

INTRODUCTION

Cross-cultural Exchange and the Circulation of Knowledge in the First Global Age contributes to the understanding of mechanisms and processes of production and circulation of knowledge in the Early Modern Age. Seeing that the Early Modern colonial empires connected a wide variety of peoples and cultural complexes all over the world, this will also be a contribution to colonial history. The focus of the present collection is on the relation between the development of local knowledge production and its connection with wider contexts, at local and global levels. In this setting, knowledge production would, therefore, also be influenced by how knowledge circulated among the various producers, associated with local factors, processes of exchange, negotiation, and reconfiguration, often involving asymmetric power relations.

From that viewpoint, knowledge production would no longer be related only with the so-called scientific knowledge, as upheld by traditional works on the history of science, but would also involve wide-ranging practical knowledge and its global circulation, allowing knowledge production mechanisms to be understood as a more complex system, crossing different local and polycentric systems.

During the last decades, different strands of analysis have been running in the same direction. In colonial studies, there has been an increase in studies analyzing the role of local populations within the processes of empire building¹. Another discussion that has become increasingly relevant concerns the importance of extra-official circuits and mechanisms, as well as self-organized networks connecting diverse worlds in contact, assumed both as trans-imperial and cross-cultural². This question is intrinsically related to the circulation of artefacts of knowledge – material or cultural – through these connected structures³.

In this context, it became crucial to look at the activities of various intermediaries, brokers, go-betweens and translators, without whom the colonial institutions or the religious orders could have successfully interacted with the local communities, nor gained access to their set of practices and knowledge. The origins of these individuals varied greatly, and they constituted an extremely diverse cosmos, with varied cultural, religious and linguistic backgrounds, building many dimensions of sociability, sharing knowledge and other cultural features. Foreigners, local inhabitants or those of mixed descent, these individuals represented the most diverse roles within or in the margins of the colonial structures. Whether merchants or ship-owners, whether surgeons, physicians, herbalists or missionaries, to say nothing of the village healers and midwives or just the curiosity collectors, such agents and their products and activities composed an exponentially more complex picture than the one which can be investigated only through reference to the official channels and the institutional action of the religious orders or other agents of the colonial powers⁴.

The problems to be addressed by this collection, i.e., the processes of construction, circulation and reconfiguration of knowledge in the Early Modern colonial empires, are also connected with the historiographical dynamics that have been developing along the last decades, mainly in the history of science, also encompassing the domains of social history and cultural studies⁵.

In August 2004, James A. Secord gave the opening lecture of an international conference on the History of Science in Halifax, Canada, which had the suggestive central theme of *Circulating Knowledge*. In

¹ RAJ, 2013.

² POLÓNIA, 2013: 133-158; POLÓNIA, 2017: 113-139; POLÓNIA & ANTUNES, 2017; ANTUNES & POLÓNIA, 2016.

³ SUBRAHAMANYAN, 2012; MIGNOLO, 2000.

⁴ POLÓNIA, 2017: 113-139; POLÓNIA & CAPELÃO, 2016; RAJ, 2010; BRACHT, 2016: 94-121; BRACHT, 2017.

⁵ WALKER, 2002: 74-104; WALKER, 2007: 569-579; WALKER, 2011: 141-170; RAJ, 2009: 105-150; RAJ, 2010.

his intervention, which was later revised and published as an article⁶, he took stock of a tendency that, he claimed, was gaining ground amongst historians, sociologists and philosophers of Science. Second pointed out to the challenges that science historians were, at that time, beginning to face, from a fundamentally historical perspective, i.e. that knowledge cannot be seen only as an abstract production, but as a communication practice.

The notion that the production and circulation of knowledge, in historical terms, are closely linked to the establishment of communicational processes, has in itself several meanings. We would like, however, to direct this reasoning to the transmission of knowledge, techniques and concepts between frontiers, among many other possible meanings.

Most likely, many of the formative elements of any given culture, from the material artifacts to the intricate networks of meanings, rituals, beliefs, knowledge and linguistic tools, all parts of an intangible heritage, are elements that at some point in the past were incorporated through the contact with other cultures⁷. Besides the existing differences among cultures, the same cultural complex may also contain many dimensions. These are related to various aspects, such as religious and social stratification, contrasts resulting from the environmental diversity and even from random circumstances, which result from the contingency that is inexorably intrinsic to the historical process.

Recently, science historians, in particular those whose subjects are in some way linked to the colonial universes, have attributed increasing importance to the notion that, throughout the Early Modern Age, such spaces have sheltered intense dynamics of construction, extension and reconfiguration of knowledge⁸. The adoption of this perspective has provided an opportunity for deep historiographical analysis, especially with regard to the development of scientific knowledge throughout the Early Modern Era, and the role of local communities and their sets of practices and knowledge.

Perspectives which were thought to be consolidated are now being heavily questioned. The role of the local communities in the construction of knowledge had always been considered secondary, they were seen as mere receptors and reproducers of a science diffused unidirectionally, from its irradiation center in Europe, through the colonial institutions and the missionary activities⁹. However, new approaches have contributed to the broadening of this scope, to the point where the production of scientific knowledge is perceived as the result of a series of processes of cultural shared construction.

From these perspective, historians, sociologists and philosophers of science sought to understand the production of knowledge throughout the Early Modern Era as a sum of several processes, which involved the colonial spaces in a multidimensional manner¹⁰. This knowledge was constructed through exchanges and negotiations within *contact zones*¹¹. Those spaces operated themselves as places (*locus*) of cultural encounters, spaces in which populations geographically disconnected until then came directly or indirectly into

⁶ SECORD, 2004: 671.

⁷ BURKE, 2009.

⁸ HSLA, 2009; RAJ, 2009: 105-150; RAJ, 2013: 337-347; FURTADO, 2011: 21-81; BASTOS, 2010; DIAS, 2007; PARDO-TOMÁS, 2014: 749-776.

⁹ BASALLA, 1967. This understanding is questioned, among others, by RAJ, 2013.

¹⁰ RAJ, 2010; BRACHT, 2017.

¹¹ PRATT, 1991.

contact establishing continuous cultural, economic and political relations, frequently involving conditions of coercion by strength, endemically producing inequality and both social and racial conflicts¹².

The current understanding is that the production of knowledge in the colonial environment was much more than simply the result of collaboration; it also emerged from conflict, from cross-interests, and through sensible negotiation processes. The points of common interest arising from these processes were to a large extent a result of incomplete understandings with respect to one another, but also of a continuous establishment of «mutual and creative misunderstandings»¹³. This concept, «creative misunderstandings», has become the key of the most recent interpretations of the production of knowledge in the colonial universes¹⁴.

Forged by the rationale and the concepts of these recent theoretical approaches, this book proposes a discussion between the history of science and other correlated disciplines, especially those concerning historical processes involving the circulation of scientific knowledge. It discusses the historical dimensions of science in its material, instrumental, physical, practical, social, political, and cognitive aspects, focusing on a perception of how the cross-cultural dynamics of knowledge circulation can be verified in the different universes of the colonial empires and the way they affected them.

In order to aggregate suitable discussions within this theoretical frame, this volume unites specialists who contribute to the state of the art in this field.

The book is divided in three parts, respectively, *Science as Power and the Power of Science, Perceptions and Interactions Within Colonial Natural Worlds* and *Colonial Medical Practices and the Transference of Knowledge*.

All together they aim at enlightening processes of knowledge production in colonial contexts and its circulation in Europe, and vice versa. Part I starts with a discussion on how science was power, mostly in the 18th century, when naturalists and medical doctors became allies of a central power aiming at controlling the body of their subjects, as much as the territories and the resources under their rule, in Europe and overseas. The activities of agents of knowledge production overseas and of circulation flows within Europe as networks of power is one of its main topics.

Part II concentrates on some of the information circulating between worlds, both as techniques, or as the actual content of a knowledge about colonial territories, frequently performing as exhibits to European eyes. The selection criteria underlining those representations and the means for communicating information are some of the topics arising in this section.

Part III illustrates several processes of knowledge circulation in the field of medical practices. The analysis of medical practices in Goa, as well as of pharmacy and surgery in Brazil contribute to a reflection on patterns of local production and European appropriation and uses of colonial knowledge.

The first section starts with the contribution of Gisele Cristina da Conceição, *Science and power relations: Circulation of agents and natural philosophical knowledge between Portugal and Brazil in the 18th century – The case of António Nunes Ribeiro Sanches*. Her approach discusses the power relations established between knowl-

¹² PRATT, 1992: 6.

¹³ WHITE, 2001.

¹⁴ *Creative Misunderstandings* is the title of COOK, 2013. Cook being the author of various important books about themes related to this.

edge producing agents both in Brazil and Portugal in the late 18th century. As one of the most relevant contributions of her work, Conceição reveals an unpublished manuscript of António Nunes Ribeiro Sanches (1763), analysing this author's ideas concerning the exploitation of Brazilian natural resources in medicine or trade.

In the second chapter, *The Luso-Brazilian medical students at Montpellier and the establishment of an intellectual elite between two Atlantic empires*, Rafael Dias da Silva Campos explains the relations established by the circulation between Brazil, Portugal, and France, of a group of Luso-Brazilian intellectuals. In this context, according to Campos, these agents' political ties and the fact that they were part of the Luso-Brazilian intellectual and political elite are relevant for an understanding of their careers in the University of Montpellier. Their own careers reveal both how European teaching was able to frame Brazil, and how this group, as such, might potentially contribute to the diffusion of knowledge locally produced in Brazil.

In chapter three, Carla Vieira, with *From the garden of Mr. Lindo to the Philosophical Transactions. Scientific exchanges and knowledge legitimation in the mid-18th century Royal Society*, helps us to understand the dynamics of science and power through the analysis of the social relations of Moses Lindo. Vieira sustains that Lindo was able to achieve recognition and validation for his own work through his wide network of personal contacts, as well as his reputation and political influence.

Part II, starting with Ana Cristina Roque's text, *Towards a scientific approach of nature: Looking at Southern Africa biodiversity throughout the 16th century Portuguese records on marine fauna*, focuses on the importance of the South African biodiversity as seen through the analysis of 16th centuries' travel guides, reports and diaries. It opens up a discussion on contributions related to zoology and botany, focused on a demonstration, in historical terms, of how the early modern studies of the natural world influenced different aspects of human activities such as science and economy.

Additionally, Cristina Brito's chapter, *Connected margins and disconnected knowledge: Exotic marine mammals in the making of early modern European natural history* discusses the construction of knowledge about the natural world through textual and iconographic representations of sirens, mermaids and manatees. According to Brito, these representations offer a strong basis for a debate of the construction and evolution of an Early Modern natural science covering the exotic fauna. Crossing borders between colonial studies, natural science and the analysis of marine ecosystems, Brito provides a challenging illustration on how those cross yards might be perceived in historical sources by the eyes of a biologist.

Nina Vieira, in *A comparative approach to historical whaling techniques: Transfer of knowledge in the 17th century from the Biscay to Brazil*, illustrates both trans-imperial flows, by focusing on the use of Biscay fishing techniques in Brazil, and the impact of European catch techniques in a natural world which inevitably suffered imbalances derived from this transference of knowledge at the service of European goals.

The work of Julianna Morcelli Oliveros, *From the New World to Barcelona: American flora in the Salvadors's Cabinet*, transports the reader to the Early Modern Spanish Atlantic Empire and the discussions about its natural potentials for trade, medicine and economy. Oliveros' analyses of the botanic exchanges carried out by the Salvador family, important collectors and apothecaries based in Barcelona, provide evidence for what can be perceived both as a fashionable curiosity and as an economic asset.

The book ends with three chapters grouped around the theme of *Colonial Medical Practices and the Transference of Knowledge*. Fabiano Bracht's *The Eastern Portuguese Empire: Frontiers and contact zones in*

knowledge production contexts, whose main focus is on 18th century Goa, is supported by empirical evidence of the construction and the active circulation of medical and pharmaceutical knowledge, in a bi-directional flux between Europe and Goa. Bracht looks for historical continuities resulting from long-term processes, which involve such well-known historical agents as the Jesuits, and lesser – known individual contributors, like the Goan medical doctors.

Monique Palma's *Circulation of knowledge between Portugal and Brazil in the 18th century. The case study of thermal bathing* reveals ways and means of circulating chirurgical knowledge involving the prescription of thermal bathing. Palma analyses the role of surgeons in Portugal and Portuguese America, including military surgeons as a case in point to discuss the strength and authority of medical and surgical authors and practitioners, as academics and non-academics, performing in Europe or overseas.

A contribution by Wellington Bernardelli Silva Filho on *Medicinal plants of Brazil in the pharmacopoeias of the friar João de Jesus Maria* closes this third part. It analyses the unpublished work of this Portuguese friar with the aim of understanding how some local Brazilian medical practices were incorporated into the 18th century European *Materia Medica*, as evidence of circulation and assimilation of colonial knowledge by European Academia.

The book as a whole faces the challenge represented by the historical comprehension of the cultural exchanges, knowledge circulation, and their agents throughout the Early Modern colonial empires. It discusses power relations, political struggle and the demand for knowing and recognizing the natural potentialities of the colonial worlds, as well as the transference of knowledge facilitated by the multivariate networks of agents in practically every single place of the world. Its editors hope that those challenges were fruitfully addressed by the set of the selected authors that generously accepted to contribute to it.

Every book that answers questions opens up new ones. This is obviously true for the present volume as well. It can only pinpoint individual aspects which highlight the potential for future research in this world-wide field. Like the knowledge transferred by early modern practitioners, its findings will have been superseded at some point in the future. But at the moment, the authors and the editors are sure they can point to new, so far uncharted, and definitely worthwhile areas of knowledge building.

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