Chinese Science Fiction:
Imported and Indigenous

by Lisa Raphals*

ABSTRACT

The relation of science to science fiction in the history of Chinese science fiction has been closely linked to both the influence of Western science and to ideals of progress, nationalism, and empire. But when we turn to China's long history of philosophical speculation, a rather different story needs to be told. This article examines the ways in which the indigenous Chinese sciences have fed into fiction, and considers the consequences for our understandings of the genre of science fiction itself and its broader social and historical contexts, as well as relationships between modernity, progress, and science in a non-Western, but globally crucial, context.

In the debates surrounding Chinese science fiction, scholars have often concerned themselves with the question of "origins." At what point can "Chinese science fiction" be said to have emerged?[1] Crucially, was it a modern phenomenon that arose toward the end of the Qing dynasty (1644–1911) in the late nineteenth/early twentieth century, or was it rooted in earlier literary genres? If we adopt the "modernist" view, further questions arise. What did Qing writers and readers understand as "Western" SF? Which writers were available in translation? How did "Western" SF evolve, and what did the Chinese authors of works we (retrospectively) recognize as SF consider themselves to be doing? How did SF become indigenous to China? Answers to these questions, some of which are explored elsewhere in this volume, are complicated by genre definitions and the status of SF in China—until recently relegated to children's pedagogic literature, and considered of little literary or even popular interest. In China today, the genre of "science fiction" (*kehuan* 科幻) is considered distinct from "fantasy" (*qihuan* 奇幻), which includes both *xuanhua*n 玄幻, fantastic fiction with Chinese supernatural elements, and *mohuan* 魔幻, magical fiction with Western elements.[2] Both are made even more complicated when the history of indigenous Chinese science is taken into consideration.

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[1] I use the terms science fiction and SF interchangeably, to include both clearly "science"-oriented and speculative fiction.

[2] Pinyin transliteration of Chinese words is used throughout, except for personal names, where I follow authors' own usages. For consistency, all Chinese references are in traditional characters (*fanti*), including contemporary pieces originally published in simplified (*jianti*) characters. Chinese names are cited surname first in accordance with Chinese name conventions. Chinese characters are included because Chinese SF Anglophone literature often omits them, making names and titles harder to find in Chinese sources.

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Chinese scientific and philosophical literature offers a long and rich parallel history of speculation on topics that are now staples of science fiction; these span several genres of Chinese writing since the fourth century BCE. This article explores the way in which these topics, distinct threads that appear in Chinese philosophical and historicoliterary texts from the fifth or fourth centuries BCE to roughly the sixth century CE, were expressed. In particular, it considers accounts of travels in time and space (above or beyond the earth), and accounts of immortality or extreme longevity. It also considers "transformative accounts," including contact with sentient nonhuman entities, descriptions of changing species, and the indigenous Chinese genre of "tales of the strange" (*zhigua*i 志怪). While these texts can retrospectively be recognized as science-fictional, from the viewpoints of their creators, these genres address practices and theories defined by indigenous Chinese sciences. Their relationship with indigenous science fiction, however, is considerably more difficult to define. Nonetheless, Chinese indigenous literary, religious, and scientific traditions informed Chinese SF in important ways. This article thus surveys what might be called a "parallel SF context" for relationships between science and fiction in a Chinese context, one that demonstrates that speculations on science in fiction need not necessarily lead to the Western modes of "science fiction" that have dominated the literature.

A MODERNIST HISTORY OF CHINESE SF

Modernist accounts of Chinese SF describe three distinct phases: the utopian, science fictional writings of the late Qing dynasty; pedagogical, didactic stories produced in the Maoist period; and the rise of speculative, often dystopian, science fiction since 1989. The first part of this article will briefly review these developments before moving on to consider the role of the indigenous Chinese sciences.

A range of contemporary scholars are actively exploring the role of SF in the cultural life of the late Qing dynasty.[3] During this period, Chinese SF and utopian texts explored notions of "Chineseness," modernity, and human nature.[4] Several key intellectual figures of the period concerned themselves with SF. Both the great Qing statesman Liang Qichao 梁啟超 (1873–1929) and the great writer Lu Xun 鲁迅 (1881–1936) thought that SF, particularly that by Jules Verne, would help spread modern Western knowledge into China.[5] By 1919, at least fifty SF titles had been translated into Chinese in both books

[3] See, in particular, David D. Wang, *Fin-de-Siècle Splendor: Repressed Modernities of Late Qing Fiction, 1849–1911* (Redwood City, Calif., 1997); as well as Nathaniel Isaacson, *Celestial Empire: The Emergence of Chinese Science Fiction* (Middleton, Conn., 2017); Song Mingwei, ed., "Chinese Science Fiction: Late Qing and the Contemporary," special issue, *Renditions* 77–78 (2012); Wang Dun, "The Late Qing's Other Utopias: China's Science-Fictional Imagination, 1900–1910," *Concentric: Literary and Cultural Studies* 34 (2008): 37–61; Wu Xianya 吴献雅, "Kexue huanxiang yu kexue qimeng: Wan Qing 'kexue xiaoshuo' yanjiu" 科学幻想与科学启蒙: 晚清'科学小说'研究 [Science fiction and the scientific enlightenment: a study of "science fiction" in the Late Qing dynasty], in *Jia Baoyu zuo qianshuiting: Zhongguo zaoqi kehuan yanjiu jingxuan* 賈寶玉坐潛水艇: 中國早期科幻研究精選 [Jia Baoyu by submarine: Selected research on China's early science fiction], ed. Wu Yan 吴岩 (Fuzhou: Fujian shaonian ertong chubanshe, 2006), 37–91; and Zhang Zhi 張治, "Wanqing kexue xiaoshuo chuyi: dui wenxue zuopin ji qi sixiang beijing yu zhishiye de kaocha" 晚清科學小說芻議:對文學作品及其思想背景與知識野的考察 [On science fiction in the Late Qing dynasty: A study of literary works and their ideological background and field of knowledge], *Kexue wenhua pinglun* 科學文化評論 [Scientific and cultural commentary] 6 (2009): 69–96.

[4] Jiang Jing, "From the Technique for Creating Humans to the Art of Reprogramming Hearts: Scientists, Writers, and the Genesis of China's Modern Literary Vision," *Cult. Critique* 80 (2012): 131–49, on 131.

[5] Han Song, "Chinese Science Fiction: A Response to Modernization," in "Chinese Science Fiction," special issue, *Sci. Fict. Studies* 40 (2013): 15–21. Liang translated Jules Verne's *Deux ans de vacances*

and magazines; they appeared under the rubric of "science fiction"—*kexue xiaoshuo* 科學小說—a term that was not yet in general use in the West.[6] These translations focused on particular authors and themes, and especially on technological fantasies. As the SF author and editor Xu Nianci 徐念慈 (1875–1908) remarked, their plots all originated in a scientific ideal of transcending nature and promoting evolution. Readers of this literature rejected indigenous literature grounded in the traditional sciences as "unscientific."[7] Another important element was utopianism, prompted by early translations of Edward Bellamy's *Looking Backward* (1888).[8] Utopianism was central to Liang Qichao's vision of a revitalized Confucian China, and his unfinished novel *Future of New China* has been considered the origin of Chinese SF.[9] Liang's novel drew on theories of evolution and confidence in national rejuvenation, which began to dominate modern Chinese intellectual culture at the beginning of the twentieth century. It influenced several other early twentieth-century utopian works.[10] Common to Liang and these other works was the view that fiction could both civilize and imagine a future for a China defeated by the Opium War and partitioned by Western powers. As Li Boyuan 李伯元 (1867–1906) put it in his founding manifesto for the magazine *Xiuxiang xiaoshuo* 繡像小說 (Illustrated fiction), Western countries used fiction to "civilize their people" through writers who analyze the past, predict the future, and use their insights to awaken the populace.[11]

Over the ensuing years, utopian and science fiction drifted apart. By the 1950s, SF was "science fantasy fiction" (*kexue huanxiang xiaoshuo* 科學幻想小說), itself a sub-

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[Two years' vacation, 1888] into Chinese, and Lu introduced Verne's *De la terre à la lune* [From the earth to the moon] (1865) to Chinese audiences. Other translations of Verne included *Journey to the Center of the Earth* (1864), *Twenty Thousand Leagues Under the* Sea (1871), *The Mysterious Island* (1875), *and Five Weeks in a Balloon* (1865). By contrast, H. G. Wells's *Outline of History* (1920) was translated into Chinese, but not his science fiction.

[6] This term first appeared in the table of contents of Liang Qichao's literary magazine *Xin Xiaoshuo* 新小說 [New fiction], first published in Japan in 1902. See Issacson, *Celestial Empire* (cit. n. 3), 7–8.

[7] See Wang, *Fin-de-Siècle Splendor* (cit. n. 3), 256. Translation of SF into Chinese declined, but then revived after 1949, with yet more translations of Jules Verne and a substantial number of Russian works. It was only in the early 1980s that a wider range of SF was translated into Chinese, including Ray Bradbury, Arthur C. Clarke, and Isaac Asimov. See Jiang Qian, "Translation and the Development of Science Fiction in Twentieth-Century China," *Sci. Fict. Studies* 40 (2013): 120–1.

[8] Jiang, "Translation" (cit. n. 7), 116–7. Further details appear in Jiang's 2006 PhD dissertation from Fudan University, which is cited in "Translation," but unavailable to this author.

[9] See Song Mingwei, "After 1989: The New Wave of Chinese Science Fiction," *China Perspectives* 1 (2015): 7–13; Liang Qichao, *Xin Zhongguo weilai* 新中國未來 [Future of new China] (unpublished manuscript, 1902; Taipei, Taiwan: Guangya chuban youxian gongsi, 1984, posthumously published).

[10] Wu Jianren 吳趼人, *Xin shitou ji* 新石頭記 [The new story of the stone] (1908; repr., Guangzhou: Huacheng chubanshe, 1987). Also first published in 1908 was Yang Ziyuan 楊致遠, *Xin jiyuan* 新纪元 [New era] (1908; repr., Nanning: Guangxi shifan daxue chubanshe, 2008); this was written under the pseudonym Bi heguan zhuren 碧荷馆主人 [Master of the Sapphire Lotus House]. Wu Jianren lived from 1866 to 1910, and Yang Ziyuan from 1871 to 1919. Lu Shi 陸士諤 (1878–1944) wrote *Xin Zhongguo* 新中國 [New China] (Beijing: Zhongguo youyi chuban gongsi, 2009), which was originally published in 1910. For further details, see Lorenzo Andolfatto, "Paper Worlds: The Chinese Utopian Novel at the Beginning of the Twentieth Century, 1902–1910" (PhD diss., Università Ca' Foscari Venezia [Ca' Foscari University, Venice], 2015); Douwe Fokkema, *Perfect Worlds: Utopian Fiction in China and the West* (Amsterdam, Neth., 2011); Mikael Huss, "Hesitant Journey to the West: SF's Changing Fortunes in Mainland China," *Sci. Fict. Studies* 27 (2000): 92–104; Jiang Jing, "Creating Humans" (cit. n. 4); Jiang, "Translation" (cit. n. 7); Song, "Chinese Science Fiction" (cit. n. 3); Wang, *Fin-de-siècle Splendor* (cit. n. 3); and Wang Dun, "The Late Qing's Other Utopias" (cit. n. 3).

[11] Li Boyuan 李伯元, *Xiuxiang xiaoshuo* 繡像小說 [Illustrated fiction] 1, no. 1, 1903, 1; quoted in Wang Xiaoming, "From Petitions to Fiction: Visions of the Future Propagated in Early Modern China," in *Translation and Creation: Readings of Western Literature in Early Modern China, 1840–1918*, ed. David E. Pollard (Philadelphia, Penn., 1998), 50.

genre of "science belles-lettres" (*kexue wenyi* 科學文藝). Both were distinct from the category of "utopian fiction" (*lixiang xiaoshuo* 理想小說).[12] After the founding of the People's Republic of China in 1949, the agenda of Chinese science fiction was set first by Marxism, and then Maoism. Marxist priorities drew on Soviet theories, according to which science fiction should concentrate on describing two things: (1) the scientific imagination as the source of technoscientific development, and (2) the imagined future of communist society.[13] Government campaigns for "Marching toward Science" (*xiang kexue jinjun* 向科学进军) in the mid-1950s promoted both science fiction and popular science, although between 1949 and 1966 Chinese science fiction focused on short stories aimed at young readers, with few works for adults being published.[14] Since the late 1950s, science fiction has been designated in Chinese by the term *kexue huanxiang xiaoshuo* 科學幻想小說 or science fantasy fiction. It falls under the broader category of *kexue wenyi*, "science belles-lettres," which included all "artistic" science propaganda. *Kexue wenyi* in turn was a subcategory of "science popularization" (*kexue puji* 科學普及). All were linked to the Chinese Association for the Popularization of Science (*Zhongguo Kexue Puji Xiehui* 中國科學普及協會), founded in Shanghai in 1978. This science popularization was aimed at an audience of children and young people. The narratives were linear and action oriented, conspicuously included children, and first appeared in specialized children's magazines and publishing houses. However, the "fantasy" content of this genre was strictly limited to the scientifically plausible, a point that is significant for comparison with the use of indigenous Chinese "tales of the strange" (discussed below).[15] Given its primary interest in science education, this period produced little in the way of either indigenous SF or translations of foreign work. As Wu Dingbo has observed, these productions share several common traits: providing science education through a cast of scientist characters, using patriotism and optimism to resolve conflicts, and settings in a near and—by implication—possible, future.[16]

During the Cultural Revolution (1966–76), SF disappeared from China, reappearing with a vengeance in the 1980s. This was the Chinese "new wave," which rejected both propaganda and utopianism.[17] Song Mingwei identifies the key year as

[12] Rudolf G. Wagner, "Lobby Literature: The Archaeology and Present Functions of Science Fiction in the People's Republic of China," in *After Mao: Chinese Literature and Society 1978–1981*, ed. Jeffrey C. Kinkley (Cambridge, Mass., 1985).

[13] See Liuluepu Luofu 利亞普諾夫 [B. Liupulov], *Jishu de zui xin chengjiu yu Sulian kexue huan xiang du wu* 技朮的最新成就與蘇聯科學幻想讀物 [The latest technological achievements and Soviet science fiction], trans. Yu Shixiong 余士雄 (Beijing: Kexue jishu chubanshe, 1959), as summarized in Wu Yan, "'Great Wall Planet': Introducing Chinese Science Fiction," trans. Wang Pengfei and Ryan Nichols, *Sci. Fict. Studies* 40 (2013): 1–14.

[14] For accounts of this situation, see Wu Yan, "'Great Wall Planet'" (cit. n. 13); and Rui Kunze [Wang Rui 王瑞], "Displaced Fantasy: Pulp Science Fiction in the Early Reform Era of the People's Republic Of China," *East Asian History* 41 (2017): 25–40.

[15] Wagner, "Lobby Literature" (cit. n. 12), 19–23.

[16] Wu Dingbo and Patrick D. Murphy, *Science Fiction from China* (New York, N.Y., 1989), xxxvi.

[17] This period also saw the publication of Rao Zhonghua's 饒忠華 *Zhongguo Kexue Xiaoshuo Daquan* 中國科幻小說大全 [Compendium of Chinese science fiction] (Beijing: Haiyang chubanshe, 1982), which subsequently became a standard sourcebook for the subject. Examples of this new wave include Tong Enzheng 童恩正, "Shanhu Dao Shang de Siguang" 珊瑚岛上的死光 [Death ray on a coral island], *Renmin wenxue* 人民文学 (August 1978): 41–58; Zheng Wenguang 鄭文光, "Feixiang Renmazuo" 飞向人马座 [Flying to Sagittarius], Shijie kehuan bolan 世界科幻博览 [World scifi expo], May 2005, originally published 1979; Wang Xiaoda 王晓达, "Bing xia de meng" 冰下的梦 [Dream under the ice], in *Wang Xiaoda juan: Bing xia de meng* 王晓达卷: 冰下的梦 [Collected short stories of Wang Xiaoda: Dream under the ice], eds. Dong Renwei 董仁威 and Yao Haijun 姚海军 (Beijing: Shijie huaren kehuan xie huizu bian 世界华人科幻协会组编 [World Chinese Science Fiction Associ-

1989—the year of the Tiananmen massacre and the collapse of the democracy movement. Several of these writers pursue "hard science" themes deployed in socially complex and nuanced settings. The three most prominent of these writers are Liu Cixin 劉慈欣, Wang Jinkang 王晋康, and Han Song 韩松. Liu Cixin's *Three-Body Problem* (Santi 三体) trilogy imagines a disastrous scenario of the consequences of reckless alien contact, beginning during the Cultural Revolution and ending in a distant future of inter-civilizational and interdimensional warfare.[18] Wang Jinkang also focuses on science, but in the context of ethics.[19] Han Song addresses problems of society and culture, and the implications of science for society.[20] China and Chinese nationalism remain prominent themes, with China literally saving the world in several plot lines.[21] But younger new wave Chinese science fiction also offers an indirect critique of government policies (in sometimes dystopian visions), the human implications of technology, and issues of censorship and government control.[22]

Other authors are more experimental, and draw on history and legend, sometimes combined with time travel. For example, Zhao Haihong 趙海虹, one of the few women authors of Chinese SF, also has a longstanding interest in Chinese short story genres and martial arts fiction.[23] Fei Dao 飛氘 imagines Confucius returning to Mount Tai

ation], 2012); Wei Yahua 魏雅华, "Wenrou zhixiang de meng" 温柔之乡的梦 [Conjugal happiness in the arms of Morpheus], originally published in Chinese in 1982, translated into English in *Science Fiction from China*, ed. Patrick D. Murphy and Wu Dingbo (New York, N.Y., 1989), 9–52; and Jiang Yunsheng 姜云生, "Wubian de jianlian" 无边的眷恋 [Boundless love], originally published in Chinese in 1987, translated into English in Murphy and Wu, *Science Fiction from China*, 157–164. For details on these writers' publications, please see the appendix, "A Brief Bibliography of Contemporary Chinese Science Fiction." For surveys of "new wave" SF, see Han, "Chinese Science Fiction" (cit. n. 5); Isaacson, *Celestial Empire* (cit. n. 3); Leung Laifong, *Contemporary Chinese Fiction Writers: Biography, Bibliography, and Critical Assessment* (London, 2017); and Song, "After 1989" (cit. n. 9). The Francophone website "SinoSF Carnet de recherche sur la littérature de science-fiction chinoise" (OpenEdition), 16 January 2019, sinosf.hypotheses.org, provides a useful inventory of translations of Chinese SF into English, French, German, and Italian, to which the present discussion is indebted.

[18] See Liu Cixin 劉慈欣, *Santi* 三体 (Chongqing, 2007); translated by Ken Liu, *The Three-Body Problem* (New York, N.Y., 2016). The next two volumes of this trilogy are *Heian sanlin: Santi di er bu* 黑暗森林: 三體第二部 (Chongqing, 2008); and *Santi. Di III bu, Si shen yong sheng* 三體第三部, 死神永生 (Taipei, 2011); Ken Liu also translated these two books of the series as *The Dark Forest* (New York, N.Y., 2015) and *Death's End* (New York, N.Y., 2016). For an excellent review of the trilogy, see Nick Richardson, "Even What Doesn't Happen Is Epic," *London Review of Book*s 40, 8 February 2018, 34–6.

[19] This point is indebted to Ken Liu, "China Dreams: Contemporary Chinese Science Fiction," *Clarkesworld* 88, December 2014, http://clarkesworldmagazine.com/liu_12_14/.

[20] Han Song 韩松, *Yuzhou mubei* 宇宙墓碑 [Cosmic tombstones] (Beijing, 1991); Han, *Renzao ren* 人造人 [Artificial people] (Beijing, 1997); Han, *Wo de zuguo bu zuomeng* 我的祖国不做梦 [My homeland never dreams] (unpublished manuscript, 2007). While the last never appeared in print in China, it was published online in *Impressions d'Extrême-orient*, June 2016, "Censures et littératures d'Asie" [Censorship and the literatures of Asia], https://journals.openedition.org/ideo/471?file=1.

[21] Wang Jinkang 王晋康, *Yu Wu Tong Za*i 與吾同在 [Being with me] (Chongqing, 2011); He Xi 何夕, "Yiyu" 異域 [Foreign land], *Kehuan Shijie* 科幻世界 (Science fiction world), August 1999; *Liudao Zhongsheng* 六道眾生 [Six lines from Samasara] (2002; repr., Changsha, 2012).

[22] Ma Boyong 马伯庸, "The City of Silence" [Jijing zhi cheng 寂静之城], in *Invisible Planets: 13 Visions of the Future from China*, trans. Ken Liu (London, 2016), 153–96; Chen Qiufan 陈楸帆 [Stanley Chan], "Shu nian" 鼠年 [The year of the rat] (location unknown, 2009), translated by Ken Liu in *Magazine of Fantasy & Science Fiction*, July–August 2013, 68–92, and reprinted in Ken Liu, *Invisible Planets*, 21–49; Chen, "The Flower of Shazui" [Shazui zhi hua 沙嘴之花], *Interzone*, trans. Ken Liu, November–December 2012, 20–9, also published in Ken Liu, *Invisible Planets*, 69–87; and Chen, *The Waste Tide* (Huang chao 荒潮), trans. Ken Liu (London, 2019).

[23] Zhao Haihong 赵海虹, *Shijian de bifang* 时间的彼方 [The other side of time] (1998; repr., Wuhan, 2006); and Zhao, "Yi'ekasida" 伊俄卡斯达 [Jocasta], *Kehuan Shijie* 科幻世界 [Science fiction world], March 1999.

to understand the history of Chinese civilization.[24] Xia Jia 夏笳, another female SF writer, draws on themes from legend and religion in novels such as *The Demon-Enslaving Flask* (2004), *Carmen* (2005), and *Dream of Eternal Summer* (2008); the last is a love story between an immortal and a time traveler.[25] Zhao Haihong, Fei Dao, and Xia Jia have academic backgrounds, which link them both to the writing of SF and to its reception through both teaching and critical studies.[26] While these authors do not explicitly draw on the traditional Chinese sciences, they come closer to it. At the same time, in a parallel SF universe in Hong Kong, Ni Cong 倪聰 (1935–), writing under the name Ni Kuang 倪匡, published the Wisely (or Wesley, *Wei si li* 衛斯理) series of some one hundred and fifty novels between 1963 and 2004. They included both SF and martial arts elements, and Ni was a close friend of the martial arts writer Louis Cha (discussed below).[27]

In summary, early twentieth-century SF in China, both indigenous and in Western translations, was focused on themes of evolution and technology, with specific interest in helping China gain scientific and technological expertise in the wake of its defeats in the Opium War. While it included some of the recognized "classics" of Western SF, others were conspicuously absent, including Mary Shelley's *Frankenstein* (*Kexue guairen* 科学怪人, literally "science madman"), which would have been entirely inconsistent with the priorities behind early Chinese interest in SF. The Maoist period was equally preoccupied with (Western) science, but with a marked shift from interest in the power of fiction to promote social change, toward a narrower view of SF as a tool of science education. Liang Qichao's call for a science-fictional literature of national renewal had all but disappeared, leaving only the science. Since 1989, SF has flowered in China, free from earlier constraints. In some cases—notably Liu Cixin's *Three-Body Problem*—it has retained an orientation toward science. But in all these periods, "science" is unquestionably understood as modern Western science. What happens if we look again at themes from Chinese philosophy and from the indigenous Chinese sciences?

SF AND THE TRADITIONAL CHINESE SCIENCES

While a defining feature of the late Qing emergence of Chinese SF was its close engagement with modern science, as Fan Fa-ti has pointed out, historical actors—including early twentieth-century Chinese scientists, and readers and writers of early Chinese SF—wrestled with binary concepts such as traditional/modern and Chinese/Western; these binaries and categories informed their practices as producers and as

[24] Fei Dao 飛氘, "Yilan zhong shan xiao" 一览众山小 [A list of small mountains], *Kehuan shijie* 科幻世界 [Science fiction world], August 2009.

[25] Xia Jia, "Yongxia zhi meng" 永夏之夢 [Dream of eternal summer], *Kehuan Shijie* [Science fiction world), September 2008.

[26] Zhao Haihong is a professor at the Institution of Foreign Languages of Zhejiang Gongshang University. Jia Liyuan (Fei Dao) holds a PhD in comparative literature from Tsinghua University. Wang Yao (Xia Jia) holds a PhD in comparative literature and world literature from the Department of Chinese, Peking University (2014), and is currently a lecturer of Chinese literature at Xi'an Jiaotong University.

[27] I am grateful to Bill Mak for calling this series to my attention. Several of the books have been adapted for film and television, including the films *The Legend of Wisely* (1987), *The Cat* (1992), and *The Wesley's Mysterious File* (2002); and the television series *The New Adventures of Wisely* (1998) and *The "W" Files* (2004).

readers of both science and SF.[28] Given these orientations, it is no surprise that the authors and audiences of late Qing SF described other veins of fantastic indigenous literature as "mythology" or "superstition." But we are not obliged to base a contemporary history of Chinese SF solely on these assessments.

Debates about the history of science in China, including the question of where "science" stood in indigenous hierarchies of knowledge, began with the pioneering work of Joseph Needham (1900–95).[29] Needham approached the problem of the history of science in China by trying to fit the Chinese scientific tradition into the categories of twentieth-century Western science. Many later historians of science in China, including several of Needham's own close collaborators, later rejected this "universalist" approach as anachronistic and culturally inappropriate.[30] Part of the problem, as Nathan Sivin argues, is that indigenous Chinese accounts focused on specific sciences—quantitative and qualitative—rather than on any unified notion of "science." In his taxonomy of the traditional Chinese sciences, Sivin distinguishes three quantitative and three qualitative sciences.[31] Most important for Chinese SF is the qualitative science of medicine, which included "nurturing life" (*yangsheng* 養生), longevity, and alchemy (discussed below). These three themes link directly to immortality themes in SF, but—crucially—they also link to other Chinese literary genres. Philosophical texts include references to interspecies transformation and space/time travel.

The historical development of the Chinese sciences has been extensively explored by historians of science. Some of these studies do not inform SF but are important to mention in order to demonstrate the variety and development of the Chinese sciences.

[28] Fan Fa-ti, "Redrawing the Map: Science in Twentieth-Century China," *Isis* 98 (2007): 524–38, on 526. For other important studies of Western science in early twentieth-century China and how these problems were understood and addressed, see Benjamin Elman, *On Their Own Terms: Science in China, 1550–1900* (Cambridge Mass., 2005); Fan Fa-ti, "Science, State, and Citizens: Notes from Another Shore," *Osiris* 27 (2012): 227–49; Grace Shen, "Murky Waters: Thoughts on Desire, Utility, and the 'Sea of Modern Science,'" *Isis* 98 (2007): 584–96; Wang Zuoyue, "Saving China through Science: The Science Society of China, Scientific Nationalism, and Civil Society in Republican China," *Osiris* 17 (2002): 291–322; and Wang Zuoyue, "Science and the State in Modern China," *Isis* 98 (2007): 558–70.

[29] Much of Needham's early work focused on questions of why the Scientific Revolution in Europe did not also take place in China. See Joseph Needham and Wang Ling, *Science and Civilization in China*, vol. 1, *Introductory Orientations* (Cambridge, UK, 1954); Needham and Wang, *Science and Civilisation in China*, vol. 2, *History of Scientific Thought* (Cambridge, UK, 1956); Needham and Wang, *Science and Civilisation in China*, vol. 3, *Mathematics and the Sciences of the Heavens and Earth* (Cambridge, UK, 1959); Needham, *The Grand Titration: Science and Society in East and West* (Boston, Mass., 1979). Needham's monumental encyclopedic series *Science and Civilisation in China* (1954–) is an ongoing project of the Needham Research Institute, currently under the direction of the archeometallurgist Mei Jianjun 梅建军.

[30] Nathan Sivin, "Why the Scientific Revolution Did Not Take Place in China—Or Didn't It?" *Chinese Science* 5 (1982): 45–66; Robin Yates, "Science and Technology," in *Encyclopedia of Chinese Philosophy*, ed. A. S. Cua (New York, N.Y., 2003), 657–63.

[31] Sivin classes the three quantitative sciences as mathematics (*suan* 算), mathematical harmonics (*lülü* 律呂), and mathematical astronomy (*lifa* 歷法). The three qualitative sciences were astronomy (*tianwen* 天文), medicine (*yi* 醫), and siting (*fengshui* 風水). *Tianwen* included celestial and meteorological observation and astrology. Medicine also included materia medica (*bencao* 本草), and internal (*neidan* 內丹) and external (*waidan* 外丹) alchemy. For further discussion see Nathan Sivin, "Science and Medicine in Imperial China—The State of the Field," *J. Asian Stud.* 47 (1988): 41–90; Sivin, "Science and Medicine in Chinese History," in *Heritage of China: Contemporary Perspectives on Chinese Civilization*, ed. Paul S. Ropp (Berkeley, Calif., 1990), 164–96; Sivin, "State Cosmos and Body in the Last Three Centuries B.C.E.," *Harvard J. Asia. Stud.* 1 (1995): 5–37; and Lisa Raphals, "Science and Chinese Philosophy," in *The Stanford Encyclopedia of Philosophy Archive*, ed. Edward N. Zalta, spring 2017 (entry first published April 28, 2015), https://plato.stanford.edu/archives/spr2017/entries/chinese-phil-science/.

For example, in mathematics, they include studies of early Chinese notions of demonstration and proof (Karine Chemla's work is an example), as well as the translation and study of complex Chinese mathematical works, including texts excavated from tombs.[32] In astronomy, they include studies of archeoastronomy and the unparalleled record of Chinese astronomical records and observations.[33] And in medicine, they include studies of nurturing life and longevity practices; Chinese botany and materia medica; the history of medicine; and translation of key texts, both classical and contemporary.[34] The rich history of indigenous Chinese sciences puts us in a position to ask a different set of questions, and to imagine an alternative past. What would Chinese SF have looked like if writers had taken the indigenous sciences of their own tradition seriously?

TRAVEL IN SPACE AND TIME

Space and time travel are classic motifs of Western SF. They first appear in China in the great Daoist fourth-century (BCE) classic, the *Zhuangzi*. One passage describes a "spirit person" who appears to practice diet and breath regulation—"He does not eat the five grains but sucks in the wind and drinks dew." These practices are powerful: "He roams beyond the world" (literally, "the four seas"), and when he concentrates his spirit, it protects living things from plagues and makes the grain ripen.[35] Time travel also features, and is expressed as a paradox:

> For there to be a "right" and "wrong" [or alternately, "it's so; it's not so"] before they are formed in the heart-mind would be to go to Yüe today and arrive yesterday.[36]

This time paradox is introduced as an analogy to a category of error, rather than as a description of actual time travel. The same paradox reappears in a list of paradoxes attributed to Zhuangzi's friend (and logical sparring partner) Hui Shi: "I go to Yue

[32] Andrea Bréard, "How to Quantify the Value of Domino Combinations: Divination and Shifting Rationalities in Late Imperial China," in *Coping with the Future: Theories and Practices of Divination in East Asia*, ed. M. Lackner and E.-M. Guggenmoos (Leiden, Neth., 2018), 499–529; Karine Chemla, ed., *The History of Mathematical Proof in Ancient Traditions* (Cambridge, UK, 2012); Chemla and Guo Shushun, *Les neuf chapitres: Le classique mathématique de la Chine ancienne et ses commentaires* (Paris, 2004); Christopher Cullen, *Astronomy and Mathematics in Ancient China: The Zhou bi suan jing* (Cambridge, UK, 1996); Joseph Dauben, "Suan shu shu. A book on Numbers and Computations," translated from the Chinese and with commentary by Joseph W. Dauben, *Arch. Hist. Exact Sci.* 62 (2008): 91–178.

[33] See Needham and Wang, *Science and Civilisation*, vol. 3 (cit. n. 29); and David Pankenier, *Astrology and Cosmology in Early China: Conforming Earth to Heaven* (Cambridge, UK, 2013)

[34] For longevity and nurturing life, see Donald Harper, *Early Chinese Medical Literature* (London, 1998); Vivienne Lo and Christopher Cullen, *Medieval Chinese Medicine: The Dunhuang Medical Manuscripts* (London, 2005). For botany and materia medica see Georges Métaillié, *Science and Civilisation in China*, vol. 6, *Biology and Biological Technology*, pt. 4, *Traditional Botany: An Ethnobotanical Approach* (Cambridge, UK, 2015); Joseph Needham, Ho Ping-Yu, and Lu Gwei-djen, *Science and Civilisation in China*, vol. 5, *Chemistry and Chemical Technology*, pt. 3, *Spagyrical Discovery and Invention: Historical Survey, from Cinnabar Elixirs to Synthetic Insulin* (Cambridge, UK, 1976); and Paul U. Unschuld, *Medicine in China: A History of Pharmaceutics* (Berkeley, Calif., 1986).

[35] *Zhuangzi jishi* 莊子集釋 [Collected explanations of the Zhuangzi] (Beijing, 1961), 1:28; compare A. C. Graham, *Chuang tzu: The Inner Chapters* (London, 1981), 46. Translations from the *Zhuangzi* are my own, but are indebted to Graham's translation.

[36] 未成乎心而有是非，是今日適越而昔至也。是以無有為有, *Zhuangzi jishi* 2:56; compare Graham, *Inner Chapters*, 51 (both cit. n. 35).

today yet arrive yesterday."[37] Here the travel to Yue (contemporary Vietnam) is posed as a paradox, and the idea of time travel is clearly articulated. Time travel plots feature in some new wave Chinese SF, although very infrequently in comparison to the West, where time travel is an early and prominent theme.[38] The genre in which time travel comes into its own for China is, in fact, the historical television drama. The first show of this genre, Shen Hua 神話 (*The Myth*, 2010), was based on the 2005 Jackie Chan movie of the same name.[39] Time travel plots became so popular that the State Administration of Radio, Film, and Television eventually banned them on the grounds that they "treated [*sic*] serious history in a frivolous way."[40] But as *New Yorker* columnist Richard Brody pointed out, Chinese time-travel plots offer escape—escape from contemporary China to the China of an earlier and perhaps preferable time.[41]

TRANSFORMATION STORIES

If time travel can be found in modern historical Chinese drama, the idea of one species or sex transforming into another also emerges in an unexpected genre. This motif is found in several different early stories, which range from accounts of human origins, the genre of *zhiguai*, and Buddhist reincarnation stories. Early twentieth-century Chinese interest in theories of evolution also prompted a debate on "spontaneous generation." Hu Shih 胡適 (1891–1962), one of the great scholar-diplomats of twentieth-century China, and a student of John Dewey at Columbia University, identified a narrative from the *Zhuangzi* as an example of a possible early theory of biological evolution. In this elaborate account of how species transform into one another under the influences of different environments, organisms start from "minute beginnings," and when they reach the boundary of water and land they become algae. They transform again when they germinate in elevated places, and when they reach fertilized soil they develop into plants. Here more transformations occur; roots become grubs, and their leaves become butterflies, which in turn transform into insects, which transform into birds. A further series of transformations between plants and insects leads to the green *ning* 寧 plant. It produces panthers, panthers produce horses, horses produce humans, and humans return to minute beginnings.[42] Hu argued that theories of *qi* introduce issues of potentiality and actuality; if all organisms arise from some kind of elemental and generative *qi*, it must contain the potential for all later forms, providing the conceptual groundwork for a theory of evolution. Hu used this *Zhuangzi* passage to argue

[37] 今日適越而昔來, *Zhuangzi jishi* 33:1102; compare Graham, *Inner Chapters*, 283 (both cit. n. 35).

[38] Qian Lifang 钱莉芳, *Tian yi* 天意 [The will of heaven] (Chengdu, 2004); and Qian, *Tian ming* 天命 [The command of heaven] (Changchun, 2011). I am grateful to my PhD student Fan Yilun for calling these works to my attention.

[39] *The Myth* was produced in Hong Kong in 2005, directed by Stanley Tong, and starred Jackie Chan, Tony Leung Ka-fai, Kim Hee-sun, and Mallika Sherawat (Culver City, Calif., Sony Pictures Home Entertainment, 2007), DVD.

[40] See Robert G. Price, *Space to Create in Chinese Science Fiction* (Kaarst, Ger., 2017), 70.

[41] Richard Brody, "China Bans Time Travel," *New Yorker*, 8 April 2011, http://www.newyorker.com/culture/richard-brody/china-bans-time-travel.

[42] *Zhuangzi jishi* 18:624–5; compare Graham, *Inner chapters*, 21–2 (both cit. n. 35); and Hu Shih, "The Development of the Logical Method in Ancient China" (PhD diss., Columbia University, 1917), 135–6, also published in Shanghai, 1922.

that Warring States (475–221 BCE) thinkers recognized organic continuity throughout the gradations of the animate world.[43]

Other types of transformation stories appear in the indigenous genre, *zhiguai* 志怪, "tales of the strange" or "records of anomalies." These accounts became prominent toward the end of the Han, Six Dynasties, and Tang periods (200–900 CE), and are classified by Chinese sources as history, not fiction.[44] They extend the boundaries of the human by portraying both humans and other animals as part of a continuous moral community, depicting transformation between humans, animals, plants, and spirits, in which animals in particular are capable of reward and retribution. They include narratives of reincarnation and human interactions with gods, ghosts, and spirits; but many are focused on crossing boundaries of both species and sex.[45] Some describe partial transformations, such as an animal growing extra or inappropriate body parts, while others describe transformations between species. Still others recount cross-species matings and anomalous births, such as one species giving birth to another, or babies born with multiple heads or feet. Other transformations involve gender.[46] Especially interesting are the highly normative accounts of reward and retribution between humans and animals, where animals behave according to the standards of human morality, sometimes better than humans do.

Again, these stories do not relate easily to Western categories of SF. *Zhiguai* was one of several genres that dealt with the supernatural in late imperial China. The Ming dynasty bibliographer Hu Yinglin 胡應璘 (1551–1602) rethought the traditional genre of "fiction," literally "small talk" (*xiaoshuo* 小說), which he considered too vague and reworked into six distinct genres. The first two deal with the supernatural—anomaly accounts (*zhiguai*) and "prose romances of the marvellous" (*chuanqi* 傳奇), a genre that dates from the Tang dynasty.[47] Several influential figures link martial arts fiction (*wuxia*

[43] Hu, "Logical Method" (cit. n. 42), 121–2; compare Hu Shi 胡適, "Xian Qin zhuzi jinhualun" 先秦諸子進化論 [Theories of evolution in the philosophers before the Qin period], *Kao xue* 考學 [Study of antiquity] 3, no. 1 (1917): 19–41. This point is explicitly echoed in Joseph Needham and Donald Leslie, "Ancient and Mediaeval Chinese Thought on Evolution," *Bulletin of the National Institute of Science of India* 7 (1955): 1–18, which quotes Hu. For discussion of debates on spontaneous generation in early twentieth-century China, see Fan Fa-ti, "The Controversy over Spontaneous Generation in Republican China: Science, Culture, and Politics," in *Routes of Culture and Science in Modern China*, ed. Benjamin Elman and Jing Tsu (Leiden, Neth., 2014), 209–44.

[44] For introductions to *zhiguai* and anomaly literature, see Robert Ford Campany, *Strange Writing: Anomaly Accounts in Early Medieval China* (Albany, N.Y., 1996); and Hu Ying, "Records of Anomalies," in *The Columbia History of Chinese Literature*, ed. Victor H. Mair (New York, N.Y., 2001), 542–54. For English translations, see Karl S. Y. Kao, ed., *Classical Chinese Tales of the Supernatural and the Fantastic: Selections from the Third to the Tenth Century* (Bloomington, Ind., 1985). For comparison with science fiction, see Fontaine Lien "The Intrusion Story and Lessons from the Fantastic: A Cross-Cultural Study" (PhD diss., Univ. of California, Riverside, 2014); Liu Mingming, "Theory of the Strange towards the Establishment of Zhiguai as a Genre" (PhD diss., Univ. of California, Riverside, 2015); and Lisa Raphals, "The Limits of '*Humanity*' in Comparative Perspective: *Cordwainer Smith* and the Soushenji," in *World Weavers: Globalization, Science Fiction, and the Cybernetic Revolution*, ed. Wong Kin Yuen, Gary Westfahl, and Amy Kit-sze Chan (Hong Kong, 2005), 143–56.

[45] Campany, *Strange Writing* (cit. n. 44), 52–79.

[46] The most important text that includes gender transformation accounts is the fourth- century *Soushen ji* 搜神記 [Records of an inquest into the spirit realm] by Gan Bao 干寶 (335–49 CE), in *Congshu jicheng chubian* 叢書集成初編 [Complete collection of books from various collectanea], vols. 2692–2694, ed. Wang Yunwu 王雲五 (Shanghai: Shangwu yinshuguan, 1935–40). For details of these story types, see Raphals, "The Limits" (cit. n. 44).

[47] The other four genres are anecdotes (*za lü* 雜錄), miscellaneous notes (*cong tan* 叢談), researches (*bian ding* 辯訂), and moral admonitions (*zhen gui* 箴規). See Lu Xun 魯迅 (Zhou Shuren 周樹人), *Zhongguo xiaoshuo shilüe* 中國小說史略 [A brief history of Chinese fiction] (1930; repr., Shanghai 2001), 4; and Lu Xun, A *Brief History of Chinese Fiction*, trans. Gladys Yang and Yang Xianyi (Beijing, 1959), 5.

xiaoshuo 武俠小說) with *chuanqi*; these include Jin Yong 金庸 (Louis Cha), author of many of the most influential contemporary martial arts novels, which form the basis of many martial arts films.[48] What is important for the present discussion is the strong distinction between anomaly accounts and prose romances. This distinction occurs in several ways. First, contemporary martial arts fiction, such as the writings of Jin Yong, privileges realism, and has tended to eclipse nonrealist narratives derived from the traditional genres of *zhiguai* and *chuanqi*. Second, contemporary martial arts fiction also uses vernacular language (*baihua* 百花), which further distances it from the literary language of the older genres. Li Tuo suggests that these two phenomena are related. He argues that nonrealist genres dominated Chinese premodern literary history in *zhiguai*, *chuanqi*, Yuan drama, and Ming novels, and asks whether the Europeanization of the modern Chinese language has inexorably connected modern Chinese narratives and Western models of representation.[49] The point for purposes of this discussion is that modern Chinese narratives conspicuously include science fiction, and Chinese SF inherently includes the nonrealism of *zhiguai* and *chuanqi.* We can nuance the distinction further by arguing that realist martial arts fiction draws on *chuanqi*, and SF draws on *zhiguai*.

In contrast to the theme of space and time travel, both late Qing dynasty and contemporary new wave science fiction draw on *zhiguai*. Human-animal hybrids appear in the cat-headed citizens of the novel by Lao She, *Mao cheng ji* 貓城記 (Cat country).[50] Another important SF element that first appears in *zhiguai* are some of the important seeds of utopian literature in China. Several *zhiguai* stories involve nonexistent utopias or dystopias. For example, one story in *Liaozhai zhiyi* 聊齋誌異 (Strange tales from a Chinese studio), by Pu Songling 蒲松齡 (1640–1715), opposes a dystopian "City of Ogres" to an idealized "City under the Ocean."[51] Another example is the novel by Wu Jianren 吳趼人 (1866–1910), *Xin shitou ji* 新石頭記, 1908 (New story of the stone), which is one of the great novels of late Qing China—a utopian account of the continuing travels of Jia Baoyu, the main character of the original *Shitou ji* 石頭記 (Story of the stone), after the end of the original novel.[52] Baoyu encounters a "Civilized

[48] Cao Zhengwen 曹正文, *Xia ke xing: Zong tan Zhongguo wuxia* 俠客行: 縱談中國武俠 [Chivalry: On the Chinese knight-errant] (Taipei, 1998), 45–51; Fei Yong 费勇 et al., *Jin Yong chuanqi* 金庸传奇 [*Chuanqi* in Jin Yong's stories] (Guangzhou, 1995). Jin Yong's martial arts novel, *Xia ke xing* 俠客行 [Ode to gallantry], ed. Zhou Yushun 周育顺, 4 vols. (Tianjin, 2010), includes a group of traditional woodcuts called *Sasan jian ke tu* 卅三劍客圖 [Portraits of thirty-three swordsmen]. The portraits include four heroes from Tang *chuanqi*: no. 2, *Qiuran Ke Zhuan* 虬髯客傳) [Romance of the curly-bearded stranger]; no. 9, *Nie Yinniang* 聶隱娘; no. 11, *Hong Xian* 紅線 [The red-thread maid]; and no. 13, *Qunlun Nü* 崑崙奴 [The Qunlun maidservant].

[49] Li Tuo, "The Language of Jin Yong's Writing: A New Direction in the Development of Modern Chinese," in *The Jin Yong Phenomenon: Chinese Martial Arts Fiction and Modern Chinese Literary History*, ed. Ann Huss and Jianmei Liu (Youngstown, N.Y., 2007), 39–54, esp. 42 and 45; see also Huss and Liu, "Introduction," in *Jin Yong Phenomenon*, 1–22, on 15.

[50] See Lao She 老舍 (Shu Qingchun 舒慶春), *Maocheng ji* 貓城記 [The city of cats] (1932; repr., Hong Kong: Zhongsheng shuju, 1963), translated by William A. Lyell as *Cat Country* (Columbus, Ohio, 1970). For a discussion of this book, see Lisa Raphals, "Alterity and Alien Contact in Lao She's Martian Dystopia, Cat Country," in "Chinese Science Fiction," special issue, *Sci. Fict. Studies* 40 (2013): 73–85. Anomaly accounts also inform martial arts fiction, which has also retained ongoing popularity in both text and film.

[51] Pu Songling, "City of Ogres and the City under the Ocean" [Luosha hai shi 羅刹海市], in *Strange Tales from a Chinese Studio* [*Liaozhai zhiyi* 聊齋誌異], trans. Herbert Allan Giles, 2 vols. (London, 1880), 2:1–16. Giles translates the story title as "The Lo-cha Country and the Sea Market."

[52] Also known as the *Dream of the Red Chamber* [Honglou meng 紅樓夢], the *Story of the Stone*, by Cao Xueqin 曹雪芹 (1791), is considered one of the four classic novels of China.

Realm" (*wenming jingjie* 文明境界) with futuristic technology, including medical lenses that image bone and soft tissue, underground trains, underwater wireless telephones, and submarines that fire "silent electric cannons" (*wusheng dianpao* 無聲電炮). Yet its vision of moral governance is Confucian—its ruler is the benevolent monarch Dongfang Qiang 東方強 (Strength of the East). This realm's districts are named for traditional Confucian virtues, including compassion (*ci* 慈), filiality (*xiao* 孝), loyalty (*zhong* 忠), benevolence (*ren* 仁), and trustworthiness (*xin* 信).[53]

MODES OF IMMORTALITY

Extreme longevity and immortality are staples of Western SF, and unsurprisingly, the *Encyclopedia of Science Fiction* describes immortality as one of the basic motifs of speculative thought.[54] Chinese medical and scientific traditions have been concerned with a spectrum ranging from health to longevity, and including—in some cases—attempts at literal, physical immortality, for some two millennia. Two particular areas are important here. One is nurturing life (*yang sheng* 養生), an interest of common ground for philosophers and practitioners of medical arts, which encompassed a range of practices for preserving one's person, self, or essential nature. The other are accounts of Daoist adepts who were also physicians.

The term *yang sheng* first appears in the *Zhuangzi*, which makes fun of a tradition of exercise for therapy and health known as *daoyin* 導引 (pulling and guiding). The *Zhuangzi* contrasts real sages to *yang sheng* practitioners who "blow out, breathe in, old out, new in." Caring only for longevity, these are the practitioners of "guide-and-pull" (*dao yin*) and "nourish the body" (*yang xing* 養形).[55] In the Han dynasty, "nurturing life" techniques became a major concern of the so-called Recipe Masters (*fang shi* 方士) of the Han court. This group included physicians, compounders of elixirs of immortality, and magicians whose spells and recipes involved curses, love charms, and poisons. *Fang* texts on nurturing life include methods for absorbing and circulating *qi* in the body, for example, and breathing and meditation exercises, diet, drugs, and sexual techniques. Medical texts excavated from Han dynasty tombs also document these practices. A corpus of medical manuscripts excavated from Mawangdui 馬王堆 (Changsha, Hubei, 169 BCE) includes six medical manuscripts specifically concerned with nurturing life.[56] One, "Drawings of guiding and pulling" (*Daoyin tu* 導引圖), is a series of forty-four drawings of human figures performing exercises. Some are described in another excavated text, the "Pulling book" (*Yin shu* 引書), ex-

[53] See Wang Dun, "The Late Qing's Other Utopias" (cit. n. 3), 38. *The New Story of the Stone* was initially serialized under the pen name "Lao Shaonian" 老少年 [Old youth] in the newspaper *Nanfang Bao* 南方報 in 1905 (July 21 to November 29) as *shehui xiaoshuo* 社會小說 [Social fiction]. It was published as an illustrated book in 1908 by Shanghai Reform Fiction Press [Shanghai gailiang xiaoshuo she 上海改良小說社] under the pen name Wofo Shanren 我佛山人, and labeled as *lixiang xiaoshuo* 理想小說 [fiction of ideals].

[54] Brian M. Stableford and David Langford, "Immortality," in *The Encyclopedia of Science Fiction*, ed. John Clute et al., 3d ed. available online, Gollancz, 19 January 2019, http://www.sf-encyclopedia.com/entry/immortality. For the immortality theme in SF, see George Edgar Slusser, Eric S. Rabkin, and Gary Westfahl, *Immortal Engines: Life Extension and Immortality in Science Fiction and Fantasy* (Athens, Ga., 1996).

[55] *Zhuangzi jishi* (cit. n. 35), 15:535.

[56] For a translation of these medical texts, see Harper, *Early Chinese* (cit. n. 34).

cavated from a tomb at Zhangjiashan 張家山 (Jiangling, Hubei, tomb no. 247), which describes exercises modeled on the movements of animals. The Mawangdui medical texts also include a "recipe" (*fang* 方) text; this is "Wushier bing fang" 五十二病方 (Recipes for fifty-two ailments). Other recipe texts have been excavated from tombs at Zhangjiashan and Wuwei 武威 (Gansu, first century CE). The "*yang sheng* culture" of these texts emphasized control over physiological and mental processes, both understood as self-cultivation, through the transformation of *qi*.[57]

To summarize, most of these texts can be described as part of a *yang sheng* culture, which offered and emphasized control over physiological processes of the body and mind that were understood as transformations of *qi*. These technical arts form a continuum with philosophy because their transformations were understood as self-cultivation in the coterminous senses of moral excellence, health, and longevity (rather than medical pathology), and physiological transformation through the manipulation of *qi*. Such views informed Warring States accounts of dietary practices, exercise regimens, breath meditation, sexual cultivation techniques, and other technical traditions associated with *fang shi*.

Longevity practices were closely linked with traditional Chinese medicine. Three important early physicians were also Daoist scholars who were concerned with longevity practices. Ge Hong 葛洪 (283–343 or 363 CE) was the first of several explicitly Daoist physicians to write about the practice of alchemy. He initially studied the Confucian classics but became interested in immortality techniques. Ge Hong gave up a military career and political life in order to devote himself to immortality practices, and eventually settled at Mt. Luofu 羅浮 in Guangxi where he studied alchemy until his death.[58] He was the first to systematically describe the history and theory of Daoist immortality techniques such as "preserving unity" (*shou yi* 守一), circulating energy (*xing qi* 行氣), "guiding and pulling" (*dao yin*), and sexual longevity techniques (*fang zhong* 房中).[59] As an alchemist, he experimented with drugs and minerals.[60] Tao Hongjing 陶弘景 (456–536), the effective founder of Shangqing 上清 (Highest Clarity) Daoism, held several court positions under the Liu Song and Qi dy-

[57] There is also evidence for *yang sheng* in lists of lost book titles. The *Hanshu* Bibliographic Treatise includes titles of lost medical works on nurturing life, health, and longevity, such as *Shen Nong Huangdi shi jin* 神農黃帝食禁 [Food prohibitions of Shen Nong and Huangdi], *Huangdi sanwang yangyang fang* 黃帝三王養陽方 [Recipes of Huangdi and the three sage-kings for nurturing Yang], and the *Huangdi zazi bu yin* 黃帝雜子步引 [Stepping and pulling book of Huangdi and other masters]. See *Hanshu* 漢書 [Standard history of the Han dynasty] (Beijing, 1962), 30:1778–79. For further information on this material, see Lisa Raphals, "Chinese Philosophy and Chinese Medicine," in Zalta, *Stanford Encyclopedia* (cit. n. 31) (entry first published 28 April 2005), https://plato.stanford.edu/archives/spr2017/entries/chinese-phil-medicine/.

[58] See J. Sailey, *The Master Who Embraces Simplicity: A Study of the Philosopher Ko Hung, A.D. 283–343* (San Francisco, Calif. 1978), 242–72 and 277–8; and J. R. Ware, *Alchemy, Medicine and Religion in the China of A.D. 320: The Nei P'ien of Ko Hung* (Cambridge, Mass., 1996), 6–21.

[59] See Lai Chi-tim, "Ko Hung's Discourse of Hsien-Immortality: A Taoist Configuration of an Alternate Ideal Self-Identity," *Numen* 45 (1998): 183–220, esp. 203–4.

[60] The "Jin dan" 金丹 [Gold elixir] and "Huang bai" 黃白 [Yellow and white] chapters of the *Baopuzi neipian* 抱朴子內篇 [Book of the master who embraces simplicity: Inner chapters] (ca. 320 CE), survey the history of alchemy and describe in detail a method for "alloying cinnabar," quoting from ancient recipes and "cinnabar methods." The "Xian yao" 仙藥 [Immortal herbs] chapter gives information on medical herbs. See Gao Riguang 高日光, "Ge Hong" 葛洪, in *Zhuzi baijia da cidian* 諸子百家大辭典 [Dictionary of philosophers], ed. Feng Kezheng 馮克正 and Fu Qingsheng 傅慶升 (Shenyang, 1996), 87; and Qing Xitai 卿希泰, *Zhongguo daojiao* 中國道教 [Chinese Daoism] (Shanghai, 1994), 1:236–38.

nasties. He was educated in both early Daoist traditions and the works of Ge Hong, and was actively engaged in mostly unsuccessful attempts to produce alchemical elixirs.[61] Sun Simiao 孫思邈 (581–682), the author of two major medical works that are still consulted and a work on Daoist longevity prescriptions, is still worshiped as the "Medicine Buddha" and "King of Medicine" (*yao wang* 藥王).[62] He also wrote several works on Daoist alchemy, which he is believed to have practiced (he died at the age of 101). *Taiqing Danjing Yaojue* 太清丹經要訣 (Essential instructions from the Scripture of the Elixirs of Great Clarity), ca. 640, is an anthology of some thirty selected methods.[63] Sun Simiao's *Sheyang lun* 攝養論 (Essay on preserving and nourishing life) gives monthly advice on food, sleeping habits, and good and ill auspices for various types of action.[64] In summary, Sun Simiao, like Ge Hong and Tao Hongjing, combines explicit interests in Daoist philosophy, medicine, materia medica, and alchemy. All these authors focused, to varying degrees, on longevity and immortality.

But despite its importance in philosophy and medicine, immortality is not a major trope in Chinese SF, with the single exception of Xu Nianci's *New Tales of Mr. Braggadocio* (*Xin faluo xiansheng tan* 新法螺先生譚), the story of a man whose body and soul are separated in a typhoon.[65] His body sinks toward the center of the earth, and his soul travels to Mercury and Venus.[66] On Mercury, it watches the transplantation of brains as a method of rejuvenation. (It also discovers on Venus that rudimentary plants and animals appear at the same time, refuting biologists' claims that plants preceded animals in evolution.) Immortality appears when the protagonist's body, hav-

[61] Michel Strickman, "On the Alchemy of T'ao Hung-ching," in *Facets of Taoism: Essays in Chinese Religion*, ed. Holmes Welch and Anna Seidel (New Haven, Conn., 1979), 123–92, on 152.

[62] Sun Simiao's *Qian jin fang* 千金方 [Prescriptions worth a thousand in gold] (652 CE) was a comprehensive treatise on the practice of medicine, including herbal remedies, the history of medicine, and the first Chinese treatise on medical ethics. The supplement (*Qian jin yi fang* 千金翼方, 682 CE) records some thirty years of Sun's own experience, with special interest in folk remedies.

[63] For a translation see Nathan Sivin, *Chinese Alchemy: Preliminary Studies* (Cambridge Mass., 1968), 262–4.

[64] Fabrizio Predagio, ed., *The Encyclopedia of Daoism*, 2 vols. (London, 2013), 2:928.

[65] Xu Nianci 徐念慈, *Xin faluo xiansheng tan* 新法螺先生譚 [New tales of Mr. Braggadocio] (Shanghai, 1905); reprinted in *Zhongguo jindai wenxue daxi 1840–1929: xiaoshuoji* 中國近代文學大系 1840–1929: 小說集 [A treasury of modern Chinese literature 1840–1929: fiction collection], ed. Wu Zuxiang 吳組緗 et al., vol. 6 (Shanghai, 1991), 323–43, on 325; Xu Nianci's *New Tales of Mr. Braggadocio* was translated by Nathaniel Isaacson in *Renditions* 77/78 (2012): 15–38; see this publication for bibliographic details on additional publications of *New Tales* and stories of Mr. Braggadocio preceding it. It was also published under the pseudonym Donghai Juewo 東海覺我 (Awakened One from the Eastern Sea), and included in *The New Braggadocio* [Xin faluo 新法螺], by Fiction Forest Press [Xiaoshuo lin she 小說林社] in Shanghai in 1905. A founder of the press, Xu was one of the editors of the journal *Xiaoshuo lin* 小說林 [Forest of novels]. The novel is a sequel to the novel by Iwaya Sazanami 岩谷小波 (1870–1933), *Tales of Mr. Braggadocio* (Hora Sensei 法螺先生), translated into Chinese by Bao Tianxiao 包天笑 (1876–1973) as *Faluo xiansheng tan* 法螺先生譚 [Tales of Mr. Braggadocio] and *Faluo xiansheng xu tan* 法螺先生續譚 [Continued tales of Mr. Braggadocio]. For details see Isaacson, "New Tales."

[66] Chinese has no word that is equivalent to the English "soul." Two terms in use in popular religion and medicine refer to a "cloud soul" [*hun* 魂] and a "white soul" [*po* 魄]. For "soul," Xu Nianci uses the unusual term *linghun* 靈魂, which he explains thus: "I have no word for it, but it would be referred to in the common language of religion as the 'soul.'" Xu uses the terms "soul-body" [*linghun zhi shen* 靈魂之身] and "corporeal-body" [*quqiao zhi shen* 余軀殼之身]. He avoids the strong mind-body dualism of some Western traditions and apparent mind-body holism of traditional China by clearly referring to the *linghun* soul as a kind of body [*shen* 身]. For the semantic field of Chinese words for mind, soul, and spirit, and for discussion of issues of mind-body dualism in China, see Lisa Raphals, "Body and Mind in Early China and Greece," *Journal of Cognitive Historiography* 2 (2015): 132–82.

ing arrived at the center of the earth, encounters a quasi-immortal man.[67] The story imitates—and quotes—the *Zhuangzi* (discussed above), but immortality and rejuvenation are passing plot elements and not the central concern of the text. Immortality themes sometimes appear in new wave writing, but in new guises that are still closely linked to science—for example, in Fei Dao's "The Demon's Head," where a scientist preserves the brain of a general assassinated conveniently close to a neurological research institute. But even here, his "immortality" arises from neuroscience, and not from immortality practices.[68]

CONCLUSION

In conclusion, we are now in a position to answer some of the questions with which we began. First, what counts as Chinese SF? Second, what "science" did it draw on? Third, how, if at all, can we connect a Chinese SF born from scientific modernity with a possible alternate Chinese SF that arises from deeper Chinese traditions of natural philosophy?

In all its forms, from its origins in the late nineteenth century, at least until the new wave, Chinese SF—*kehuan xiaoshuo*—has been a modernist phenomenon that emerged out of interaction with the West; and it seems clear that the original Qing dynasty readership understood it this way. Nor was the Maoist version of Chinese SF any less indebted to Western science and technology, although for slightly different reasons. That situation at least partially continues under the new wave, though some authors have begun to explore more widely. As for the second question, the science that Chinese SF drew from was clearly both the "science" (a unified notion of science) and particular sciences of the modern West. So, Chinese SF has been inextricably linked to modern science in ways that largely preclude the indigenous sciences. And there are further demarcations of genre, which contrast the "Chinese SF" (*kehuan*) based on Western science to "fantasy" (*qihuan*). *Qihuan* includes both Chinese supernatural (*xuanhuan*) and Western magical fiction (*mohuan*). *Xuanhuan* might appear to accommodate the traditional Chinese sciences, but it excludes Daoist immortality stories (*xiuzhe*n 修真), an important part of the landscape of the traditional Chinese sciences. And both *kehuan* and *qihuan* exclude time travel stories (*chuanyue* 穿越).[69] Some of these issues parallel arguments about the boundaries between SF, fantasy, and horror in Western genres. But there seems to be no easy mapping between Chinese and Western SF and the other genres with which they coexist.

These problems bring us to the third question of how, if at all, a Chinese SF born from scientific modernity might connect to a Chinese SF rooted in Chinese traditions of natural philosophy. One possibility is that at least some new wave authors will reject the premises of early Chinese SF from the late Qing and early twentieth century, and extend their reach beyond its concerns. Here an interesting divide arises between the very different training of contemporary Chinese "hard SF" and new wave writers.

[67] Wu Dingbo, "Chinese Science Fiction," in *Handbook of Chinese Popular Culture*, ed. Wu Dingbo and Patrick D. Murphy (Westport Conn., 1994), 257–78, on 257–9, esp. 260.

[68] Fei Dao, "The Demon's Head" [*Mogui de Toulu* 魔鬼的头颅], trans. David Hull, *Renditions* 77/78 (2012): 263–71.

[69] For these distinctions, see Regina Kanyu Wang, "A Brief Introduction to Chinese Science Fiction," *MITHILA Journal of International Science Fiction & Fantasy* 9 (2016), http://mithilareview.com/wang_11_16/.

The most prominent hard SF writers, Liu Cixin and Wang Jinkang, were trained as engineers—hydroelectric and civil, respectively. By contrast, several new wave writers hold advanced degrees and university positions in literature, and their interests open the prospect of themes from philosophical writing, including that of time travel, transformation, and Daoist immortality motifs.

But neither group has had obvious exposure to themes from the indigenous Chinese sciences, so it is perhaps not surprising that explicit themes from these areas do not appear. Nor do debates about what counts as Chinese SF help clarify the absence of the indigenous Chinese sciences. Some scholars try to trace Chinese SF back to *zhiguai*, while others date it to the 1930s, 1950s, or even the post-Mao period. An interesting middle ground is offered by Isaacson, who dates it to the late Qing, arguing that it arose in response to an epistemological crisis due to subjugation to European powers and the translation into Chinese of newly emergent Western science fiction.[70] He also argues that an adequate account of the history of SF in China requires an understanding of its relationship to earlier genres. His approach helps explain the absence of the indigenous sciences, which could have been lost under pressure of the two developments noted above that were fundamentally responses to the West. But that situation may change as the agenda of Chinese SF changes.

My goal here is not to argue for *zhiguai* or *chuanqi* as the origins of Chinese SF, or to claim that the indigenous sciences inform Chinese SF, which they clearly do not. Rather, Chinese indigenous natural philosophy and sciences suggest an alternative literary path that could happen, and perhaps already is happening. In conclusion, relations between Chinese literary genres, their indigenous scientific traditions, the introduction of Western science, and the introduction and development of science fiction all form a complex network that warrants further study and should not be oversimplified.

[70] For discussion of translations of Western science fiction into Chinese in the early twentieth century, see Jiang, "Translation" (cit. n. 7); and Isaacson, *Celestial Empire* (cit. n. 3), 2, 26, 146–80.

Appendix: A Brief Bibliography of Contemporary Chinese SF

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