Introduction

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Three historical characters feature in this issue of HoST. The first one is the Portuguese physician Garcia de Orta (ca. 1500–1568), who authored the treatise *Colóquios dos Simples e Drogas he Cousas Mediçinais da Índia* [*Colloquies on the simples & drugs of India*], a work of great originality that brought to Europe new knowledge about nature and its uses in Asia. The second is the Greek-speaking scholar Eugenios Voulgaris (1716–1806), a polymath who wrote influential treatises in metaphysics, logic, literature, theology, history, politics, and, last but not least, Newtonian physics, which he combined with neo-Aristotelian philosophy. The third is the Portuguese astronomer Frederico Augusto Oom (1830–1890), perhaps the most obscure of the three, but a man of science who was entrusted with an ambitious research programme in stellar astronomy, when this was but an incipient branch of astronomical science. Oom became an astronomer by chance, or better said, by force. And if Orta and Voulgaris affirmed their names as the authors of important treatises, it was not so much because they had primarily set out to be scholarly writers, but rather due to particular circumstances of their life-paths and careers. The three cases encompass complex geographical backdrops: in Orta's case, that of the emerging Portuguese seaborne empire; in Voulgaris', a wide tapestry of Orthodox communities and Greek-speaking networks that extended across not one, but three empires; and in Oom's, the circuits of nineteenth-century European astronomy, in which the major observatory in Russia (the Observatory of Pulkovo) constituted the utmost embodiment of the tenets of German astronomical practice.

Despite the different periods and contexts in which they unfolded, the lives and careers of these historical actors testify to the crucial role of mobility and displacement in the making of knowledge. Staying in Goa, Orta used a wide network of Portuguese-speaking informants to gather the material presented in the *Colóquios.* This network, as shown in Teresa Carvalho's paper, comprised people from various social strata, walks of life and occupations; it provided Orta with first-hand knowledge that he combined with his own background as a well-read European physician. Orta used the *Colóquios* to fashion himself as an authoritative harbinger of novelties from the East, although his treatise might be better regarded as the result of an encounter between different knowledge traditions. The Portuguese settlements in India, the

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power relations and administrative structures of which were efficiently used by Orta in the making of *Colóquios*, provided a suitable framework for the combination of local knowledge with European science, thus constituting a gateway for the emergence of a new Western discourse about nature in Asia.

The close relations between epistemic pursuits, empire and trade, which were by no means unusual in the early modern world (and thereafter), are well illustrated by *Colóquios.* In fact, it is not only a treatise of natural history, medicine and pharmacology, but also a work that reflects the efforts of the Portuguese crown to regulate the drug trade in India, and more generally to consolidate its presence and influence in the area, whilst seeking to take full advantage of its economic potential. We must bear in mind that Orta himself was, very likely, a merchant too. This aspect is emphasized in the second article of this issue, in which Rui Loureiro, by focusing on how precious stones are addressed in *Colóquios*, shows that scholarly debates on the use of precious stones for medical purposes were not strange to personnel involvement in trading activities, and that issues of knowledge and truth were not necessarily detached from matters of economic value. The mediation between different knowledge traditions thus developed in tandem with the mediation between political and economic interests.

Different motivations were at play in the case of Eugenios Voulgaris, which is addressed by Manolis Pationiotis. Patiniotis employs the category of "go-between"[1] to present Voulgaris as a seeker of intellectual prestige in the context of the wide and diverse cultural space of eighteenth-century Orthodoxy. Voulgaris used his abilities as a translator to combine the new findings of modern empiricism with the neo-Aristotelian worldview that lay at the core of humanistic education in the Greek-speaking world. Here, translation was not a straightforward process of transferring someone else's words into another language, but rather a creative form of mediation that produced new discourses. Carvalho's and Loureiros' papers depict Orta acting as an expert-in-chief, using his authority to validate knowledge provided by the many go-betweens who, one way or another, had an input in *Colóquios*. In Patiniotis' paper, the go-between comes to the fore as a protagonist whose role goes beyond that of an agent of cross-cultural diffusion. A prominent member of a generation of scholars who claimed social power on the basis of intellectual skill, Voulgaris sought to establish bridges between disparate cultural traditions and different strands of intellectual inquiry. His case shows that a go-between could

[1] See introduction to: Simon Schaffer, Lissa Roberts, Kapil Raj, James Delbourgo (eds.), *The Brokered World: Go-Betweens and Global Intelligence, 1770-1820* (Sagamore Beach: Science History Publications, 2009).

be, more than a broker, someone who acted as an active agent of intellectual production by developing such bridges.

Having lived and worked in a time when disciplinary boundaries were sharpening, F. A. Oom's life path, strongly tied to a specific institutional project – the Astronomical Observatory of Lisbon, founded in the late 1850s – illustrates the interplay between the formation of the scientific persona of the astronomer, the materiality of astronomical practice, and the importance of mobility and displacement in the construction of specific sites of knowledge. In 1858 the Portuguese government entrusted Oom with a twofold mission that consisted of an apprenticeship at the Pulkovo Observatory in Russia, and of a fact-finding tour of other observatories and instrument workshops. The goal of the mission was to prepare Oom to lead the future Astronomical Observatory of Lisbon, which was expected to further investigations in stellar astronomy carried out at Pulkovo. Both the astronomer and the observatory were formed through this mission, which developed along the same circuits on which Pulkovo was grounded. Although deeply inscribed in the cultural and political tenets of Tsarist Russia, the Pulkovo Observatory constituted, above all, a well-crafted synthesis of astronomical practices and paraphernalia valued by prominent practitioners in the German lands. By travelling these circuits whilst striving to become a fully-fledged astronomer, Oom played a crucial role in mediating between Portuguese aspirations towards cultural sophistication, the desire of Pulkovo's astronomers to secure the international leadership in stellar astronomy, and the German instrument makers' drive to hold the flag of technical prowess and innovation. The Observatory of Lisbon thus came to embody not just a reworked and rescaled version of Pulkovo, but actually a wide array of interactions that developed over an extensive geographical area.

Despite the different characters, pursuits and historical contexts addressed in the four papers, there are three common caveats that must be emphasized. The first is that we may gain from following "peripheral" and secondary actors who would hardly feature in narratives of science tied to a rigid centre-periphery divide, in which the "locality" of knowledge is coupled to a clear spatial arrangement of sites of knowledge production, as opposed to sites of knowledge reception and appropriation.[2] Orta, Voulgaris and Oom undertook the production of new

[2] For a reappraisal of the concept of appropriation in the context of the STEP – Science and Technology in the European Peripheries see: Kostas Gavroglu, Manolis Patiniotis, Faidra Papanelopoulou, Ana Simões, Ana Carneiro, Maria Paula Diogo, José Ramón Bertomeu Sánchez, Antonio García Belmar, Agustí Nieto-Galan, "Science and Technology in the European Periphery: Some historiographical reflections", *History of Science*, 2008, xlvi: 153-175, and also Kostas Gavroglu, "The STEP (Science and Technology in the European Periphery) Initiative: Attempting to Historicize the Notion of European Science", *Centaurus*, 54, 2012: 311-327.

knowledge not so much by sitting in privileged centres of production, but mainly by performing a mediating action between knowledge traditions, actors, interests and pursuits interconnected through various spaces.

This leads us to the second caveat: that a notion of "locality" tied to a rigid concept of "location" must be discarded, or at least taken cautiously.[3] Orta, Voulgaris and Oom were neither parochial, nor detached from their spaces of origin. Ultimately, it was their ability to combine their backgrounds (which they never withdrew) with new findings (which they did not approach passively) that ultimately empowered their intellectual and scientific endeavours.

The final caveat, which follows from the preceding two, is that, instead of approaching circulation as the movement of "immutable mobiles"[4] or as the displacement and appropriation of ready-made knowledge, we should take a step further and think about circulation in terms of knowledge production.[5] This requires a shift of focus from the places where knowledge is produced and (re)located, to the ways it evolves through moving localities.[6]

The present issue of HoST will certainly provide food for thought to those willing to further pursue these lines.

[3] This idea is akin to Apaddurai's suggestion to replace 'trait' geographies with 'process' geographies. See Arjun Appadurai (ed.), *Globalization* (Durham and London: Duke University Press, 2001), pp. 7-8, and also the discussion in Manolis Patiniotis contribution to this issue.

[4] See Bruno Latour, *Science in Action: How to Follow Scientists and Engineers Through Society* (Harvard University Press, 1987), esp. Ch. 6, 'Centres of Calculation'.

[5] This idea is already present, albeit somewhat understated, in works such as the following: Kapil Raj, "Beyond Postcolonialism …and Postpositivism: Circulation and the Global History of Science", *Isis*, 2013, 104: 337-347; *Relocating modern science: circulation and the construction of knowledge in South Asia and Europe 1650–1900* (Hampshire: Palgrave Macmillan, 2007); James Secord, "Knowledge in transit", *Isis,* 95, 2004: 654–672.

[6] For a further historiographic discussion see: Pedro M. P. Raposo, Ana Simões, Manolis Patiniotis, José Bertomeu-Sanchez, 'Moving Localities and Creative Circulation: Travels as knowledge production in 18th century Europe', *Centaurus.* DOI: 10.1111/1600-0498.12066.