

# The Effects of Digitalization on Professional and Amateur Astronomy Considered Through the Categories of Identity and Attachment

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## ABSTRACT

Applying the notion of identity, the article analyses the role of real time observation of professional and amateur astronomers in the context of ongoing digitalization of research. Unveiling the importance of materiality and immediate relationships with instruments, we took a critical stance to the established research approaches to this subject, in particular the ethnography of profession and the actor-network theory (ANT). Bearing on of Julian Orr studies of professional culture and our own ANT notion of ‘heterogeneous coupling’, an attempt was made to introduce a new language for analysing the two knowledge communities, based on the sociology of taste and attachment of Antoine Hennion and sociology of regimes of worth of Luck Boltanski, which allows to grasp both similarities and differences in the astronomers’ identities.

## KEYWORDS

Actor-Network Theory, Digital Camera, Identity, Professional and Amateur Astronomers, Science as Non-Agonistic Field, Taste and Passion

## INTRODUCTION

### The Identity of Professional and Amateur Astronomers and the Notion of ‘Heterogenous Coupling’

The detailed observation of the work of astronomers (both professional and amateur ones), when operating telescopes and software to get access to their objects of study in the ‘near’ or “deeper” sky allowed us to understand and define more exactly the problem of identity of astronomers and on that basis to overcome the limitations (but also to note the contribution of) some of the approaches existing in sociology and ethnography of professions. Some of them remained for too long at the description of “symbolic” (even when including material objects their analysis), paying attention primarily to the narratives or “representations” of events as key moments in the formation of identities, of the use of professional groups’ slangs and metaphors as well as different ways to customize the working environment and transfer the expertise of the new members of the community (Alvesson & Berg, 1992; Owen, 1996).

The study of the life of astronomers at the observatory showed that the learning of a specific set of theoretical knowledge and methods for the analysis of available data on celestial bodies (as an equivalent of “systems of meanings” and “values” in the repertoire of traditional sociology) is not

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enough nor for their professional identity to amateur astronomers, nor for the maintenance of internal borders within the scientific community of astronomers. It turns out that a more or less prolonged period of direct work with the telescope itself is an important differentiating feature in determining the internal group identity of astronomers. In part, this is related to our findings in the course of fieldwork that the scientific instruments (not just the unique pieces of equipment, but also standard and manufactured in mass research instruments) have their own “individuality” that always is to be taken into account, so that the success of the study is largely due to the process of long and patiently learning how to work with them. The ‘individuality’ of the equipment is manifested also (and perhaps especially) when observing the ways in which your colleagues operate it and in evaluating and assessing their “style” of work, this gradually developing your own approach to it. In this sense, the scientific instruments co-participate in the formation of professional identity of astronomer.

Our study supports the findings of Julian Orr on professional culture in the corporation Xerox, as well as other studies on “ethnography of professions”, which revealed how at micro level, in everyday life, people involved in various segments of the manufacturing process accumulate valuable informal knowledge, which contributes significantly to its better flow, and better quality production and services. Especially important is Orr’s analysis of the complicated triangle “technicians-client-machines” where the latter are the final and most visible element. The machines are often a source of frustration for technicians - especially when members of the technical teams share their existential crises related to the realization that there are always problems to solve and that each repair is ultimately temporary (until the next failure). But he also shows technicians’ dependency of machines whose failings in fact makes technicians necessary (“such a machine is worthy adversary but a partner”), and how ultimately the machines are becoming an important element of the identity of technicians. Machines, Orr reveals, are a constant source of tension and insecurity - the Xerox Co. produces manuals for diagnosis and repair, but usually they are given to newcomers. Experienced technicians rarely use them and the vast majority of diagnosis is done “kinesthetically” and “listening” machine. There does not exist “blind faith” in written guides (Orr, 1996: 113) and technicians rely primarily on the discourse with colleagues who share techniques, “tricks” to quickly fix errors, and lessons learned from the “war stories from past battles in repairing them. In his review of Orr’s book R. Stuart Geiger stresses that these ‘war stories’ and other narratives “... are an essential component of how technicians talk about machines in all three facets of their work. Telling a story of a machine’s failure is necessary to gain proper advice from a colleague if one does not know the proper remedy. Likewise, the same story can assist a customer in understanding why their machine failed and how it can be prevented in the future. Finally, technicians often need to construct narratives for the machines as a way of understanding them better: in reading the logs and asking customers for details, the technician works to identify the most likely cause of failure. Ultimately, it is through these narratives that technicians talk about machines, which Orr identifies as “a vital element of their practice” (Stuart Geiger, 2008).

The works of Julian Orr and other researchers in ‘ethnography of professions’ that account on the role of material objects in defining the concept of identity makes possible to take the next step and introduce the concept of heterogeneity in relation to it. We mean the heterogeneity of the world of professional astronomers and amateurs as inhabited by actors of different nature. Considering the life of astronomers – both of professional and amateur astronomers, together with the studied celestial bodies, telescopes, computer programs, etc. - as heterogeneous (micro) communities allows us to apply a unified language of description and emphasize the actant-ness (ability to act) of all participants (human, non-human and ‘hybrid) and to account of practical forms of interaction among them. Thus, the findings of ‘ethnography of professions’ match an important area of actor-network theory (ANT) aiming at analysis of the intimate relationship between highly qualified experts, technical devices

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