool for scientists; they were now able to register in an indirect way atmospheric and magnetic phenomena.

Throughout Europe, Meteorological and Astronomical Observatories had started to be equipped with photographic self-recording instruments in order to be able to register in a continuous way the temperature, pressure or atmospheric electricity variations. One of these Institutions was the Kew Observatory considered one of the best in Europe.

By the end of the nineteenth century, the *Infante D. Luiz* Observatory of Lisbon, the Meteorological and Magnetic Observatory of the University of Coimbra, as well as the Meteorological and Magnetic Station of Oporto, owned photographic self-recording instruments for meteorological and magnetic purposes: barographs, psychrographs, electrographs and some magnetographs (declination, bifilar and of balance).

Portuguese scientists established privileged scientific contacts namely with the Director of the Kew Observatory, Balfour Stewart (1828 – 1887) and with William Thomson (Lord Kelvin) (1824 - 1907), among others.

Around 1870 the international network of meteorological observatories focused on the relations between magnetic and solar activity. At the Lisbon Observatory nearly 400 solar photographs were taken using a photoheliograph and a chrono-goniometer designed by Brito Capello (1831 – 1891). In this report we will present our research on the instruments, photographic processes and the photographic data as well as on the contributions of Portuguese scientists in this field focusing on the international cooperation between Portugal and other European countries.

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