

Special Issue

Religion and Science in China: Moving Beyond the “Two Cultures” Problem*

Introduction from the Guest Editor

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The history of science focuses our view on how early practitioners observed, recorded and understood the natural world. As such, it has long excluded or deprioritised the religious—the realm of gods, ghosts and divine beings, the search for salvation, and speculation about divine origins and structures of the universe. This despite the fact that, in pre-modern times, these domains were rarely if ever purely separated, or where they were, this occurred in inconsistent ways, with such varied contours, that it is problematic to talk of any kind of universally applied, consistent demarcation criteria. Recently, new approaches from the history of knowledge, and the Multiple Secularities project (<https://www.multiple-secularities.de/>), have opened the way for synoptic comparisons which do not prejudice or privilege the epistemic standing, or even the strict demarcation between science and religion from outside the European region.

This question has occupied sinologists in successive waves. Feng Youlan 馮友蘭 (1895-1990) argued that Buddhism and Daoism were ‘natural’ philosophies that advocated following inherent laws in the universe, and deemphasised human intervention in the world, and that

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therefore they muted and suppressed the drive to scientific discovery.¹ By contrast, Joseph Needham (1900-1995) argued that Daoism (here referring to the philosophical strands) in particular sought to understand nature in itself, and was the most conducive to scientific thinking among Chinese intellectual movements.² More recently, Nathan Sivin brought greater attention to the historical and social organisation of Daoists, and argued that their technical acumen had no necessary connection with scientific inquiry, and that the collection of technical knowledge in the Daoist canon had more to do with bibliographic habits than experimental praxis.³

Sivin sought to further disprove this connection in a study which reviewed the variety of terms used to refer to Daoists and their colleagues.⁴ This study selected a wide array of noted 'scientists' in Chinese history, thirty-nine in total, and, assessing their 'Daoist' qualifications, identified only three figures as Daoist. (Notably, all of these were active in medicine, which poses interesting questions about the status of medicine with relation to Chinese religions.)⁵ He concluded that 'Daoism' as an ideology has no intrinsic relationship to the production of scientific knowledge. Although individual Daoists, whether philosophical or religious, may be found to be active in scientific practice, there is no reason to call science 'Daoist.'

Timothy Barrett and Alexei Volkov, separately responded to Sivin's article, calling out for more complex characterisations of the individuals and their relationship to Daoism than allowed for in Sivin's list.⁶ Volkov mounted a pointed critique of Sivin's article, through a close argument about the close relationship between Zhao Youqin's 趙友欽 (b. 1271-d. 1331-1335) mathematical work and his inner alchemical practice. Arguing from evidence of Zhao and other figures that Sivin's survey was not representative and required more nuance with regard to individuals discussed in it, Volkov pointed out that the list of individuals that Sivin relied on for his bibliography had its own biases and constraints. Barrett also pointed out that not only was the relationship of the three Daoists mentioned by Sivin to the religion more complex than allowed for in Sivin's survey: Daoism itself needed more nuanced characterisation than was given in Sivin's paper. He concluded, with reference to Ho Peng Yoke's argument, that while it is wise to move beyond Needham's idealised representation of Daoism, this should not lead us to assume that

¹ Fung (1922). See discussion in Raphals (2017).

² Needham and Wang (1956), pp. 33-164.

³ Sivin (1968) and (1978).

⁴ Sivin (1995).

⁵ Others have since identified a fourth medical author, Yi Xing 一行 (682/683-727 CE) as having also annotated Daoist texts; see Volkov (1996-1997); Barrett (1998).

⁶ Volkov (1996-1997); Barrett (1998).

there existed something like a ‘two cultures’ distinction between the humanities and the sciences in China.⁷ Both Volkov and Barrett agree that the data gathered by Sivin was not conclusive and that further close study was required. However, they agreed with Sivin, who in his article advocated a ‘third history,’ one no longer occluded by ideological framings which imagine specific ‘isms’ being bound to science.

Notably, Sivin later came to refer to a ‘two cultures’ problem, but one that took shape in the choice of late twentieth century sinologists to read only texts that they deemed reader-friendly rather than in writings from imperial China. In coining the term ‘Awesome Taboo’ he referred to this generation’s habit of avoiding early scientific texts unless actively researching the history of science.⁸ While Sivin did not explicitly refer to the ‘two cultures’ notion, it is implicit in his critique that in his view what lay behind sinologists’ tacit notions of what was acceptable or accessible historical material exhibited influence of a modern demarcation question, whereas early polymaths made no such distinctions.

More recent research has sought to unpack and explore what, for modern readers, constitutes the blended epistemologies of early practitioners. While many studies of Buddhist and Daoist technical practice have been produced, perhaps Jiang Sheng’s 姜生 project on the history of Daoist science and technology, based in Shandong University, Jinan, has been the most conspicuous response to Sivin and Needham. Involving a broad host of scholars from within China, and also some from Taiwan, Japan and the United States, the project as developed in two volumes seeks to define an intrinsic relationship between Daoism and science.⁹ Drawing on Volkov’s refutation of Sivin, Jiang Sheng argues that the close enmeshment of spiritual cultivation and the desire to know more about the world within and the world around is part of Daoism’s special characteristics that have made it so productive of technical knowledge.¹⁰ He does not directly address Sivin’s point that Daoists did not produce knowledge, and that they merely used knowledge that other experts produced, as would technicians. Instead, he argues that Sivin’s notion of science is an impractical, unrealisable ideal—since even the ‘Daoist’ identities of Ge Hong 葛洪 (c. 283-343 or 364) and Tao Hongjing 陶弘景 (456-536) are ambiguous and hard to determine. Rather, Jiang Sheng maintains, attention needs to be paid to what he describes as ‘East Asian science.’ Much scientific discovery was derived as a combined effort of Daoist ‘philosophers’ (*daojia* 道家), Daoist ‘religionists’ (*daoshi* 道士) and technical masters (*fangshi* 方士), who,

⁷ Ho (1987).

⁸ Sivin (2010) and (2007). For a first instance, see Sivin (2000).

⁹ Jiang and Tang (2002) and (2010).

¹⁰ Jiang and Tang (2002), p. 8

he argues, shared a common interest in the natural world. Unfortunately, Jiang Sheng's work resorts back in many ways to Needham's earlier claims, and spends many pages repeating similar claims that 'Daoism' writ large, is responsible for so many scientific discoveries, often without qualifying what kind of 'Daoism' is being referred to in any given instance, beyond a rather blunt and imprecise distinction between *daoia* ('philosophy') and *daoiao* ('religion').

English-language scholarship has been slow to acknowledge Jiang Sheng's project. The 'two cultures' or 'Awesome Taboo' problem continues to be reified to some extent in recent writings in English on Daoist philosophy and science, by drawing on early twentieth century translations of Chinese categorical terms as consistent and reliable knowledge domains, with no reference to Jiang Sheng's attempts to override them. Recent articles in this field have seen fit to argue that an indigenous categorical distinction between *daoiao* and *daoia* is germane to a Western distinction between Daoist "religion" and "philosophy."¹¹ These arguments confine the activity of *daoia* to the pre-Han and Han period (up to 220 CE), and *daoiao* to the ensuing period, preferring to leave the relations between science and *daoiao* uncommented on. While this strategy is useful for constructing a Sino-centric analogue to the centuries-long field of European science and philosophy, it leaves open to question whether the distinctions between *daoiao* and *daoia* are directly analogous to the distinction between philosophy and religion.

Schipper and Verellen argue in contrast that the term *daoia* only came into use in the Western Han period (206 BCE-9 CE), at about the time the term *huanglao* 黃老 fell into disuse, as if the former had replaced the latter, and that the theorisation of *daoiao* as a contrastive was introduced by Zhu Xi 朱熹 (1130-1200), not himself an initiate.¹² They note that as the terms are used in the Ming dynasty Daoist canon, which contains literature for the succeeding 1500 years, the terms *daoiao* and *daoia* are almost interchangeable, and that any notion of a hard-lined distinction made by sinologists does not apply throughout this period of writing. This is in fact consistent with Jiang Sheng's use, who often interpolates *daoiao*, *daoia* and *fangshi*.

It is further worth considering whether *daoia* or *daoiao* were relevant categories to the *producers* and users of knowledge themselves. In effect, *daoia* is a retroactive category more relevant to bibliographers, librarians, and historiographers such as Sima Qian 司馬遷 (145-86 BCE) and Zhu Xi. It is unclear whether any historical actors labelled *themselves* as a *daoia* or as a practitioner of *daoiao*. *Daoia* is a moving target, as bibliographers changed their ascriptions over time, allocating philosophical and technical works to

¹¹ Liu, He and Wong (2015); Raphals (2015) and (2017).

¹² Schipper and Verellen (2004), p. 6.

different categorical schema in different periods. Medicine, for example, is included in technical literature in the Han court bibliography, but moved to the Masters literature by the Tang dynasty.

The articles in this issue take up the question of how to better study the entangled histories of religious and scientific practice, and result from a workshop titled "Science and Religion in Medieval China," co-organised by Dr. Pierce Salguero and myself, and generously hosted by the Abington College of Pennsylvania State University on 27 March 2014. Rather than defining Daoism, science and religion, and assuming that they were concepts and tacit motivations available to historical actors, presenters at the workshop were asked to engage 'science' and 'religion' as retroactive heuristic categories. They were invited to compare the scope of these terms as they frame the view of modern scholarship, in relation to the ways historical actors organised knowledge and practice during their historical moment(s). Each of the contributions began from the hypothesis that the separation of technical and salvific practice is a distinction coeval with the emergence of modernity. They explored the degree to which this separation is reflected or not in the activities and fundamental assumptions of protagonists from the Han 漢 (209 BCE-220 CE) through the Song 宋 dynasties (960-1279). Drawing on critical perspectives from Chinese religious studies, history of medicine, and science and technology studies, the contributions investigated the fluidity and interconnection of pre-modern material and spiritual technologies, the parallels between treatments of the body and of the self, and the apprehension of universal patterns and the fundamental ground of being. This larger question of the conditions and means by which religion is demarcated from other loci of society and intellectual activity is a core research question of the Kolleg-Forschungsgruppe for Multiple Secularities at the University of Leipzig, which I joined as a Senior Researcher in 2017, 2018 and 2019. I am grateful for their financial support and intellectual inspiration which has contributed to the editing of the articles here. Much of the work for my initial paper, and subsequent revisions, was undertaken while I was a post-doctoral researcher of the Berlin Centre for the History of Knowledge, based at the Max Planck Institute for the History of Science.

Rather than rehearsing the teleologies from earlier generations of historians of Chinese science, which have tended to characterise early technical knowledge as 'precursors' or as 'proto-' science, these articles examined the production of various genres of technical knowledge amidst the assumptions, arguments and social networks of their time. They foregrounded the ways in which practitioners and their techniques crossed borders of intellectual disciplines (modern and pre-modern), geographic realms, historic periods, social classes and epistemic habit throughout Chinese history. Paper topics ranged from medicine, hygiene, and

divination to self-cultivation, transcendence, and esoteric and empirical geography, and considered the ways in which these technologies or narratives coalesced into formal systems. How did religious ideas shape technology, and how did technologies shape religion? Presenters were thus invited to consider the dynamics of the formation of religion and scientific knowledge, and ways in which techniques were strategically positioned vis-à-vis pre-existing knowledge. How did religious actors adopt, adapt, deploy and authorise technological methods as part of the formation of identity, orthodoxy or technical canon? While some authors, due to tenure-track pressure and other needs, published elsewhere, three authors developed their contributions into the form seen in this volume. They discuss three discrete knowledge domains: divination, medicine in relation to Daoism, and sacred geography.

Michael Stanley-Baker considers the utility of the term 'Daoist medicine' (道教醫學 *daojiao yixue*) as a term of art, both in modern scholarship and in pre-modern sources. In the vein of identifying actors' categories and comparing them to scholarly ones, he demonstrates that the term 'Daoist medicine' did not exist in Imperial China, and is not found in any primary sources. Since the initial draft at the workshop, he has gone on to apply digital humanities methods in order to produce more evidence for his argument. He reviews the scholarship on Daoist therapeutics, and highlights the problems which arise when historians attempt to contrive a universal definition of 'Daoist medicine' without recognising that it is a modern heuristic term and then force ill-fitting material into it. Such writing conceals the deep ideological and epistemological rifts that existed between different Daoist communities, and encourages scholars to misattribute 'Daoist' identities to historical figures with little or no justification. He compares these to scholarship which addresses detailed and subtle variances in different communities' attitudes to medicine, which is much more successful at representing the ways in which actors navigated their time and place.

Taking all the above into account, Stanley-Baker argues for the eschewing of master narratives, and the need for nuanced situating of knowledge in its local contexts. He proposes actor network theory as a methodology, and recourse to the 'infra'—a space of ambiguity and in-betweenness where overarching categories are discarded so as to better account for the complex, tenuous and ambiguous ways in which knowledge is structured.

Stephan Kory investigates the emergence, development, and polysemy of the term *zhanhou* 占候 as it is variously described in a range of sources from the late Han through the Tang dynasty, asking how these texts instruct earlier diviners, as well as modern scholars, to 'see.' He identifies the epistemic priorities of the practices, the forms of knowledge transmission valorised by different authors, and their hierarchical standing in their

contemporary milieu. By keeping close to the epistemic terms of his actors, Kory demonstrates how Han dynasty courtiers considered such work to be knowledge acquired through study and apprenticeship, and how some Daoists considered knowledge of such practices to be the result of divine inspiration or bestowal of power. While the operation and presence of divine or spiritual beings is an assumed cultural background to the practice, many divinations were based purely on the observation and interpretation of what were perceived to be anomalous manifestations of *qi* in heaven and earth. Kory identifies and elaborates on the many different ways that *zhanhou* was received and used in late Han and medieval times. He proposes 'aeromancy' or 'divination based on atmospheric conditions' as a translation for the term when it is used to refer to a discrete mantic technique, but he also points out a number of specific occurrences in which more literal translations like 'omen watching,' 'mantic observation,' or 'divination based on seasonal conditions' better capture the meaning of the term. Some Buddhists prohibited the practice of *zhanhou* because although it was effective in foretelling events, it was merely an empirical practice which blinded one to the wisdom of the Buddha. Some Daoists' attitudes contradicted this; they maintained that even though it was a lowly technique, *zhanhou* nevertheless could lead to higher spiritual practices once mastered.

Kory's article thus makes a significant contribution to the discussion outlined above. He demonstrates that a demarcation problem certainly existed, and was deployed in various contexts in different ways. But these ways were inconsistent, and context-dependent. The subtlety and detail with which Kory treats his topic shows up broad-span notions of science or religion as blunt instruments, which are not up to the task of representing how actors deployed knowledge in their time and place.

Jonathan Pettit argues that Daoist writings about sacred mountains were cognate to geographic treatises, and that their organisation of topological knowledge had value that permeated beyond the aspirations of divine transcendence, and into the social and political realm of imperial sponsorship. He re-reads Tao Hongjing's annotations and letters about the terrain and inhabitants of the three Mao Mountains as more than just descriptive text, but purposive narrative with multiple subtexts. The detail with which Daoists observed the geographic terrain around them was not just mythography and portrayal of divine underground grotto-heavens. It actively constructed a social, economic, political and ritual landscape in the imagination of the reader, in this case, Emperor Wu 武 of the Liang 梁 dynasty (r. 502-549 CE), populating the earth with treasures, the land with healing herbs and minerals, and the terrain with people who were structured into social hierarchies. In so doing, Pettit breaks up hard-sided notions of scientific versus religious writing, and shows how the contours

of Daoist geographic knowledge emerged from local topography, social landscape, and the aspiring relations of the author with his reader. This article thus stands in relation to the writings about spatiality, the state and comic power germane to post-colonial histories as well as to, for example, South East Asian and Buddhist political geography. Pettit's perspective offers an intimate view on to the geographer himself, and his personal aspirations and commitments to the political and cosmic authorities of his time.

These results speak, albeit in partial, rather than summative form, to the questions of the Berlin Centre for the History of Knowledge and the Leipzig research group. By creating distance from modern or Euro-centric concepts of science, and by including a broader swath of data to include religious formulations, this inquiry sits within the larger framework of the history of knowledge—a perspective which invites the application of cross-disciplinary methodologies. Thus methods from science and technology studies become more clearly germane to the history of religion and vice versa. Rather than asking whether 'their' science looks and smells like 'our' science, and if not, whether it deserves the name of 'science' at all, scholars can attend more closely to the processes and practices of knowledge-formation within the local context, using methods that may well be, but are not necessarily bound to be, familiar to historians of more familiar modes of knowledge production. The Leipzig group's research on 'Multiple Secularities' seeks to compare the contexts and processes by which societies across time and space have sought to distinguish the religious from the non-religious.¹³ Recognising such distinctions are contingent, they seek to dive deep into the local conditions and exigencies of each kind of demarcation making, and allow for consistency and discontinuity in their findings from different cultures and periods.¹⁴

The results of the three articles are consistent: they do not find that the knowledge they study from the period of disunity between the Han and Sui dynasties form in themselves a consistent demarcation of secular and religious knowledge. Practitioners of medicine, divination, or geography could be variously oriented—or not—towards salvific aims, the construction of a meaningful cosmos, or concerned with divinities or divine

¹³ For a definition and working framework of "Multiple Secularity," see Wohlrab-Sahr and Burchardt (2012). The initial framework defined the production of religious-secular boundary making as a response to four main types of societal problem: 1) individual freedom versus society; 2) religious heterogeneity; 3) social or national integration and development; and 4) institutional independence. Wohlrab-Sahr and Burchardt (2012), p. 887.

¹⁴ Kleine and Wohlrab-Sahr (2016).

powers.¹⁵ They may have found these practices to be aligned with, aligned against, or neutral towards religious aims and worldviews. Any demarcation criteria that can be teased out through close reading of the texts did not raise the status of 'dominant [motifs]' nor did they 'set the basic terms for distinguishing religious and secular spaces in...society.'¹⁶

Kory finds that while divination is marked as a lower form of knowledge to Buddhism, it is in some cases rejected, in some cases utilised. Some Daoists on the other hand, warmed to it as a gateway practice to transcendence. Scholars such as Wang Chong 王充 (27-c. 100 CE) advocated divination as contiguous with a world populated by divine beings even while privileging a rationale for it that Wang considered anti-religious, or anti-superstitious: namely, *qi* and the observable patterns of nature. Pettit situates Daoist geography as contiguous with more empirical geographies, and argues that Tao Hongjing sought to align, rather than distinguish, his and the emperor's interests. As such, the genre that Tao employed takes shape as one which does not demarcate the religious from the worldly. Nevertheless, demarcations creep in—Tao was keen to distinguish his practice from the raucous and unseemly noise of other sects in the area, who he would wish to keep away from sacred sites. He also privileges knowers of Maoshan's secrets as having a higher destiny, oriented towards better chances of salvation.

Stanley-Baker takes a methodological approach, surveying the historiography of Daoist healing, and mounting a critique of recent attempts to make Daoism and medicine converge which do not attend to the epistemological violence that such claims perform. He points out that different claims to Daoist identity are contingent to different styles of boundary-making, and argues that this variety should be prioritised, with less ideological motivation to promote or decry a singular Daoism.

Taken together, the three articles take the steps called for by Barrett, Volkov and Sivin: the study of the entanglement of religion and science, without imposing those categories onto the material, but paying close attention to the methods and modes by which such knowledge coalesces and becomes structured in the discourse(s) of its time. By investigating the intersectionality (from a modern perspective on these knowledge domains), of divination, medicine and geography, the articles indicate something contrary to Sivin's early argument that religion and science had no intrinsic relation in China—indeed they are thickly related, the question is how. In contrast to Jiang Sheng's project, which seeks to provide evidence for an overarching, definitive characterisation of an intrinsic relation between science and Daoism writ large, they approach the subject through the

¹⁵ See Stephen Kory's conclusion for a tri-partite synopsis of late twentieth century scholarly concepts of religion.

¹⁶ Wohlrab-Sahr and Burchardt (2012), p. 888.

cumulative building-up of research from detailed examination of source data. For each of these contributions, the relationships which emerge are not obvious and widespread, but complex and embedded within particular arguments.

Collectively, the authors wish that these samples be taken together as part of a long term investigation into the contours of religion and science in China, categories whose weight in modern thought makes them inescapable, but which need much further clarification as to what they mean for the study of China.

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