

Knowledge Circulation in Russia / the Soviet Union and China in the 20th Century

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ABSTRACTS

Dieses Heft widmet sich der Geschichte der Wissenszirkulation in Russland bzw. der Sowjetunion und China im 20. Jahrhundert. Am Beispiel der Produktion von Wissen in den Bereichen Biologie, Medizin und Naturwissenschaften in beiden Imperien argumentieren wir, dass dessen Übersetzung, Aufnahme, Weitergabe und Verbreitung nur dann richtig beschrieben werden kann, wenn berücksichtigt wird, dass Entwicklung und Verbreitung von Wissenschaft und Wissen von lokalen Umständen abhängt. In den einzelnen Beiträgen wird die Rolle von Vermittlern bei der Weitergabe von Wissen über sprachliche, ideologische und kulturelle Grenzen hinweg erörtert. In transnationalen Kontexten ausgebildet, kompetent in mehreren Sprachen und in globale Kommunikationsnetze eingebunden, standen diese Vermittler bei ihrer Arbeit vor erheblichen Herausforderungen, die sich aus zwei großen Spannungsfeldern ergaben: der Spannung zwischen „westlichem“ Input und nationaler Anpassung sowie zwischen „bourgeoiser“ Wissensproduktion und sozialistischen Ideen von Wissenschaft und Wissen. Es sind diese Spannungen, die im Fokus der vier Artikel stehen.

This special issue is dedicated to the history of knowledge circulation in Russia/Soviet Union and China in the 20th century. Focusing on scientific knowledge production in biology, medicine, and natural sciences in both empires we argue that their translation, reception, transfer, and dissemination can only be described properly when taking into account that development and diffusion of science and knowledge are shaped by local circumstances. The papers in this special issue discuss the role of brokers in movement of knowledge across linguistic, ideological, and cultural borders. Educated in transnational contexts, having multilingual competence, and integrated in global communication networks these brokers faced considerable challenges in their work resulting from two big fields of tension: the tension between “Western”

input and national adaptation, and between “bourgeois” knowledge production and socialist ideas of science and knowledge. It is these tension that are at the core of the different papers.

In the past decades, the history of science has experienced a deep transformation due to a number of turns, of which the cultural and the postcolonial turn can count as the most influential ones. Reacting to this development Peter Burke and Fan Fa-ti have proposed to leave the tunnel history of national science behind and instead to take into consideration especially those local knowledges and practices¹ that do not conform to the European notion of science or the European taxonomy of scientific disciplines.² The growing number of publications following this trend in recent years – such as *East Asian Science, Technology, and Society: An International Journal (EASTS)* – argue that science is no longer an abstract category characterized by assumptions of European modernity theory, but has become more flexible and encompasses a larger variety of practices and forms of knowledge than before.³ Science and knowledge are more and more re-conceptualized in an interdisciplinary effort that in turn affects many disciplines including sinology and (East European) history. *First* of all, scientific knowledge is no longer seen as universal and “placeless”, but rather as “fundamentally local, influenced by the venues in which it is conducted, by the instruments and technologies employed, and by the networks that incorporate it into their culture and practices.”⁴ The process of knowledge production and the material, social, and cultural conditions under which it takes place have attracted much attention.⁵ The interdependence between knowledge and science on the one hand with localities and places on the other has been studied in various ways.⁶ *Second*, strict boundaries between knowledge and science have been replaced by an almost exclusive

- 1 P. Burke, *What is the History of Knowledge?*, Cambridge, UK 2016; F. Fan, *Redrawing the Map: Science in Twentieth-Century China*, in: *Isis* 98 (2007) 3, pp. 524–553.
- 2 P. Chu, *Narrating a History for China's Medical Past: Christianity, Natural Philosophy and History in Wang Honghan's Gujin yishi 古今醫史 (History of Medicine Past and Present)*, in: *East Asian Science, Technology, and Medicine* 28 (2008), pp. 14–35.
- 3 J. Law / W. Lin, *Provincializing STS: Postcoloniality, Symmetry, and Method*, in: *East Asian Science, Technology and Society* 11 (2017) 2, pp. 211–227; W. Lin / J. Law, *We Have Never Been Latecomers!? Making Knowledge Spaces for East Asian Technosocial Practices*, in: *East Asian Science, Technology and Society* 9 (2015) 2, pp. 117–126.
- 4 S.G. Solomon, *Circulation of Knowledge and the Russian Locale*, in: *Kritika: Explorations in Russian and Eurasian History* 9 (2008) 1, pp. 9–26, at 21.
- 5 See the groundbreaking anthropological/ethnological work by K. Knorr-Cetina: *The Manufacture of Knowledge. An Essay on the Constructivist and Contextual Nature of Science*, Oxford 1981; and also her: *Epistemic Cultures. How the Sciences Make Knowledge*, Cambridge 1999. On how knowledge was “made”, see also the seminal works: J. Golinskii, *Making Natural Knowledge: Constructivism and the History of Science*, Cambridge 1998; H. Kuklick / R. Kohler (eds.), “Science in the Field”, special issue of *Osiris* 11 (1996); B. Latour / S. Woolgar, *Laboratory Life: The Construction of Scientific Facts*, 2nd ed. Princeton, NJ 1986.
- 6 A. Ophir / S. Shapin, *The Place of Knowledge: A Methodological Survey*, in: A. Ophir / S. Shapin (eds.), *Science in Context* 4 (1991) 1, pp. 3–21, at 5; S. Shapin, *Placing the View from Nowhere. Historical and Sociological Problems in the Location of Science*, in: *Transactions of the Institute of British Geographers*, new series 23 (1998) 1, pp. 5–12; Benjamin Elman's study *On Their Own Terms: Science in China 1550–1900* (2005) and textbook *A Cultural History of Modern Science in China* (2006) foreground the importance of finding a valid “conceptual grid” to “explore Chinese interests in natural studies as they articulated and practiced them on their own terms rather than speculate about why they did not accomplish what the Europeans did” (Elman, *On Their Own Terms*, p. xxvi), and of writing a nuanced account of the “native vicissitudes” of science in China (Elman, *A Cultural History*, p. 13).

paradigm of knowledge, as demanded by Peter Burke in his fascinating works on this subject.⁷ Many scholars no longer see a fundamental difference between scientific and non-scientific knowledge but rather accentuate the co-existence of many different forms of knowledge.⁸ *Third*, the unilinear narrative of the diffusion of science and modernity is no longer taken for granted according to which traditional cultures are inevitably drawn into a global modern society.⁹

Research in the modern history of countries in Europe and East Asia has already refuted such narrative that had been prominent since the 1940s when area studies emerged that unconsciously yet avoidably constructed closed containers in the efforts of understanding the Other.¹⁰ The classical account of modern Western science spreading from Europe all over the world dominating in the 1960s and -70s has been challenged in many works since then. The dichotomy between “Western science” coming from Europe or the West and “indigenous” or local knowledge (the latter to be found in non-European, often colonial contexts) has become weaker.¹¹ As a result, newer studies describe and analyse different forms of “indigenous” knowledge and at times complicated interrelations between different knowledge systems including European ones.¹²

When examining the transfer, reception, dissemination, and popularization of knowledge in this special issue we do not assume that circulation is unidirectional nor that the receiving end only plays a passive role. In the debates on *colonial knowledge* it has been pointed out that we do not see an automatic transfer of a body of knowledge from the centre to the periphery, but a complex process of adaption, rejection, and transformation.¹³ In other words, there is a model of reciprocal communication in which knowledge itself can change.¹⁴ Studies on colonial contexts have concentrated on knowledge as obtained by the colonial powers, their – often clandestine – reliance on local knowledge

7 P. Burke, *A Social History of Knowledge, From Gutenberg to Diderot*. Based on the first series of Vonhoff lectures given at the University of Groningen (Netherlands), vol. 1, Cambridge 2000; P. Burke, *From the “Encyclopédie” to Wikipedia*, Cambridge 2012. See also his *What is the History of Knowledge?*

8 J. Vogel, *Von der Wissenschafts- zur Wissensgeschichte. Für eine Historisierung der “Wissensgesellschaft”*, in: *Geschichte und Gesellschaft* 30 (2004), pp. 639–660.

9 See R. Macleod, Introduction, in: R. Macleod (ed.), *Nature and Empire: Science and the Colonial Enterprise = Osiris N.S.* (2000) 15, pp. 1–13.

10 For a succinct critique of area studies approach in East Asian studies see H. Harootunian, *Tracking the Dinosaur*, in: *History’s disquiet* (2000), pp. 25–58; D. Vukovich, *China and Orientalism: Western Knowledge Production and the P.R.C.*, Oxon/New York 2012.

11 A. Bishop, *Western Mathematics – The Secret Weapon of Cultural Imperialism*, in: B. Ashcroft/G. Griffith/H. Tiffin (eds.), *The Post-Colonial Studies Reader*, London 2006, pp. 80–83; M. Elshakry, *When Science Became Western: Historiographical Reflections*, in: *Isis* 101 (2010), pp. 98–109; as well as A. Powell/M. Frankenstein (eds.), *Ethnomathematics – Challenging Eurocentrism in Mathematics Education*, Albany 1997; and H. Tilley, *Global Histories, Vernacular Science, and African Genealogies*, in: *Isis* 101 (2010), pp. 110–119.

12 V. Lipphardt/D. Ludwig, *Knowledge Transfer and Science Transfer*, in: *European History Online (EGO)*, published by the Institute of European History (IEG) (2001), URL: <http://www.ieg-ego.eu/lipphardt-ludwigd-2011-en> [23.04.2019].

13 T. Ballantyne, *Colonial Knowledge*, in: S. Stockwell (ed.), *The British Empire. Themes and Perspectives*, Malden, MA 2008, pp. 177–197.

14 M. G. Ash, *Wissens- und Wissenschaftstransfer. Einführende Bemerkungen*, in: *Berichte zur Wissenschaftsgeschichte* 29 (2006), pp. 181–189, at 182, 189; See also J. Secord, *Knowledge in Transit*, in: *Isis* 95 (2004), 4, pp. 654–672.

and their establishing and maintaining power by acquiring, validating, and disseminating such knowledge. Nicholas Dirks comments in this context: “In certain important ways, knowledge was what colonialism was all about.”¹⁵ George Basalla’s article *The Spread of Western Science*, published in 1967, offers an early effort to view science transfers from a global perspective. Yet, it remains within the paradigm of the unquestioned dominance and superiority of Western modern (scientific) knowledge vis-à-vis so-called superstitious and/or proto-scientific practices.¹⁶ It goes without saying that according to this paradigm the global dissemination of knowledge is understood as a process of the former replacing the latter, especially in formerly colonized countries and societies.¹⁷ Today, the postcolonial critique as well as the emergence of transnational historiography see the whole concept of “science transfer” questionable, for that it „not only excludes indigenous knowledge, but also prevents one from seeing the processes of interaction between knowledge systems.“¹⁸ Scholars prefer to speak of *knowledge transfers* accordingly that can take place between countries but also within countries and societies. The transfer model has been much applied in studies on *cultural transfers* within Europe and beyond, and it remains a task for future research to interrelate the fields of study of cultural transfers and knowledge transfers more closely in order to advance a general theory of transfers. As Matthias Middell has shown, a cultural transfer is understood as “a process of appropriation actively advanced by different groups of brokers and guided by the needs of the receiving culture.” The chronological steps to study in a transfer process begin with the confirmation of a so-called deficit in a given cultural context and the identification of an object or pattern in a different cultural context that would remedy the deficit. It ends with the evaluation of the transfer process that can range from appreciation of the input from the other culture to negation of the foreign origin and invention of an indigenous origin.¹⁹ Instead of identifying a developmental or civilizational difference between impacting and receiving cultures – an assumption that has shaped the older tradition of diffusionist approaches criticized as early as the 1980s by the French cultural historians Michel Espagne and Michael Werner²⁰ – we do not share the view that cultural transfer are to be understood by terms such as “diffusion” or “transmission”,

15 Lipphardt/Ludwig, *Knowledge Transfer*, p. 26.

16 M. Bunge, *Demarcating Science from Pseudoscience*, in: *Fundamenta scientiae* 2 (1982), pp. 369–388; O. Bruun, *Fengshui in China – Geomantic Divination between State Orthodoxy and Popular Religion*, Honolulu 2003; R. Nedostup, *Superstitious Regimes – Religion and the Politics of Chinese Modernity*, Cambridge, MA 2009; S. Smith, *Introduction: The Religion of Fools? Superstition: Past and Present*, in: *Past and Present* 199 (2008), pp. 7–55.

17 G. Basalla, *The Spread of Western Science*, in: *Science* 156 (1967) 3775, pp. 611–622. For a detailed critique based on latest research findings see Lipphardt/Ludwig, *Knowledge Transfer*, pp. 17–23.

18 *Ibid.*, p. 28.

19 M. Middell, *Kulturtransfer, Transfers culturels*, Version: 1.0, in: *Docupedia-Zeitgeschichte*, 28.1.2016, URL: <http://docupedia.de/zg/Kulturtransfer?oldid=125518> [09.09.2019].

20 M. Espagne/M. Werner, *Deutsch-französischer Kulturtransfer im 18. und 19. Jahrhundert. Zu einem neuen interdisziplinären Forschungsprogramm des C.N.R.S.*, in: *Francia* 13 (1985), pp. 502–510, online http://francia.digitale-sammlungen.de/Blatt_bsb00016288,00518.html [03.09.2019]; M. Espagne/M. Werner, *La construction d’une référence culturelle allemande en France: Génèse et Histoire (1750–1914)*, in: *Annales E.S.C.* 42 (1987) 4, pp. 969–992, online http://www.persee.fr/doc/ahess_0395-2649_1987_num_42_4_283428 [03.09.2019].

or even “dissemination” that evoke unidirectionality. Rather, the articles in this issue focus on the central role of brokers in movement of knowledge across linguistic, ideological, and cultural borders. These brokers – may they be individual scientists, media or science organizations – were more often than not educated in transnational contexts, had multilingual competence and were integrated in global communication networks. Therefore, the following chapters prefer to use circulation as suggested by the global historian of science Kapil Raj.²¹ Stefanie Gänger has provided a fine analysis of the implications and historical layers of the usage of “circulation” in global history, a term favoured for its ‘untaintedness’ and openness.²² It can also be applied to the history of knowledge, as we argue in this special issue of *Comparativ*. We do so by comparing two knowledge empires – China and Russia – in their engagement and interaction with new knowledges during the nineteenth and twentieth century.²³ Since the 18th/19th century the two land-based vast empires have experienced deep transformations of knowledge and science. Both Russia and China were characterized by the fact that knowledge production took place on very different scales, from the village level where peasants passed on local knowledge on agriculture or a lonely ethnographer took notes about local knowledge up to the level of imperial ministries or other central institutions collecting, censoring, and publishing concentrated knowledge on the condition of the empire. What is more, knowledge had to be transferred along vast distances, in a geographical sense, but also in a social and cultural sense implying the usage of many different languages within one empire. In order to better understand such circulation within and across empires the science historian Fan Fa-ti calls for studying networks of science by taking science as a general category encompassing a range of practices, institutions, and knowledge traditions. According to him it is important to show

*how science as cultural practice unfolded in a local context and how it was circulated and translated across the networks of science. In so doing, they challenge the rigid model of center/periphery and of metropole/colony; in its place, they [scholars] present a dynamic configuration of imperial power and knowledge production that strove to maintain order and structure but that necessarily played out in local contingencies. The advantage of this picture is that it depicts science in action rather than in abstraction.*²⁴

Beginning from the 19th century, knowledge production and circulation in both empires were characterized by two big fields of tension: the tension between “Western” input and national adaptation, and between “bourgeois” knowledge production and socialist ideas

- 21 K. Raj, Beyond Postcolonialism... and Postpositivism: Circulation and the Global History of Science, in: *Isis* 104 (2013) 2, pp. 337–347, at p. 344.
- 22 S. Gänger, Circulation: Reflections on Circularity, Entity, and Liquidity in the Language of Global History, in: *Journal of Global History* 12 (2017), pp. 303–318.
- 23 See here the Focus section on colonial science in *Isis* 96 (2005), pp. 52–87; F. Fan, *British Naturalists in Qing China: Science, Empire, and Cultural Encounter*, Cambridge 2004; K. Raj, *Relocating Modern Science: Circulation and the Construction of Knowledge in South Asia and Europe, 1650–1900*, London 2006; and L. Schiebinger, *Plants and Empire: Colonial Bioprospecting in the Atlantic World*, Cambridge 2004.
- 24 F. Fan, Redrawing the Map: Science in Twentieth-Century China, in: *Isis* 98 (2007) 3, p. 527.

of science and knowledge. Overview histories that would reflect systematically upon these tensions and categories still remain to be written.

In the case of modern China, historians have struggled to explain these tensions when comparing the so-called backwardness of Chinese scientific, economic, and military development with the so-called “advanced West.” In twentieth century analysis of Chinese history the leading paradigm stipulated that China’s modernity was merely a reaction to a “Western impact.”²⁵ It is thus not surprising that the establishment of modern (natural) sciences has long been seen as a result of translation from European languages²⁶, with the production of modern academic disciplines and institutions largely following the lines of Euro-American or Soviet academic tradition.²⁷ In Chinese eyes then and now, the West (*xiyang* 西洋, *xifang* 西方) did not only encompass Western Europe and North America, but also included Japan²⁸ and the Soviet Union.²⁹ The “West” was the role model of modernity that served as a framework of reference and orientation in the modernization process, as formulated in the saying “The Soviet Union of today is our tomorrow” (*Sulian de jintian shi women de mingtian* 苏联的今天是我们的明天) that enjoyed large popularity in 1950s China. Deviance from or inability to properly implement the Western model have long been explained by outside factors such as the socio-economic structure³⁰ or inside factors such as traditional customs and cultural values.³¹ For instance, Basalla (*The Spread of Western Science*, 1967) claimed that the dominance of Confucianism in Chinese society “prevented the development of a modern scientific tradition until the late 19th century.”³²

- 25 S. Teng / J.K. Fairbank, *China’s Response to the West – A Documentary Survey, 1839–1923*, Cambridge, MA 1954; Y. Xiong 熊月之, *Xixue dongjian yu wan Qing shehui* 西学东渐与晚清社会 (The Eastward Dissemination of Western Learning in Late Qing Society), Beijing 2011.
- 26 L. Liu, *Translingual Practice. Literature, National Culture, and Translated Modernity – China, 1900–1937*, Stanford 1995.
- 27 J. Guo 郭金海, *Yuanshi zhidu zai Zhongguo de chuangli yu chongjian* 院士制度在中国的创立与重建 (The Establishment and Reconstruction of the Academician System in China), Shanghai 2014; L. Liu 劉龍心, *Xue-shu yu zhidu: xueke tizhi yu xiandai Zhongguo shixue de jianli* 學術與制度: 學科體制與現代中國史學的建立 (Academia and Institutions: The Emergence of a System of Academic Disciplines and the Construction of Modern Chinese Historiography, Taipei 2001; D. Stiffler, *Creating “New China’s First New-Style Regular University,” 1949–50*, in: J. Brown / P. Pickowicz (eds.), *Dilemmas of Victory: The Early Years of the People’s Republic of China*, Cambridge MA, 2010, pp. 288–308.
- 28 P. Harrell, *Sowing the Seeds of Change – Chinese Students, Japanese Teachers, 1895–1905*, Stanford 1992; X. Shang 尚小明, *Liu-Ri xuesheng yu Qingmo xinzheng* 留日学生与清末新政 (Chinese Students in Japan and the New Policies at the end of the Qing Dynasty), Nanchang 2003; X. Shu 舒新城, *Jindai Zhongguo liuxueshi* 近代中国留学史 (History of Foreign Students Movement in Modern China), Shanghai 2011.
- 29 Z. Shen 沈志华, *Sulian zhuanjia zai Zhongguo* 苏联专家在中国 (Soviet Experts in China), Beijing 2009; T. Bernstein / H. Li (eds.), *China learns from the Soviet Union, 1949-present*, Lanham 2010.
- 30 K. Pomeranz, *The Great Divergence: China, Europe, and the Making of the Modern World Economy*, Princeton 2000.
- 31 A. Smith, *Chinese Characteristics*, New York 1894; M. Weber, *Die Wirtschaftsethik der Weltreligionen – Konfuzianismus und Taoismus*, Tübingen 1986. See also the discussion in W. Knöbl, *Die Kontingenzen der Moderne. Wege in Europa, Asien und Amerika*, Frankfurt am Main 2007.
- 32 Lipphardt / Ludwig, *Knowledge Transfer*, p. 17. Critical intellectuals in the first half of the 20th century such as Hu Shi and Lu Xun shared this view, see T. Lam, *A Passion for Facts – Social Survey and the Construction of the Chinese Nation-State, 1900–1949*, Berkeley 2011.

Such interpretations that tend to essentialize the Other have been re-evaluated for some time now³³ and paralleling the findings in the growing body of literature dealing with the persistence of local knowledges in modernizing societies³⁴ we argue that it is imperative to take the contributions of non-Western societies to the history of knowledge production more seriously. The aim, however, should not be to (re-)discover local knowledge traditions in their social and cultural contexts (which would eventually again result in unwanted essentialisms),³⁵ but to ask how their cultural practices were translated, appropriated, and communicated in transcontinental and global networks. To take local knowledge practices serious also prevents underestimating the role of indigenous knowledge in global circulation. While these insights have already been acknowledged in the history of political ideas where nationalism and enlightenment as well as anarchism and Marxism have experienced different degrees of sinicization³⁶ the history of the transfer of science and technology from one culture to another has only recently started to pay attention to local knowledges and practices on the receiving end.

For instance, the sinologist and renowned historian of Chinese science Joseph Needham (1900–1995) saw the feeling of European superiority critically and dedicated his academic career to explain the development path of Chinese science in a different fashion. In the multi-volume book series *Science and Civilization in China* that is being published since 1954 he has put forward the idea that modern sciences can best be grasped in a metaphoric sense when “the older streams of science in different civilizations like rivers flowed into the ocean of modern science.” In his view, China contributed to the genesis of modern, universal science in the 17th century when European and Chinese science began to merge.³⁷ This metaphor helped to remove the Eurocentric bias in the history of science, as argued by Fan Fa-ti.³⁸ Instead of asking since when so-called “modern science” has been present in Chinese society,³⁹ or what role academics and scholars played in the translation and reception of foreign forms of science⁴⁰ the interest has now turned to

33 See here the critical view of Vukovich, *China and Orientalism*.

34 See D. Palmer, *Qigong Fever. Body, Science, and Utopia in China*, New York 2007; K. Taylor, *Chinese Medicine in Early Communist China, 1945–1963: A Medicine of Revolution*, London 2005.

35 See exemplarily S. Zhu 祝世讷, *Zhongyi wenhua de fuxing 中医文化的复兴 (The Restoration of the Culture of Chinese Medicine)*, Nanjing 2013.

36 M. Meisner, *Li Ta-Chao and the Origins of Chinese Marxism*, Cambridge, MA 1967; G. Müller-Saini, *China, Kropotkin und der Anarchismus: eine Kulturbewegung im China des frühen 20. Jahrhunderts unter dem Einfluß des Westens und japanischer Vorbilder*, Wiesbaden 2001; V. Schwarcz, *The Chinese Enlightenment: Intellectuals and the Legacy of the May Fourth Movement of 1919*, Berkeley 1986; J. Townsend, *Chinese Nationalism*, in: *The Australian Journal of Chinese Affairs* 27 (1992), pp. 97–130.

37 Needham’s metaphor saw the arrogance of the late 19th and early 20th century critically, instead of accepting the view that the European and Japanese colonial presence in China was nothing less than an effort to bring modern civilization to the ancient empire. J. Needham, *The Roles of Europe and China in the Evolution of Oecumenical Science*, in: J. Needham (ed.), *Clerks and Craftsmen in China and the West: Lectures and Addresses on the History of Science and Technology*, Cambridge 1970, p. 397.

38 F. Fan, *The Global Turn in the History of Science*, in: *East Asian Science, Technology and Society* 6 (2012) 2, pp. 249–258.

39 D. Kwok, *Scientism in Chinese Thought 1900–1950*, New Haven 1965.

40 M. Läckner/I. Amelung/J. Kurtz, *New Terms for New Ideas. Western Knowledge & Lexical Change in Late Imperial China*, Leiden 2001.

the question of how to reconcile varying (and possibly co-existing) concepts of science⁴¹ while avoiding the often exclusive binaries of modern/tradition, foreign/indigenous, advanced/backward, centre/periphery, metropolis/colony.⁴²

Such binaries are no longer seen as helpful for understanding the complex and multi-directional flows of knowledge. More recent publications in the history of science call for leaving behind the assumption that the transfer of modern science and technology necessarily had to occur from West to East, arguing that knowledge flows are multidirectional.⁴³ Thus, we have to take into account different and competing sets of knowledge and knowledge cultures. A study on health knowledge in Russia in the 19th century has shown, for example, that physicians trained in modern medicine had to compete with Russian village healers and ‘witches’ in order to appeal to the rural population. What emerged was a “specific blend of modern and traditional knowledge repositories.”⁴⁴ Likewise, Sigrid Schmalzer has pointed out in her newest monograph on scientific farming in socialist China that even during the Cultural Revolution (commonly perceived as an anti-scientific and anti-intellectual era) Chinese innovations in science and technology were discussed in the United States after American agricultural scientists had reported their impressions from visits to the People’s Republic during the early 1970s to their peers. This example showcases that knowledge also circulated from the so-called periphery back to the centre.⁴⁵ Their fascination was first and foremost nourished by the observation of scientific practices among workers, farmers, and physicians that did not stem from the centre, but were local practices derived sometimes from century-old experiences, such as in the case of Chinese agriculture and medicine.⁴⁶

Russia, too, has often been regarded (both in Western and in Russian studies) as a mere recipient of knowledge and science generated in the West. Since the 19th century, the Western impact, be it in technologies or medicine or in social sciences, has been presented as

41 Such as the prominent case of Western biomedicine and Chinese medicine in twentieth century China. See S. H. Lei, *Neither Donkey nor Horse: Medicine in the Struggle over China’s Modernity*, Chicago 2014; and Taylor, *Chinese Medicine in Early Communist China*.

42 Burke, *What is the History of Knowledge?*; F. Fan, *East Asian STS: Fox or Hedgehog?*, in: *East Asian Science, Technology and Society: an International Journal* 1 (2007), pp. 243–247; X. Fang, *Barefoot Doctors and Western Medicine in China*, Rochester 2012; X. Xu, ‘National Essence’ vs ‘Science’: Chinese Native Physicians’ Fight for Legitimacy, 1912–37, in: *Modern Asian Studies* 31 (1997) 4, pp. 847–877; S. Schmalzer, *On the Appropriate Use of Rose-Colored Glasses: Reflections on Science in Socialist China*, in: *Isis* 98 (2007), pp. 571–583.

43 M.A. Matten, *Coping with Invisible Threats: Nuclear Radiation and Science Dissemination in Maoist China*, in: *East Asian Science, Technology and Society* 12 (2018) 3, pp. 235–256.

44 R. Cvetkovski, *Introduction. On the Making of Ethnographic Knowledge in Russia*, in: R. Cvetkovski / A. Hofmeister (eds.), *An Empire of Others: Creating Ethnographic Knowledge in Imperial Russia and the USSR*, Budapest 2014, pp. 1–22, p. 9. The research study is S. C. Ramer, *Traditional Healers and Peasant Culture in Russia 1861–1917*, in: E. Kingston-Mann/T. Mixer (eds.), *Peasant Economy, Culture, and Politics of European Russia, 1800–1921*, Princeton, N.J. 1991, pp. 207–232.

45 S. Schmalzer, *Red Revolution, Green Revolution. Scientific Farming in Socialist China*, Chicago 2016.

46 On the rediscovery of Chinese veterinary medicine in Maoist China, see the forthcoming monograph by Marc Matten / Rui Kunze: *Learning Science from the Masses – Cultures of Knowledge in 20th century China* (Lexington Press). An important source for the American openness to non-Western knowledges and practices during the 1970s is D. Conell/D. Gover (eds.), *China: Science Walks on Two Legs*, New York 1974; as well as Xiaoping Fang with his study *Barefoot Doctors*.

either necessary and useful for Russia's development (by the "Westerners"), or as harmful and damaging supposedly pure Slavic origins and practices (by the "Slavophiles").

In 2008, Susan Gross Solomon, a specialist in the field of the history of medicine, spoke of a 'project of inclusion' consisting of bringing Russia "into the family of cases covered by an approach honed in the study of 'Western' societies", namely the approach or concept of "circulation of knowledge" (in which she differentiates between an Anglophone and a French discussion of the concept).⁴⁷ Yet, studies examining circulation of knowledge are not entirely new to the field of Russian/Soviet studies or historiography. In earlier works on the 20th century, a certain focus was on the inter-war period and on transfers and relations between Russia and Germany. More recently, studies informed about theoretical debates on knowledge characterized Russia not just as a recipient of Western influences but as having developed its own rationale in dealing with and appropriating knowledge coming from the West.

Russia doesn't appear anymore as a mere "receptacle for ideas from abroad" but as a "locus of scientific interaction and innovation."⁴⁸ First, a variety of reactions to the impact of imported knowledges can be detected ranging from enthusiastic reception to blocking and incomprehension. How reception of Western knowledge can result largely in failure is shown, for example, by Natalia Avtonomova on the example of the opening of Russia to Western philosophy in the 1990s after many decades of Soviet-Marxist dominance of this discipline.⁴⁹

Further, recent studies have highlighted that Russian and Soviet scientists and scholars have made significant contributions to international debates. They generated findings and concepts that were not only *received* in international discussions but even *shaped* them.⁵⁰ We cannot deny that knowledge transfer often takes place in West-East direction (and this special issue will show this again). However, there also instances where the dominant flow of knowledge went in East-West direction, such as in the case of soil sciences in the first half of the 20th century shown by Jan Arend in his PhD thesis entitled "Russia's Soil Science in the World: An East-West Transfer History 1880–1945". Russian and Soviet soil science was extraordinarily productive in this time and produced knowledge that was happily received in many West European countries and in the USA. Russian soil science became an "export hit" (*Exportschlager*) in the inter-war period. This

47 Solomon, *Circulation of Knowledge and the Russian Locale*, p. 11.

48 *Ibid.*, p. 20. See, for example, the contributions in the special issue of *Kritika: Explorations in Russian and Eurasian History* 9 (2008), 1.

49 N. B. Avtonomova, *The Use of Western Concepts in Post-Soviet Philosophy: Translation and Reception*, in: *Kritika: Explorations in Russian and Eurasian History* 9 (2008) 1, pp. 189–229.

50 It is no coincidence that these examples stem from sciences related to agriculture, the soils, and biology, because Russia/the Soviet Union were especially innovative in these fields of knowledge, and also because Western studies have focused on environmental aspects. L. Ackert, *The Role of Microbes in Agriculture: Sergej Vinogradski's Discovery and Investigation of Chemosynthesis, 1880–1910*, in: *Journal of the History of Biology* 39 (2006) 2, pp. 373–406; P. Chu, *Mapping Permafrost Country: Creating an Environmental Object in the Soviet Union, 1920s–1940s*, in: *Environmental History* 20 (2015) 3, pp. 396–421; J.D. Oldfield/D.J.B. Shaw, V.I. Vernadskii and the Development of Biogeochemical Understandings of the Biosphere, c. 1880s–1968, in: *The British Journal for the History of Science* 46 (2013) 2, pp. 287–310.

situation changed only when Lysenkoism became dominant in the Soviet Union.⁵¹ We can summarize that the Russian Empire and the Soviet Union can be seen both as centres of knowledge production that affected other parts of the world and as sites of multiple ways of dealing with imported knowledge.⁵²

Although there is a number of case studies for China and for Russia / the Soviet Union, there is little mention of these states and contexts in general (Western) theoretical literature on knowledge and science. The historical study of Western empires has generated a growing amount of contributions on knowledge production and circulation, especially for the North-South direction in the early modern period.⁵³ Yet, these works tend to focus on (Western, Central) Europe and the more common classical former colonies like India and Africa.⁵⁴ China and Russia are mostly missing from this strand of literature as they seem to be blind spots for many historians writing on (post-colonial) knowledge and science. Rather little attention has been paid to the comparison and / or interlocking between Russia and China, with the notable exception of the Soviet advisers working in the PRC in the 1950s,⁵⁵ the rejection of Soviet genetics, and Soviet physicists' and philosophers' critique of Einstein's general theory of relativity in the 1960s.⁵⁶

In this special issue, we address questions of the history of knowledge and the history of science by taking an (inter-) imperial and transnational history perspective. The focus is rather on comparison and overarching questions which are relevant for both empires / states than on the transfers between them. We are interested in the processes of validating and disseminating knowledge that are mutually dependent processes as Robert Cvetkovski explains:

[...] knowledge in its social existence is highly dependent on its dissemination, because only its spreading and its public acceptance authorizes knowledge as such. To be validated

51 J. Arend, *Russlands Bodenkunde in der Welt: eine ost-westliche Transfergeschichte 1880–1945*, Göttingen 2017, pp. 16–17 and 259, quotation p. 259.

52 Knowledge exports and exchange took place on a large scale from the Soviet Union into the global South as recent studies have shown. This relates to different fields of knowledge ranging from irrigation agriculture and city building to literature. It would be a rewarding task to generalize the findings of these studies in regard to knowledge transfers and circulation. A. Hilger, Sie bringen das Licht der Sowjetkultur, in: *Literaturbeziehungen zwischen der UdSSR und Indien, 1945–1964*, in: M. Aust / J. Obertreis (eds.), *Osteuropäische Geschichte und Globalgeschichte*, Stuttgart 2014, pp. 197–218; J. Obertreis, *Imperial Desert Dreams. Irrigation and cotton growing in Central Asia 1860–1991*, Göttingen 2017, pp. 334–339; S. F. Miescher, *Building the City of the Future: Visions and Experiences of Modernity in Ghana's Akosombo Township*, in: *Journal of African History* 53 (2012) 3, pp. 367–390; L. Stanek, *Architects from Socialist Countries in Ghana (1957–1967): Modern Architecture and Mondialisation*, in: *Society of Architectural Historians Journal* 74 (2015) 4, pp. 416–442.

53 See for example A. Bredecke, *The Empirical Empire. Spanish Colonial Rule and the Politics of Knowledge*, Berlin 2016 (German original in 2009); S. M. Mintz, *Die süsse Macht. Kulturgeschichte des Zuckers*, Frankfurt am Main 2007; L. Schiebinger, *Plants and Empire*; J. Tully, *A Victorian Ecological Disaster. Imperialism, the Telegraph, and Gutta-Percha*, in: *Journal of World History* 20 (2009), pp. 559–579; A. Zimmerman, *Alabama in Africa. Booker T. Washington, the German Empire, and the Globalization of the New South*, Princeton 2010.

54 See for example Lipphardt / Ludwig, *Knowledge Transfer*.

55 See for example Bernstein / Li, *China learns from the Sovjet Union*; D. A. Kaple, *Dream of a Red Factory. The Legacy of High Stalinism in China*, Oxford 1994; Shen, *Sulian zhuanjia zai Zhongguo* 2009.

56 See for example D. Hu, *China and Albert Einstein: The Reception of the Physicist and his Theory in China, 1917–1979*, Cambridge 2005; L. Schneider, *Biology and Revolution in twentieth-century China*, Lanham 2003.

*it has to circulate either within one social or professional caste or between several of them, but by injecting specific knowledge into separate discourses it is processed, applied, incorporated, and transformed differently. Its power as an approved tool of recognition thus relies on its broader practice, which in turn corroborates its continuous flexibility, just as it guarantees its connectivity.*⁵⁷

Acknowledging that knowledge production is a social phenomenon we follow up with the research results on (auto-)biographies of scientists and experts in imperial and national contexts⁵⁸ and focus on biographies and scientific contributions of individuals as well as processes of collective knowledge production. What role did individual scientists play, how were they integrated in national and international scientific institutions, and what obstacles did they face when the state subordinated research and innovation to national and/or ideological needs? In this context, the need for self-assertion in defining distinct indigenous traditions of scientific knowledges⁵⁹ that goes beyond national concerns has long been neglected in historical research. Individual and collective knowledge production have to be put into a wider historical context, which includes political constellations influencing knowledge production, social status, the relation of knowledge producers with the public sphere(s) or privileged living and working conditions of the scientists.⁶⁰

With their vast spaces and heterogeneous “landscapes” (both in a sociocultural and geographic-environmental sense), empires have offered chances for social and geographical mobility. This is especially true for knowledge producers. An instructive example are the Polish military doctors in service in the Russian Empire’s army. While their possibilities for upward mobility were restricted in Russian-dominated Poland in the second half of the 19th century, quite a few of them made their career in Siberia and Central Asia where they contributed to medical and ethnographic research in different positions. They became “experts of the other and of imperial heterogeneity”. At the same time their publications contributed to “the mental compression (*Verdichtung*) of the imperial space between Warsaw and Port Artur”.⁶¹ In the case of Maoist China, while domestic mobility of individual scientists was limited and submitted to state control, the open-

57 Cvetkovski, Introduction, p. 8.

58 J. Andreas, *Rise of the Red Engineers – The Cultural Revolution and the Origin of China’s New Class*, Stanford 2009; M. Aust / F. B. Schenk, *Imperial Subjects: autobiographische Praxis in den Vielvölkerreichen der Habsburger, Romanovs und Osmanen im 19. und frühen 20. Jahrhundert*, Köln 2015; Vermessene Welt. Osteuropaexperten im 20. Jahrhundert = Osteuropa 1 (2017); F. Bretelle-Establet, *Chinese Biographies of Experts in Medicine: What Uses Can We of Them?*, in: *East Asian Science, Technology and Society: an International Journal* 3 (2009), 4, pp. 421–451; T. Buchen / M. Rolf (eds.), *Eliten im Vielvölkerreich. Imperiale Biographien in Russland und Österreich-Ungarn (1850–1918)*, Boston 2015; J. Guo, *Yuanshi zhidu zai Zhongguo de chuangli yu chongjian 院士制度在中国的创立与重建*, Shanghai 2014.

59 See I. Amelung et al. (ed.), *Selbstbehauptungsdiskurse in Asien: China – Japan – Korea*, München 2003.

60 For late imperial Russia, see E. A. Machten, *In Service to Science and Society: Scientists and the Public in Late-Nineteenth-Century Russia*, in: *Osiris* 17 (2002), pp. 171–209.

61 R. Leiserowitz, *Polnische Militärärzte im zarischen Imperium. Räume und Spannungsfelder zwischen Warschau und Port Artur*, in: T. Buchen / M. Rolf (eds.), *Eliten im Vielvölkerreich. Imperiale Biographien in Russland und Österreich-Ungarn (1850–1918)*, Berlin 2015, pp. 223–239, at p. 239.

ness to the outside world within and outside of the socialist camp still contributed to a lively transnational scientific community in the Cold War era.⁶² Symptomatic yet a large lacuna in research is the participation and role of Chinese scientists at international academic conferences in both the Eastern and Western hemisphere. With the exception of a few case study analyses that have shown how Chinese achievements in medicine and agricultural pest control were readily accepted in Europe and the United States as well⁶³ their embeddedness in global knowledge networks is still under-researched.

Regarding Siberia as a place of knowledge production points us to the co-existence of free and unfree forms of knowledge labour. The exiled Decembrists and other exiles later on made important contributions to Siberia's scientific discovery. Political repression and knowledge production went hand in hand in the Soviet Union as well, especially during Stalinism. In the *sharashkas* scientists and technical experts were forced to work within the system of the Gulag, mostly on military and other specialized technologies. Even under conditions of state repression knowledge production could be successful in the sense of scientific results and could provide ways for the victims of repression out of their isolation and powerlessness.⁶⁴ The study of knowledges in Russia and China has to take into account both the chances the empires offered but also the history of repressions. The relation of science and politics as reflected in historical studies is in need of revision: while viewing politics as constraining or even inhibiting science has a long tradition in Western historiography, it is necessary to also take into account the role politics played in facilitating and shaping science (and knowledge) production, dissemination and transfers.⁶⁵ The multiethnic composition of Russia and China is also related to knowledge production and circulation in various ways. Ethnography as a discipline interacted with state- and empire-building when producing knowledge about the multiple ethnic groups that inhabited the empires. The political nature of knowledge production is at stake here, and it is not coincidentally that ethnography, political agendas of the state, and knowledge circulation have interested historians.⁶⁶ In the case of the concept of ethnogenesis in the Soviet 1940s and 1950s political circumstances, the significance of institutions and institution-building as well as the division of the USSR's territory into "national" repub-

62 Z. Wang, Transnational Science during the Cold War – The Case of Chinese/American Scientists, in: *Isis* 101 (2010) 2, pp. 367–377.

63 Schmalzer, Red Revolution; E. Dimond, Acupuncture, Anesthesia, Western Medicine and Chinese Traditional Medicine, in: *Journal of the American Medical Association* 218 (1971) 10, pp. 1558–1563; R. Bivins, Acupuncture, Expertise and Cross-Cultural Medicine, Basingstoke 2000.

64 On the contribution of exiled to Siberia's knowledge history, see for example M. Rhode, Zivilisierungsmissionen und Wissenschaft. Polen kolonial?, in: *Geschichte und Gesellschaft* 39 (2013) 1, pp. 5–34; On the *sharashkas* see A. Sidiqqi, Scientists and Specialists in the Gulag: Life and Death in Stalin's Sharashka, in: M.-D. Fox (ed.), *The Soviet Gulag. Evidence, interpretation, and comparison*, Pittsburgh 2016, pp. 87–113.

65 T. Mullaney, *The Chinese Typewriter: A History*, Boston 2017; Solomon, *Circulation of Knowledge*, pp. 25–26.

66 For Russia see, among others, Cvetkovski/Hofmeister (eds.), *An Empire of Others*; F. Hirsch, *Empire of Nations. Ethnographic Knowledge and the Making of the Soviet Union*, Ithaca 2005; For China, see P. Duara, *Sovereignty and Authenticity: Manchukuo and the East Asian Modern*, Lanham 2004; S. Harrell, *Cultural Encounters on China's Ethnic Frontiers*, Seattle 1995; C. Shih, *Negotiating Ethnicity in China Citizenship as a Response to the State*, London 2003; T. Mullaney, *Coming to Terms with the Nation: Ethnic Classification in Modern China*, Berkeley 2011.

lics influenced knowledge transfers to Soviet Central Asia: despite of a repressive general political climate at that time, individuals and institutions adapted the concept and produced different meanings in their translations of the concept as issued by Moscow. In this process, the newly founded republican Academies of Science played an important role both in conveying Moscow's boilerplate to the republics and in strengthening scientific autonomy in the republics.⁶⁷

The contributions to this special issue analyse how knowledge and its canonized forms travelled from West to East. The focus is on the forms and institutions of knowledge production and circulation. The four contributions also address the underlying motives, means and techniques of disseminating foreign and indigenous knowledges among the population. As will be shown, political constellations, including geopolitical and foreign policy constellations, were important factors. By taking into account how knowledge was negotiated at the periphery we hope to show how science is no longer understood in an orthodox sense, but has become a far more heterogeneous field that is able to accommodate different notions of (scientific) knowledge.

Scientific concepts and even scientific disciplines were always adopted and changed when being transferred. As Hajo Frölich shows in his analysis of zoology in China in the first decades of the 20th century, the imported discipline of zoology was adapted to older Chinese traditions and eventually became a hybrid. Knowledge was produced during field-work whose forms were adopted from Western models and which was carried out in a hitherto unknown scale. With regards to the contents of zoology, the focus was shifted from experimental biology to taxonomy, and the transfer process had to meet the Chinese demand of integrating regional and national traditions of taxonomy. This happened against the background of political instability in the early 20th century in China and blossoming Chinese nationalism at that time which made Chinese scientists want to contribute to making China "rich and strong".

Surprisingly, the medical-psychological concept of stress was able to move from its origin in capitalist societies to socialist states as shown on the example of the Soviet Union by Jan Arend. The author examines the concept of stress since the mid-1960s and how it was covered differently by three central Soviet newspapers. Besides medical and psychological experts, journalists were important knowledge distributors in this case. Interestingly, there was talk of the problems of modern "civilization" and of "modern man" in Soviet newspapers thereby evening out the differences between capitalist and socialist societies. This trend can be observed in academic Soviet literature on environmental problems in the 1970s and 1980s as well.⁶⁸

Vera Shibanova investigates in her contribution the fate of pedology – at that time considered a scientific alternative to pedagogy – that had migrated from the United States to Europe, but was viewed ambivalently when arriving in Russia. During the 1920s, biolo-

67 M. Laruelle, *The Concept of Ethnogenesis in Central Asia: Political Context and Institutional Mediators (1940–50)*, in: *Kritika: Explorations in Russian and Eurasian History* 9 (2008) 1, pp. 169–188.

68 Obertreis, *Imperial Desert Dreams*, pp. 403–404.

gists were debating whether a *biogenetic* or a *sociogenetic* approach was more adequate, especially with regard to the development of “backward” peoples in the Soviet Union.⁶⁹ The pedagogy of treating children of *natsmen* (national minorities) became an important policy when replacing evolutionary coincidence by revolutionary practice in the push towards socialism. When pedagogical knowledge and methodological approaches shaped in Moscow arrived in the Russian region of Udmurtia during the 1920s a “distinct, localized sub-branch of pedagogy developed in Udmurt schools”, taking into account local specificities and interacting with the study of local lore (*kraevedenie*). As in the case of the disciplinary focus of zoology in China, pedagogy as a discipline was already outdated to a certain extent in the West when the transfer occurred. The example of pedagogy points to the significance of disciplines which were emerging and defining themselves in demarcation to or in congruence with other disciplines.

As argued in the contribution by Marc Matten, the newly founded People’s Republic of China adopted a specific understanding of science as well as an important scientific-popular journal entitled *Znanie – Sila (Knowledge is Power)* from the Soviet Union. As the journal aimed at popularizing science, this meant that science distribution concepts were also taken over from the Soviet Union. While the understanding of science in China was Marxist-orthodox at first, it became more pragmatic over time. As this example shows, knowledge from abroad could be rejected when geopolitical changes necessitated. Already before the Sino-Soviet split the Chinese leadership and scientists began to question the orthodoxy of the Soviet Union and the literal translations of the above-mentioned Soviet journal were step by step replaced with an own version of *Knowledge is Power (Zhi-shi jiushi liliang 知识就是力量)*. For political reasons the sources of knowledge were diversified, in some cases also resulting in efforts to consume science and technology from countries located at the Western periphery of the Eastern Bloc’s leading power. Translations from Bulgaria, Romania, and Poland were considered equally valuable knowledge resources, as much as the one imported during the 1960s and 70s from Western Europe, Japan, and the United States.⁷⁰ The dissemination of the “right” knowledge by the state and his institutions was by itself a transnational process and had considerable effects on generating a pragmatic attitude towards what can count as legitimate knowledge. In this context, publishers and educators also did not shy away from justifying strange and obscure knowledges that did not conform to standard science, such as in the case of Lysenkoism or particle physics, even if only temporarily.⁷¹

69 As a seminal work on early Soviet nationality politics including a hierarchy of advanced/backward ethnic groups see T. Martin, *The Affirmative Action Empire: Nations and Nationalism in the Soviet Union, 1923–1939*, Ithaca 2001.

70 On the Chinese successes in gaining access to knowledge beyond the Soviet Union and the Eastern bloc starting shortly after Nikita Khrushchev’s secret speech in 1956 see the history of the Institute of Scientific and Technical Information of China (中国科学技术情报研究所) at the Chinese Academy of Sciences. Shanghai *kexue jishu qingbao yanjiusuo* 上海科学技术情报研究所 (2018): *Qingbao de jiyi – jinian Shanghai kexue jishu qingbao yanjiusuo chuanglei 50 zhounian 情报的记忆 – 纪念上海科学技术情报研究所创立50周年*, Shanghai: Shanghai *kexue jishu wenxian chubanshe* 2018.

71 Schneider, *Biology and Revolution in Twentieth-Century China*; Matten, *Coping with Invisible Threats*.

The case studies in this volume clearly indicate that the established political categories of East vs. West are not very helpful for understanding the history of knowledge circulation on a global scale in the 19th and 20th centuries. In Chinese public opinion, the Soviet Union and other countries of the Warsaw Pact belonged to the “West” as much as did Great Britain or the United States: assigning such status was based on differences in economic and technological development, yet was also accompanied by a racially inflicted chauvinism that was inherent in the learning from the Soviet Union movement.⁷² For instance, science dissemination materials in Maoist China contrast the white-skinned Soviet engineer with the tanned Chinese worker, reproducing thereby the civilizational hierarchy that had shaped Chinese self-perception since its encounter with Western modernity in 19th century, as shows the 1953 propaganda poster made by Li Zongjin 李宗津 entitled “Study the advanced production experience of the Soviet Union, struggle for the industrialization of our country” (see the contribution of Matten here).⁷³

This does not mean, however, that “East” and “West” were insignificant. To the contrary, all chapters in this issue employ these categories but concretize them historically. The “West” could mean America, Western Europe, but also the Soviet Union. In transcontinental knowledge circulation, different political factors came into effect, be it nationalism, revolutionary zeal and/or the striving for self-assertation and geopolitical manoeuvring. Centre-periphery relations and science networks within the countries to study also have to be taken into account. By these observations we hope to advance a discussion of knowledge circulation that will not leave out Russia / the Soviet Union and China.

72 See A. Jersild, *The Sino-Soviet Alliance: An International History* (New Cold War History), Chapel Hill 2014; O. A. Westad (ed.), *Brothers in Arms: The Rise and Fall of the Sino-Soviet Alliance 1945–1963*, Washington 1998.

73 <https://chinese posters.net/posters/e13-556.php> [26.04.2019].