Modelling of a “chaîne opératoire” as a Visualisation Method for the Material Analysis of a Culture of Precision with the Case Study of the Observatory of Neuchâtel (1858-1880)

Julien GRESSOT* **and Romain JEANNERET**
PhD Student and Scientific Collaborator Neuchâtel University Switzerland
julien.gressot@unine.ch romain.jeanneret@unine.ch

***Corresponding Author**

Abstract

Founded in 1858, the Observatory of Neuchâtel main missions are to determine, keep and transmit time. To carry out these tasks, a series of operations is necessary, from observing and measuring the transit of a star using a meridian circle, to recording these transits on a chronograph, then keeping the time with precision clocks, to sending a time signal to the state and watch industry via the telegraph network. For the creation of this scientific institution was commissioned Adolphe Hirsch (1830-1901), who then contacted the best astronomical instrument manufacturers of his time. The correspondence between this young scientist and the manufacturers of scientific instruments is a precious testimony to the negotiation around astronomical precision in the second half of the 19th century. These discussions led to the establishment of a technical system in 1860, which will be the subject of improvements over a period of twenty years to correct instrumental errors and reduce the role of the human factor in the observation process.

This talk aims to analyse the implementation of this apparatus for determining, keeping and transmitting the time, through the reconstruction of a “chaîne opératoire” allowing to visualise both the arrangement of scientific instruments and the daily operations of astronomers. Drawing on the skills of a conservator of scientific instruments and a historian of science, this “chaîne opératoire” is the result of the analysis of the Observatory of Neuchâtel’s instruments collection and the analysis of the Observatory's archives.

Keywords: Culture of precision, Visualisation, Material Culture.

References:

Aubin D, Bigg C, Sibum O (ed) (2010) The heavens on earth. Observatories and astronomy in Nineteenth-Century Science and Culture. London. Duke University Press

Canales J (2001) Exit the frog, enter the human: physiology and experimental psychology in nineteenth-century astronomy. British Journal for the History of Science 34:173-197

WISE Norton M (1995) The values of precision, Princeton. Princeton University Press

Authors profiles

Julien GRESSOT, PhD student, obtained a Master's degree at the University of Neuchâtel in historical sciences with honours *summa cum laude* and received the Werner Günter prize for a thesis subject in environmental history with the case of a company treating special waste that caused significant pollution. He then joined the SNF project « The Observatory of Neuchâtel (1858-1948): cultures of precision, economy of quality and "commodification" of the time » led by Professor Gianenrico Bernasconi. In this context, he is preparing a PhD about the astronomical culture of precision in the Observatory of Neuchâtel through the analysis of technical devices, actors, spatial configuration and scientific activities.

Romain JEANNERET obtained a Master of Arts in Conservation-Restoration at the Haute École Arc (HE-Arc CR) in Neuchâtel, Switzerland. He worked for 4 years as a research assistant at HE-Arc CR. Its activities are shared between several fields, including the "OBS" project on

the interdisciplinary study of the collections of the Observatory of Neuchâtel. It is following this last research that he joined the team of the University of Neuchâtel, as a scientific collaborator on « The Observatory of Neuchâtel (1858-1948): cultures of precision, economy of quality and "commodification" of the time ». He also works as conservator of the Treasury of the Abbey of Saint-Maurice and teaches computer graphics to Master students at the HE-Arc CR.