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Zhang Shenfu – China’s First Popularizer of Russell’s Philosophy and Mathematical Logic, 1920s

Zhang Shenfu (張申府, 1893-1986), originally called Songnian 崧年, was an important Chinese intellectual, who greatly contributed to propagation of Western science, analytical philosophy and dialectical materialism in 1920s and 1930s China. As an important member of the May Fourth intellectual elite, he took part in shaping of the left-oriented intellectual movement at Peking University. As a close colleague of Li Dazhao, Zhang was a senior member of the Communist movement in Beijing and a cofounder of the CPC (Communist Party of China). Having been a notoriously outspoken and prolific writer, and later also as an important member of the first modern department of philosophy at Qinghua University (between 1929 and 1936), Zhang played a key role in the process of dissemination and establishment of modern Western philosophy in Republican China.

In the intellectual history of modern China, Zhang has been generally credited for pioneering contributions to the introduction and dissemination of the philosophy of Bertrand Russell and Ludwig Wittgenstein in the 1920s and

early 1930s.¹ To a minor degree, Zhang has also been credited for his general introduction of Freud's psychoanalysis in the early 1920s,² and the earliest introduction of the philosophy of the Vienna School (in the early 1930s), in particular the thought of Rudolf Carnap.³ Above all, he is given credit for his introduction and longstanding efforts at spreading the philosophy of Bertrand Russell and Ludwig Wittgenstein – he also produced the first translation of the latter's *Tractatus Logico-Philosophicus* in Chinese.⁴ However, maybe the most important of all Zhang's contributions to the development of the discourse of modern science and philosophy in China was his early expositions on the notion of mathematical logic, followed by his many years of lecturing about Russell's mathematical logic at the most prestigious Chinese universities, such as Peking and Qinghua Universities. Zhang was also the first Chinese philosopher to organize a specialized course on mathematical logic, Russell, or Wittgenstein at any Chinese university.⁵

Earlier, in the final years of the May Fourth period (1919-1921), Zhang was one of the foremost proponents and popularizers of Russell's thought in China. His discovery of Russell as a philosopher and social reformist took place as early as 1916, when he came across his writings in the influential American journal *The Monist*. Under the influence of Russell's (mathematical)

1 Thus, for example: Wen & Cui 2012, 359-366.

2 As an example of the first introduction, Jiang and Ivanhoe (2013, 26-8) mention Zhang's article "Social Questions" (*Shehui wenti* 社會問題) from 1922, which written and published during his stay in Paris. Allegedly, in 1922 Zhang attended Freud's lectures at the University of Paris. (Zhang 1993, 99) However, Zhang was already interested in modern psychology in the late 1910s, mainly due to his impression that Russell also had a deep interest in psychology. Thus, in 1920 he had already published an abridged translation of Russell's essay "The Modern Science of Psychology" (*Jindai xinlixue* 近代心理學) in the *New Youth*, which also mentioned Freud's psychoanalysis.

3 Together with his younger brother Zhang Dainian (張岱年, 1909-2004). See, for example: Jiang Yi 2009.

4 The translation titled *Mingli lun* 名理論 (*Luoji-zhexue lun* 邏輯哲學論) was published in two parts in the *Xiandai pinglun* 現代評論, in 1927 and 1928.

5 The nature of his role in the history of mathematical logic in China is still a matter of discussion. The majority of historical surveys on this subject either do not recognise Zhang's role at all or only briefly mention him as the first proponent of Russell's philosophy in China. As examples thereof, see Zhou and Zhou 1989, 1-25; Zhou 2004, 398-406; Lin and Zhang 1983; Shi and Zeng 1998; and Song 2000. Only recently, this trend has been reversed by the study of Su and Dai (2019), who in their article "Zhang Shenfu's Contribution to Early Dissemination of Mathematical Logic in China" (*Zhang Shenfu dui shuli luoji zai Zhongguo zaoqi chuanbo de gongxian* 張申府對數理邏輯在中國早期傳播的貢獻) delivered a non-critical overview of Zhang's publications and translations from the 1920s and 1930s, set into the framework of Zhang's own autobiographical accounts on that period.

philosophy, mathematical logic, and his own understanding of the English thinker's political ideas, Zhang, who was originally studying mathematics, decided to switch to philosophy and become actively engaged in political activism, publicly advocating notions such as science, mathematical logic, women's emancipation, liberty and socialism. During the culmination of the May Fourth movement, as a member of Peking University, Zhang thus took a position at the frontlines of those Chinese intellectuals who espoused Marxist or socialist ideals regarding the future of Chinese culture and society. Most importantly, in his support for the notion of science-based libertarianism in that period, he mainly relied on Russell's philosophy and invoked him as an exemplary figure of a scientific social reformer, and to a much lesser extent drew on ideas from Marxism. Thereby, through Zhang's contributions, notions from Russell's philosophy and logic became an integral part of the intellectual production of the more left-oriented segment of the May Fourth movement. Because Zhang was also a member of Peking University, Russell's thought had also been gradually introduced into modern Chinese academic discourse. It is more than possible that Zhang's twofold introduction of Russell – to the political discourse of Marxist intellectuals and the curriculum at Peking University, contributed significantly to the fact that one year after Zhang started writing articles about the philosopher he was ultimately invited to lecture in China. His role as China's first advocate and expert on Russell became even more visible in the final months before Russell's arrival, when Zhang was stretching all efforts to introduce the Englishman's personality and work to the general Chinese readership, by publishing articles, translations and letters defending Russell's thought against biased criticism and misunderstandings.

Many years later, Zhang's life-long admiration of Russell was brought back to the attention of Chinese and Western scholarship on modern Chinese intellectual history by Vera Schwarcz, who, in the late 1970s and early 80s, had the chance to interview Zhang on her visits to Beijing. Schwarcz's interviews with Zhang, embedded critically into their historical context of reference, were contained in her provokingly titled book *Time for Telling Truth is Running Out: Conversations with Zhang Shenfu* (1992). A part of the book, which deals with Zhang's "intellectual infatuation" with Russell, was also reprinted in an article published in *Russell: The Journal of the Bertrand Russell Archives* (1991/1992). Since the late 1980s, Zhang's life and work has also been reintroduced into contemporary Chinese scholarship and the re-evaluation of the intellectual foundations of Chinese modernity. If the early re-discoveries of Zhang's life and work mainly involved collections of his representative works

and general intellectual biographies, a more in-depth scholarly engagement with Zhang's world of ideas started only in the early 2000s, and has been on the rise ever since.

For the purpose of this anthology, in the following text I will try to give a general overview of Zhang's engagement with Russell's ideas from the time of his visit in China to the end of the 1920s, right before Chinese studies on analytical philosophy and mathematical logic had finally started to flourish at Chinese universities. In other words: the following narrative will focus on the period of time when Zhang was still one of only few Chinese enthusiasts of Russell's thought, who was intellectually engaged with the most profound aspects of his work, such as mathematical logic, the "analytical method," philosophy of science (modern physics) and so on. In order to avoid getting ourselves immersed too deeply into the vast body of Zhang's philosophical thought, the following narrative will mainly be confined to (a) the introduction of Zhang's life in the 1920s, (b) the main aspects of his propagation of Russell in the late May Fourth period (1919-1921) and (c) his early notion of Russell's mathematical logic.

Since, at least to a major part of Western sinology, Zhang is still a relatively unknown figure, in the next part of this survey I shall first give a more detailed introduction to his life, focusing exclusively on the period we are interested in.

1 A Biographical Introduction: The Years of Political Activism and Intellectual Polyamory, up to the Late-1920s

In the academically most active years of his life, between 1917 up to the late 1940s, Zhang was an outspoken advocate of liberty, scientific objectivism, traditional Confucian ethics, and comprehensive worldviews. In his personal as well as public intellectual undertakings, Zhang stood out as a rather eccentric intellectual with an insatiable appetite for the new,⁶ an intellectual *enfant terrible*, whose voice was ever filled with the dramatic and tinged with a sense of historical urge. Although, in the 1920s and 1930s, his intellectual passions had never really drifted far away from Russell and mathematical logic, both his life and thought at the time give testimony to a restless quest

6 In conversation with Vera Schwarcz from 1984, Zhang remarked: "All my life, I have loved new ideas. I loved the idea of the new. As soon as I encountered something new, I would drop the old subject that had interested me earlier. Thus, I became hopelessly scattered. I have been diffuse in my scholarly concerns, as in all my political life..." (Schwarcz 1992, 20).

for utopian notions of liberty, spiritual and scientific progress, manifested in intellectual polyamory as its ultimate means and a never ceasing propensity towards political non-allegiance. His extraordinary personality, intellectual bluntness and political dauntlessness only amplified the influence of his voice in the propagation of modern scientific or philosophical ideas, as well as the political causes which lead to his public downfall in the late 1940s. As a senior member of the May Fourth intellectual elite, Zhang was stretched between its strong foundations on traditional thought, and the fervour of modernist idealism that pervaded the intellectual climate of the time.

Zhang Shenfu, originally called Songnian 崧年, was born in Xian county, Hebei Province in 1893. He was the elder brother of the renowned philosopher Zhang Dainian (張岱年, 1909-2004) and the physicist Zhang Chongnian (張崇年, 1904-1994). Zhang was born into a family of scholar-officials, which meant that from early childhood on he was subjected to a profoundly traditional upbringing, which consisted mainly of intense instruction in the Confucian moral code and the study of Confucian classics.⁷ From the late 1900s on, his father Zhang Lian (張濂) worked as a high-ranking official at the Ministry of Education. As a direct result of his experiences gained at the Ministry as well as his official visits to Japan, where he had the opportunity to inspect the general circumstances in the Japanese system of education, in 1908 Zhang Lian decided to send his oldest son to study at the progressive Shuntian Academy (順天高等學堂) in Beijing. There, instead of Confucian classics and traditional-style scholarship, Zhang first came in contact with a modern, natural science-centred system of education. In his years at the progressive Shuntian Academy Zhang also made a number of important life-long friendships. Amongst the most notable friends whom Zhang had first met at the Shuntian Academy were Guo Renlin (郭仁林), Gu Jiegang (顧頤剛, 1893-1980), Liang Shuming (梁漱溟, 1893-1988)⁸ and Luo Jialun (羅家倫, 1897-1969)⁹ (Zhang 1993, 78-81).

7 When Zhang later looked back at the years of his childhood, he characterized them with the following words: "Until the revolution of 1911, I lived the Confucian role of the elder son in a traditional literati household without any inner rancour at all." (Schwarcz 1992: 20). In his case, a "traditional" upbringing meant that from the age of five he was taught ancient classics (*Book of Change*, *Classic of Filial Piety*, *Book of Rites* etc.) and instructed in strict observance of Confucian values (Zhang 1993, 1-4).

8 For Liang's account on their friendship see, for instance, Lynch 2018, 60-63, 111, 123, etc.

9 Akin to all above-listed scholars, Luo also came from a family of scholar-officials. He studied at the modern Fudan University in Shanghai and from 1917 on at Peking University. He obtained his specialization in history and philosophy at Princeton and Columbia (1920-1924). Later (1928) Luo became the president of Qinghua University. In the early 1920s Luo seemed to have shared Zhang Shenfu's enthusiasm for Western science and positivist philosophy.

Quite early on, Zhang's outlook on society was strongly affected by the outbreak of the Xinhai Revolution in 1911. If in his mind the revolution announced the advent of new world order driven by liberty, on the other side he was still deeply immersed in the constraining influences of the traditional world. Thus, in the same year when Zhang was fantasizing about revolution in Beijing,¹⁰ he was also ordered by his father to return to his hometown and marry his first wife¹¹ (Zhang 1993, 82; Schwarcz 1992, 29). In the autumn of 1912, he joined his friends Liang Shuming and Guo Renlin working at the editorial office of the *Guomin bao* 國民報 [*The Nation*], to which he also contributed a series of his first short writings.¹²

In 1912, when the Shuntian Academy was forced to close its doors, Zhang had to leave Beijing. Later, following an unsuccessful attempt to enrol into the Nankai Secondary School (*Nankai zhongxue* 南開中學), Zhang ultimately succeeded in completing his secondary education at the secondary school affiliated to Peking Higher Normal School (*Beijing gaodeng shifan xuexiao* 北京高等師範學校). Already one year later, Zhang was taking part in the preparatory program for natural sciences (*like* 理科) at Peking University (Zhang 1993, 81-3). Due to his advanced knowledge of various subjects, during his preparatory training Zhang was also able to attend regular courses at the university. Because Zhang's main interest at the time was mathematics,¹³ this was what he wanted to study after having completed the preparatory training. However, because the prerequisite for that was also a successfully completed preparatory course in literary sciences (*wenke* 文科), Zhang first decided

Thus in 1923, while he was studying at Columbia University in New York, Luo composed a relatively in-depth overview of the main theoretical pillars of contemporary Western science in contrast with its opposite pole, metaphysics. Later in 1930, after his return to China, Luo published his manuscript under the title *Kexue yu xuanxue* 科學與玄學 (*Science and Metaphysics*). In this book he also briefly described some of the important aspects of mathematical logic, which he seemed to have held in high esteem.

- 10 In 1911, Zhang invented for himself a new *nom de guerre*, Zhang Gong 張弓 (sobriquet Jiansu 見素).
- 11 His first wife's name was Zhu Diyi 朱德依. She died after giving birth to their daughter Alice (Yali 亞麗) in 1914. Zhang's daughter was named after the character from *Alice in the Wonderland* by Lewis Carroll. (Zhang 1993, 82; Schwarcz, 1992: p. 29)
- 12 At the time he wrote under the penname Chizi 赤子 "the Kid."
- 13 The university library provided him access to various books on mathematics and the history of mathematics. In his memoirs, for instance, Zhang noted that at the time he read a collection of Japanese textbooks on mathematics, written by Hayashi Tsuruichi (林鶴一, 1873-1935). Around the year 1915, Zhang also became interested in the history of mathematics. In his later years, he recalled that he had read the works by Japanese historian of mathematics Endō Toshisada (遠藤利貞, 1843-1915). At the time, the mathematical division already organized a course in the subject's history.

to enrol into an undergraduate program in philosophy, shortly after which he managed to transfer to the mathematical division (*Shumen* 數門). Even though Zhang was a student of philosophy for only a few months, his first contacts with Western philosophy aroused a profound interest in philosophical forms of investigation. As a consequence, having been now drawn both to mathematics as well as philosophy, as a freshman in mathematics Zhang still pursued his newly arisen interest, taking various advanced classes at the Department of philosophy. As Zhang later reminisced, these early encounters with philosophy eventually caused him to develop a strong interest in mathematical philosophy (*shuli zhexue* 數理哲學), the philosophy of mathematics (*shuxue de zhexue* 數學的哲學), foundations of mathematics and, most of all, mathematical logic, where, according to his view at the time, the essence of both disciplines was combined into one (Zhang 1993, 85).

In his undergraduate years at Peking University, Zhang's main source of new material related to Western ideas was the university library.¹⁴ Starting in 1915, the library underwent a series of reforms, through which foreign publications, especially periodicals, became more available to the students and broader readership. In this crucial period, the new procurements also included the journal *The Monist* and monthly magazine *The Open Court*, through which Zhang first came across the writings of Bertrand Russell. In his early encounters with Russell's thought, apart from his contributions to mathematical logic and mathematical philosophy, Zhang was also strongly impressed and affected by his social and political ideas, especially by his progressive outlook on marriage and gender equality. In the years to follow, these ideas, which were in direct opposition to the traditional values from Zhang's Confucian upbringing, caused Zhang to become one of the most outspoken proponents of women's emancipation in China.¹⁵

14 In 1915, a reading room was opened for broader readership. At the same time, the basic collection got considerably enlarged through donations and procurements of recent publications from the West. Beside a general increase in funds intended for procurement of foreign publications, the foreign collection was significantly increased with the help of the famous Science Society of China, with which in 1917 the new rector Cai Yuanpei established formal relations. From 1917 on, in return for a monthly donation of 200 Yuan, the society based in the US aided the university library by purchasing new books and periodicals from the West (Reynolds 1986, 74-5).

15 In fact, the majority of Zhang's early articles were concerned with either women's contributions to science or the problem of women's emancipation in post-May Fourth Republican China. While as early as in 1915 Zhang had already published a biographical article on the 19th century Russian mathematician Sofya Kovalevskaya (Schwarcz 1992, 29), his writings on gender equality, marriage and women's rights culminated in the year 1919. Zhang continued publishing articles on the same topic throughout the entire 1920s and early 1930s.

Apart from the indirect influence of Western authors and their ideas, in his formative years at Peking University Zhang was further influenced by two renowned Chinese intellectuals, both of whom were connected to the university. The first was Cai Yuanpei (蔡元培, 1868-1940), who served as the dean from 1916 on,¹⁶ and the second one was Zhang Shizhao (章士釗, 1881-1973).¹⁷ If Zhang's association with the first might have favourably affected a part of his early career, his contact with the latter was of a more formative significance. As Zhang recounted in his reminiscences, back then Zhang Shizhao's thought had had a great influence on him, regarding both his interest in logic as well as his philosophical thought (ibid. 72-3). It seems that his early admiration of Zhang Shizhao's precise and profound "logical writing style" (*luoji wen* 邏輯文)¹⁸ led Zhang Shenfu to adopt a similar kind of semi-traditional style of logical writing on the one hand, and a similar kind of approach towards logical terminology on the other.¹⁹ By the year 1917, when Zhang Shizhao assumed the post of a lecturer in logic at Peking University, Zhang Shenfu's admiration of the former's thought mainly revolved around the general notion of logic as expounded on in his extremely popular lectures²⁰ (Zhang 1993, 72-77). However, besides Zhang Shizhao's

- 16 According to Zhang's *Reminiscences*, he developed a close relationship with Cai. Zhang claimed that in his early years at the university they frequently met to discuss Western thought, mainly aesthetics. Later Cai introduced Zhang to Li Shizeng (李石曾, 1881-1973) and arranged for him to be employed as a teacher at Kongde Elementary School (*Kongde xiaoxue* 孔德小學) (see Zhang 1993, 55-58).
- 17 On his relationship with Zhang Shizhao see ibid., 72-77.
- 18 For a more detailed study on Zhang Shizhao's "logical writing style" and its impact on "logical literature" in the Late Qing Dynasty see Kurtz 2020.
- 19 For instance, already in his earliest writings on logic from the late 1910s, Zhang Shenfu was using the term *luoji* 邏輯 for "logic" – instead of the then commonly used *lunli* 論理. Thus, Zhang was also one of the first Chinese intellectuals to have translated the term "mathematical logic" as *shuli luoji* 數理邏輯 (see Zhang 1919a, 306). Zhang Shizhao's terminological solution *luoji* was first proposed in an article from 1910 (see Chen 1992, 51-4 and Kurtz 2011, 270-1). Later, his views were recapitulated and further elaborated on in an article entitled "*Luoji* 邏輯" published in the *Tiger Weekly* magazine in 1914. Zhang's article initiated a minor debate which continued in the same periodical. Nonetheless, it also seems that, in Zhang Shenfu's eyes, terminological invention represented one of the main skills of a modern Chinese scholar, since he tended to invent his own terminological solutions – one of the most notable was his use of the word *jiexi* 解析 as the translation for English term "analysis". In his autobiography, Zhang claimed that he developed his own method of translating Western terms, which imitated the approach adopted by Yan Fu.
- 20 Zhang Shizhao's notes for these lectures were later summarized in his monograph *Essentials of Logic* (*Luoji zhiyao* 邏輯指要). The book was first published only in the year 1939. Akin to his remaining writings on logic, published roughly between 1910 and the late 1920s, the book reveals that Zhang espoused a definition of logic as a universal notion, an inherent capacity of the human mind to produce correct thinking, which transcends culture, language, etc.

universalist notion of logic, another aspect of his thought that probably left an imprint on Zhang Shenfu was his strong propensity towards objectivist comprehensiveness, or more specifically, a syncretistic vision of Chinese modernity.²¹

Shortly upon his graduation in 1917, as a graduate student Zhang joined the graduate school (Research Institute 研究所) for both philosophy and mathematics. In the framework of his graduate studies of philosophy, Zhang attended Zhang Shizhao’s lectures on the history of logic, Hu Shi’s introduction to Chinese logic (*mingxue* 名學) (Guoli Beijing daxue 1917), and maintained an deep interest in Buddhist and contemporary Western philosophy (Guoli Beijing daxue 1918, 376). Zhang also became a member of the recently established research institute at the department (*Shuxuemen yanjiusuo* 數學門研究所), which was supervised by two senior members of the Department of Mathematics, Feng Zuxun (馮祖荀, 1880-1940) and Qin Fen (秦汾, 1882-1973).²² As a graduate student at the institute, Zhang specialized in Cantorian transfinite set theory and also composed two articles introducing the main concepts of set theory (Zhang Shenfu 1918a/b). His work was supervised by Professor Feng Zuxun (Guoli Beijing daxue 1917). In 1918, Zhang also became a lecturer of mathematics and logic at the university’s preparatory school (ibid. 1918).

In 1917 Zhang’s political life took a sudden turn, when he befriended the leftist intellectual Li Dazhao (李大釗, 1889-1927).²³ In the next few years, the two worked closely together. Due to their friendship, in 1918 Zhang got employed at the university library and later took an active role in the process of

21 In his political and philosophical writings, published in the *Tiger* periodicals between 1914 and 1927, Zhang developed a theory of harmony (*xiehe* 協和), which stipulated that the harmonic unity between diametrically opposed things, such as Western and Eastern cultures, was the crucial condition for the “evolutionary” preservation of both. By emulating the traditional idea of the mean (*zhongyong* 中庸), Zhang emphasized that the principles of the universe must be brought into a synergic relationship. On one hand, Zhang’s “harmonism” was an essentially pluralistic type of philosophy, while on the other hand it presupposed an underlying order of the universe, whose patterns are manifested in human knowledge. (Cf. Guo 2000)

22 At the time, the research work at the institute for mathematics focused on transfinite set theory and its introduction to China (Ding et al. 1994, 75). During his work there, Zhang was assigned research work on the Fourier series and transform (Meng 2014, 6). One year later (1918), Zhang also became a member of the newly founded Mathematico-Physical Society (*Shuli xuehui* 數理學會) of Peking University (Ding et al. 1994, 75).

23 In the same year Li returned from Japan and started working in the Peking University Library. Thanks to Li, in the years following the May Fourth movement, the university library became a centre of the Communist movement at the university.

establishing the Chinese Communist Party.²⁴ As an editor of the *Tiger Daily*, Li also helped Zhang publish his early political writings – on revolution, women’s emancipation and youth. Shortly before the outbreak of the May Fourth movement in 1919, Zhang also joined the editorial of the influential *New Youth* (*Xin qingnian* 新青年) and later also became a cofounder of the important *Weekly Critic* (*Meizhou pinglun* 每周評論) magazine.²⁵ Around the year 1918, when he became more actively involved in the leftist current within the New Culture movement, Zhang started organizing elementary lectures on mathematics and logic in the university’s Red Building (*Honglou* 紅樓) (Zhang 1993, 92). By the year 1919, when the May Fourth movement broke out, Zhang became an important member of the leftist intellectual elite in Beijing. Although Zhang practiced a “less practical” form of political activism, his contribution to the movement lay mainly in propagating public debate on important social and political questions, like sexuality, the notion of socialist revolution, the role of science and philosophy in political reform, etc.²⁶ As one of the most outspoken theoreticians of the May Fourth leftist elite, together with Li Dazhao and Chen Duxiu (陳獨秀, 1879-1942), Zhang became a senior member of the Yong China Association, joined the Peking University Worker Education Association and cofounded the Marxist cell at the university. When, in the winter of his life Zhang looked back at the May Fourth period, he described himself as an “enemy of marriage and a lover of logic” (Schwarcz 1992, 42).

By 1920, Zhang was a regular lecturer at the university. As an already well-known adherent of the thought of Bertrand Russell, in September he was sent to Shanghai to represent Peking University at the welcome banquet organized for Russell’s arrival in China. Though in Shanghai his interaction with Russell had been rather formal and fleeting, Zhang was able to meet him again in Beijing, during the Englishman’s stay at Peking University. In Beijing, Zhang was not only able to engage in private conversations with Russell, but also established a long-lasting written correspondence, up until 1962, with Russell

24 As Zhang later reminisced, in 1918 when he was in charge of the library, Mao Zedong came to Peking University together with his father-in-law Yang Chengji 楊昌濟, and worked under him at the library (Zhang 1993, 91).

25 Initially, the *Weekly Critic* was a fundamentally leftist periodical. The Chinese translation of the *Communist Manifesto* and some of Zhang’s translations of Russell’s writing all first appeared in the *Weekly Critic*. Later, when the leadership of the magazine was taken over by Hu Shi, the nature of the content took a turn in another direction (Zhang 1993, 91).

26 In its expression the kind of revolutionary fervour practiced by Zhang differed critically from zealotry of his fellow Marxist, who took a rather more aggressive approach towards implementing social revolution.

recognizing in Zhang a person who was well-versed in all of his writings²⁷ In these conversations from 1920, Zhang and Russell discussed a variety of different topics, from Bolshevism and dialectical materialism,²⁸ to science and philosophy. In their conversations, Russell also convinced Zhang of the utmost significance new discoveries in physics, such as Einstein's Theory of Relativity, had for the development of scientific method and philosophy (Schwarcz 1991/2, 131). Consequently, in the following years Zhang's attention turned from biology to modern physics and its philosophical connotations.

Later that year, on Cai Yuanpei's request, Zhang travelled to France to take the post of a professor of philosophy at the newly established Institute for Chinese Studies at the University of Lyon. Together with his newlywed wife, Liu Qingyang (劉清揚, 1894-1977),²⁹ Zhang established a Chinese Communist cell in Paris, into which he also recruited young Zhou Enlai (周恩來, 1898-1976) who stayed in Paris as a correspondent for a newspaper from Tianjin. In 1922, Zhang moved temporarily to Berlin, where he endeavoured to establish an organization similar to that in Paris.³⁰ During his stay in France and Germany, Zhang also attended lectures at the Sorbonne (in psychoanalysis), and at the Universities of Berlin and Göttingen, where he listened to the lectures of the famous mathematician David Hilbert and the philosopher Leonard Nelson (1882-1927) (Zhang 1993, 99).

When in 1923 Zhang returned to China, the political and intellectual atmosphere was already starting to change. At first, he wanted to resume his work as a lecturer of philosophy at Peking University, but due to Hu Shi's disapproval ultimately was not accepted back at the university. Instead, Zhang became a professor at the Guangdong University (*Guangdong daxue* 廣東大學), where he taught mathematics, the history of Western philosophy and logic. In May

27 A day before their meeting in the Continental Hotel in Beijing, Russell described Zhang in his letter to Jean Nicod as a Chinese scholar "who knows my writings, all of them, far better than I do and has constructed an inconceivably complete biography of them." Schwarcz 1991/2, 122)

28 At the time, Russell was widely criticized by the Western socialists and Marxists for his criticism of Russian Bolshevism voiced after his short visit in Russia in 1919. Russell was concerned that Chinese "Marxists" might adopt an attitude similar to their Western comrades.

29 Liu was Zhang's former lover, whom he started seeing in 1920. Their relationship was a part of Zhang's pursuit for "sexual freedom", emulating Russell's philosophy on marriage and love. Liu herself was a political activist and a Communist from Tianjin. Her role-model was the famous late-Qing revolutionary and feminist Qiu Jin (秋瑾, 1875-1907), who was executed by the royal authorities in July 1907. In 1914, she opened a school for women and publicly propagated the idea of women's emancipation. Later, she was one of the leaders of the party's organization for women-activists.

30 In Berlin he recruited Zhu De (朱德, 1886-1976).

1924, when the Whampoa Military Academy (*Huangpu junguan xuexiao* 黃埔軍官學校) was established as a joint project by the Guomindang (國民黨) and Soviets, Zhang took over the office of the assistant head of the political department. Not long after that, due to political tensions, Zhang resigned from his post and returned to Shanghai, where he took a more active part in party-related political activities. When, in 1925, Zhang Shizhao became the Minister of Education, he offered Zhang a post at the Ministry. Consequently, whilst working at the Ministry, Zhang helped set up the Editorial Committee which he later also became a member of. In 1927, one of his fellow members at the Committee, Chen Yinghuang (陳映璜), who was also the head of the philosophy department at the China University (*Zhongguo daxue* 中國大學) in Beijing invited him to lecture on Western philosophy there. In the same year, on an invitation by Zhang Shizhao, Zhang became a member of the newly established Institute of Compilation and Translation (*ibid.*, 102-6).

After political unrest had erupted in Beijing and high-profile members of the local CPC were either arrested or took refuge at the Soviet Embassy, Zhang and Liu were also forced to leave the city and retreat first to Wuhan and then Shanghai. During the nationalist takeover of 1927, Zhang's main source of income was translation and writing: later the same year he published his translation of Wittgenstein's *Tractatus Logico-Philosophicus* (*Minglilun* 名理論) and started working on his signature work, *Reflections* (*Suosi* 所思) (*ibid.*, 106). In the second year of his exile from the capital (1928), Zhang resumed teaching logic and Western philosophy at universities like Jinan University (*Jinan daxue* 暨南大學), Dalu University (*Dalu daxue* 大陸大學) and Great China University (*Daxia daxue* 大夏大學) in Shanghai (*ibid.*, 107).

Zhang was able to return to Beijing in 1929, when he was again appointed a lecturer at his *alma mater*, Peking University. In the following years Zhang's academic career was at its highest. Already in 1930, he started cooperating with the philosophical department at Qinghua University and became a member in 1931.³¹ After he became a professor at Qinghua, he continued teaching logic and Russell's philosophy at the Department of Philosophy at Peking University and Yanjing University. In his years at Qinghua (up to 1936),

31 Most probably, the person behind Zhang's appointment as a professor of philosophy at Qinghua University was Luo Jialun, Zhang's lifelong friend and the then Dean of the University. Thus, Lin Xiaoqing's (2012: 139) claim, that "the appointment of Jin Yuelin, ..., led to the appointment of Feng Youlan, Zhang Shenfu, Zhang Dainian, Shen Youding..." is not entirely correct. Another fact that speaks against Jin's direct involvement in hiring Zhang was his strong, negative opinion of the latter – according to his follower Yin Haiguang, Jin thought that Zhang was a talentless, knowledge-less pretender, who was interested only in propagating dialectical materialism.

Zhang contributed greatly to the teaching of modern logic as well as the reputation of the department, which became known as the “Qinghua School of Mathematical Logic”. From the start on, he taught the history of Western philosophy, introductory courses on logic, mathematical logic and Russell’s philosophy. According to contemporary descriptions of the curricula, the main textbook used at the course on mathematical logic was Russell’s *The Principles of Mathematics* (1903). Apart from logic and mathematical logic, Zhang was also teaching Russell’s philosophy at Peking University, with his lectures all based on his translation of Russell’s *An Outline of Philosophy* (1927) (*ibid.*, 107-9). In 1936, his participation in the student demonstrations following the December 9 Movement cost him his position at the university. Indeed, after that Zhang was never again able to obtain a teaching post at any Chinese university. Following the establishment of the People’s Republic of China (PRC) in 1949, Zhang assumed the post of a librarian at the central library in Beijing, where he remained working until his retirement. Zhang passed away in June 1986 in the capital, at the venerable age of 93 years.

2 Zhang’s Early Admiration of Russell

Akin to other members of his generation, Zhang’s world of ideas was still deeply rooted in the traditional Confucian setting of his childhood upbringing. Naturally, his close relation to the, so to say, “past tradition(s)”, decisively predefined the future trajectory of his psychological development. In that way, the revolutionary movement of early 1910s spoke first and foremost to Zhang’s juvenile urge to emotionally detach himself from the morally authoritative confines of the past, while a more mature and rational realization of his cultural identity resurfaced in the later years of his participation in the political movements (around 1922), as Zhang’s attitude towards the seemingly distant past became more balanced. Thus, back in the year 1911, when the winds of the Xinhai Revolution (*Xinhai geming* 辛亥革命) carried along the promise of liberty, and calls for the rebirth of Chinese identity resounded throughout the streets of Chinese cities, a new world was painted before Zhang’s eyes, set into a diametrical opposition with the old, dim and narrow one of the Confucian past. If the latter was a realm defined by oppression and subjugation, the former was created on the promise of a liberation, that was supposed to be attained through a new kind of realism which would deconstruct the foundations of the rusty machinery of Imperial institutions and Confucian ethical norms. About five years later, when Zhang was studying philosophy and mathematics at Peking University, he discovered his own

source of realism in Russell's work. It seems that the first thing Zhang adopted from Russell were his views on marriage and sexual liberty. This is not surprising at all, since at that time Zhang was still directly confronted with the institution of arranged marriage, imposed upon him by his father in the provincial setting of the family home, forcing him to temporarily abandon the intellectual pleasures of life in the capital.

Although even before this time, and in contrast with most of his fellow students at primary and secondary schools, Zhang was extremely open to all ideas from the West,³² his search for a universal solution for all problems of Chinese society intensified during his years at the university, and reached its peak when he first became familiar with Russell's work. Ultimately, he became convinced that all the desired solutions resided in a scientific worldview, whose source of potency (i.e. objectiveness) resided in the scientific method.

2.1 A Popularizer of Russell's Ideas (from 1919 on)

Following his explorations of Russell's philosophical writings, Zhang became convinced that all his opinions were derived directly and solely from scientific facts. He also came to believe that Russell's inextinguishable fountainhead of truth resided in the principles incorporated in mathematical logic, or as Zhang saw it, a revolutionary form of scientific method. Zhang first mentioned Russell's connection to mathematical logic in an article entitled "A Historical Outline of the Relationship between Philosophy and Mathematics" (*Zhexue shuxue guanxi shilun yin* 哲學數學關係史論引) (1919). Together with another of Zhang's articles from 1919, "Philosophical Principles of Numbers" (*Shu zhi zheli* 數之哲理), these early essays provide a profound insight into Zhang's understanding of the concept of mathematical logic in the context of the intellectual climate of the May Fourth movement.

2.2 Writing in Defence of his Teacher, 1920

Even before it became publicly known that Russell was going to visit China, Zhang already started translating essays and chapters from his most influential works. Thus, in the year of the May Fourth event, Zhang published translations of the following texts in various Chinese periodicals: "The Value

32 This observation was made by Liang Shuming, who called Zhang his early source of Western ideas. When they were still in secondary school, Zhang, for instance, introduced Liang to the philosophy of Schopenhauer. Later, however, Zhang failed to convince Liang to follow Russell's philosophy. See Lynch, 2018.

of Philosophy" (1912),³³ the lecture "What We Can Do" (1915) and the "Declaration of Independence of the Spirit" (1919).³⁴

Subsequently, in March 1920, Zhang felt the responsibility to publicly defend Russell against the criticism launched by the Chinese proponents of other philosophies, most notably the adherents of pragmatism based at Peking University's Department of Philosophy. In his "Letter to the Editor" (*Ji bianzhe* 寄编者) of the *Chenbao* 晨報 newspaper, Zhang set out to defend the tenets of Russell's philosophy against the fierce attacks coming from the pragmatists.³⁵ In the letter, Zhang disproved Dewey's portrayal of Russell philosophy as pessimistic and elitist, emphasizing that "Russell stands for ethical neutrality (*lunli zhongli* 伦理中立) and is a thorough realist who upholds logical atomism (*mingli yuanzilun* 名理原子論) and the principle of absolute pluralism (*juedui duoyuanlun* 絕對多元論)." (Schwarcz 1991/2, 134). Zhang further described Russell's philosophical method as "to dissect all categories of thought, be they political, scientific or philosophical" (*ibid.*), claiming that if one takes a closer look at Russell's philosophy, one can observe that it represents a form of realism, which can also be called "analytical realism" (*jiexi de shizailun* 解析的實在論) due to its analytical method, or "realism of mathematical principles" (*shuli shizailun* 數理實在論) because it is based on mathematics and obtained through investigation of its philosophical principles.

Both in support of his argument and to help create a positive image of Russell prior to his arrival, Zhang published a new series of translations from Russell's writings. These included Russell's "On Scientific Method in Philosophy" (1918), "Dreams and Facts" (1920), "Democracy and Revolution," "The Nature of the State in View of its External Relations" (1916) and "Government and Law" (1918)³⁶. Apart from translations, in the months preceding Russell's arrival Zhang also produced a series of writings which directly or indirectly expound on the eminent image of the English thinker's scholarly and ethical

33 This was actually a translation of a part of Russell's *The Problems of Philosophy* (1912). It was published under the Chinese title "*Zhexue zhi jiazhi*" 哲學之價值.

34 According to Schwarcz, Zhang's translation of Russell's works can be divided into two distinct periods: the first was between 1919 and 1920, and the second from 1927 to 1928. While in the first period Zhang focused mainly on introduction of the "key terms of Russell's" logic, the second was devoted to "the scientific and social foundations of Russell's work" (Schwarcz 1991/2, 140). A closer look at Zhang's later translations, however, reveals that the years at Qinghua University (up to 1936) need to be taken into account as another, separate period (see: Appendix).

35 An extended version of the same letter was appended to Zhang's translation of Russell's essay "Dreams and Facts" (1920).

36 A chapter (no. 5) from Russell's *The Proposed Roads to Freedom*.

persona, while at the same time pointing out the “revolutionary” character of his contributions to science (mathematical logic and mathematics). These articles included “Russell and the Question of Population” (*Luosu yu renkou wenti* 羅素與人口問題) (1920) and “A Revolution in Science” (*Kexue li de yi geming* 科學裏的一革命) (1920). Writing in the very same spirit, Zhang further composed a biographic essay entitled “Russell” (*Luosu* 羅素), which was followed by an exhaustive bibliography of his writings carefully titled “A Tentative Bibliography of Russell’s Published Works” (*Shi bian Luosu jikan zhuzuo mulu* 試編羅素既刊著作目錄). The bibliography, published around the time of Russell’s arrival, listed 94 works authored by the latter. A few weeks later the list was supplemented with an additional 16 bibliographical units enumerated in “A Footnote on Russell” (*Zhi Luosu* 志羅素) (1920). The great majority of these essays and translations appeared either in *New Youth* (*Xin qingnian* 新青年) or *Young World* (*Shaonian shijie* 少年世界).

2.3 The Portrait of a Scholarly Sage

Zhang’s biographical essay “Russell” (1920) opens with the following summary of his main contributions to science and philosophy:

Russell is currently the world’s leading mathematical philosopher, who greatly contributed to the founding of a most splendid new science (i.e. mathematical logic (*shuli luoji* 數理邏輯), also called symbolic logic (*ji-hao luoji* 記號邏輯) or logistic (*luojisitike* 邏輯斯諦科)) which inaugurated a new period in the development of modern scientific thought. Founded on his critical survey of mathematics, he also established a new kind philosophical method (in terms of spirit it is the scientific method in philosophy, with regard to the manner it is the “logical and analytical method” (*luojide he jiexide fangfa* 邏輯的和解析的方法), which may also be translated as “*mingli-jiexifa*” 名理·解析法 [logico-analytical method]). His philosophy (called “logical atomism” or “absolute pluralism”, which presupposes the existence of various kinds of individual [entities] and relations and does not rest on the cosmological foundations that presuppose an existence of one all-encompassing entity. In plain words: it is a new research that sets out from the “relations” and rests in the “theory of external relations”) counts as the most influential in the contemporary philosophical and intellectual circles. Recently, he has also taken this “logico-analytical method”, which already had such a great effect on mathematics and philosophy, and conducted new research in psychology, having obtained results that correspond in great part to the

newest psychological teaching of behaviourism (*xingdong zhuyi* 行動主義), which emerged in America, as well as to “neutral monism” (i.e. the American School of New Realism). He believes that the distinction between mind and matter is not substantial, but it is rather the case that they do not share the same status in the law of cause and effect that they adhere to. (Zhang Shenfu 1920d, 1)

He describes Russell as a prolific writer, insightful philosopher, brilliant scientist, noble political thinker, and a person of principles who acts and speaks in accordance with the truth and facts. Reading Zhang’s lofty depiction of Russell’s personality, one is instantly reminded of the ideals pertaining to the sages of old. It is highly reminiscent of those exemplary figures from China’s past; a person who does not abandon their moral paths, even when confronted with the worst threats, but remains faithful to their mission of extending benefit and wisdom to the people. Thus, when Russell was facing the consequences of his pacifism with respect to World War I, “his courage was ever more flourishing, his illuminating light of his wisdom became all the more brighter, his mind ever calmer, the excellence of his scholarship became more and more evident, his reformist treatises grew more abundant, his viewpoints fairer and more equitable and his corrective influence [on society] grew greater day by day” (ibid., 2). Above all, Zhang described Russell as the protector of the working man, of the common people (*min* 民), the care for whose welfare and pacification (*an* 安) was in the early Confucian tradition attributed to a humane (*ren* 仁) sage-like character.

He further believed that all of Russell’s teaching constituted one consistent whole, his teaching on society and politics being “of the same stock” as his teaching on mathematics and philosophy. Accordingly, Zhang probably believed that the reason why Russell attached great importance to the individual, liberty and autonomy was a result of his command of the principles of logic and his knowledge of scientific facts. Russell’s emphasizing of the autonomy of the individual was intertwined with the high regard for the particular in the universe (logical atomism) and view of absolute pluralism in his philosophy. Zhang aimed to convince his readers that, as a thinker, Russell possessed a great capability to illuminate the foundations of society and causes of “modern diseases”. To attain this goal, Russell was struggling for social reforms through “impulsive transformations” (*chongdong zhi zhuanbian* 衝動之轉變), to achieve the social circumstances which would enable progress. Most importantly, Zhang wanted to persuade the Chinese public to accept Russell’s world-views by pointing out that he appreciated traditional Chinese poetry and on certain occasions in his discussions even drew from Laozi and Zhuangzi (ibid.).

In Zhang's eyes, by having been the "most realistic philosopher, who attaches most importance to facts", by possessing the utmost ability to implement the scientific method, Russell was able to speak about all aspects of life and all phenomena of the natural world, and was a polymath immersed deeply into every development in science and philosophy. According to Zhang, Russell's philosophical thought was defined by four main characteristics: the analysis of the "common-sense data (*dita* 隸他)", critique of idealism, spreading the school of philosophy of science – which integrates physics, mathematics and mathematical logic – and advocacy of guild socialism (*ibid.*).

Finally, Zhang also stressed that Russell believed that the universe was a continuum (*xiangxuti* 相續體) or cluster of individual objects, events or beings. This meant that the human being's view on phenomena or the individual existence of objects or beings resembled an experience of watching a movie, which consists of a succession of individual images. Zhang further compared this idea of the universe to the notion of *ālāya-vijñāna* (阿賴耶識 *alaiyeshi*) or "storehouse-consciousness" from the Consciousness-only school of Buddhism (*weishi* 唯識).

In late October 1920, when his "British master already set foot on Chinese soil," (Schwarcz 1991/2, 134) Zhang decided to respond publicly to Zhang Dongsun's misinterpretation of Russell's philosophy. At the time, Zhang Dongsun was one of the principal members of the Lecture Society, who was also tasked with the organization of Russell's visit in China. After Russell's arrival in Shanghai, he accompanied him to Hangzhou, Nanjing, and Hunan together with Yang Duanliu and his official translator, Zhao Yuanren. Zhang's contact with Russell left a great mark on him. Which is why, in the following years Zhang Dongsun also published a number of critiques of Russell's philosophy (New Realism and logicism).³⁷ In October 1920, however, he believed that Russell might have represented a probable solution to China's political and social difficulties, and set out to apply Russell's ideas against those of his new Marxist opponents. Both as a member of Marxist circles at Peking University and an advocate of Russell's philosophy, Zhang Shengfu was thus compelled to take a stand against Zhang Dongsun's imperfect portrayal of Russell's philosophy, who seemed to have mistaken Russell's realism for

37 The first article, where Zhang mentioned Russell was the article "We Must All Keep in Mind the Sincere Advice That Was Given to Us by Mr. Russell" (*Dajia xu qieji Luosu xiansheng gei women de zhonggao* 大家須切記羅素先生給我們的忠告) written in response to Chen Duxiu and other's criticism of "guild socialism," a form of socialism advocated by Russell and now adopted by Zhang. In the article he summarized the content of Russell's lectures related to Chinese current situation and emphasized that what China needed was knowledge (Zuo Yuhe 1998, 124).

pragmatism. In another letter addressed to the editor of the *Chenbao* 晨報 newspaper, Zhang Shenfu noted:

Mr. Zhang Dongsun is thoroughly misreading Russell when he describes his philosophy with the Chinese words *shiyong zhuyi* 使用主義. The English equivalent of this is “pragmatism” not “realism” ... Russell is a firm opponent of pragmatism. His views are very different from Bergson and Dewey, in the same way that his mathematics is fundamentally different from that of Galileo.

Since last year, when he began to study modern psychology, Russell has developed a new theory, which suggests that there is no difference between mind and matter. They are both part of a continuum of varied perception. In this respect Russell's theories are quite close to those of William James. Russell's idea that “truth propositions correspond to actual facts” is nonetheless different from James' notion... It is also very different from Dewey's notion... The difference in their positions is amply evident in the *Principia Mathematica* and in other of Russell's works... (Schwarcz 1991/2, 135)³⁸

In these early years (1920s), Zhang eagerly followed Russell's interests in science. Thus, after the Englishman discovered behaviourism Zhang also became interested in psychoanalysis, which he introduced to his Chinese readership.³⁹ His interest in psychoanalysis might also have been a result of his obsession with the notion of “analysis”. Zhang believed that Russell's main philosophical method was so-called “logical analysis”, established based on his most advanced mathematical logic.

Shortly before Russell's arrival in China, Zhang was sent to Shanghai by Peking University to represent the institution at the official reception ceremony. As Zhang himself pointed out in his conversations with Vera Schwarcz, when Russell finally arrived in China he did not play a central role in the organization of his trip and lectures. Zhang remarked:

I did not invite Russell to China – Liang Qichao did. I did not translate his public lecture, Zhao Yuanren, an American-educated young man, did. I did not even translate Russell's lecture notes. A member of the New Tide society, Sun Fuyuan did. I was not even involved in the founding of the Chinese “Russell Society” in 1921, I had already gone to France. (Schwarcz 1991/2, 122)

38 This is a revised and abridged version of the original translation.

39 He first introduced Freud and psychoanalysis in an article from 1922, entitled “Social Questions” (*Shehui wenti* 社會問題).

Nor did Zhang have enough opportunities to converse personally with Russell about questions related to philosophy and science. After having met Russell at the public reception banquet in Shanghai and later attending some of his lectures in Beijing, Zhang was finally able to personally meet Russell in November in the capital. Writing on the day before their meeting in the Continental Hotel, Russell described Zhang in his letter to Jean Nicod as a Chinese scholar: “who knows my writings, all of them, far better than I do and has constructed an inconceivably complete biography of them” (ibid., 130). According to Zhang’s own narrative, in their conversations over tea, conducted in the lobby of the Continental Hotel in Beijing, they touched upon a wide variety of questions, from those related to Bolshevism and dialectical materialism, to matters related to science and philosophy. In these conversations Russell also convinced Zhang about the utmost significance of new discoveries in physics, such as Einstein’s Theory of Relativity, for the development of the scientific method and philosophy in general (ibid., 131). Consequently, in the immediate years to come Zhang’s attention turned shifted from biology to modern physics (atomic physics, quantum mechanics and Einstein). Modern physics and psychoanalysis were also two main field of interest that Zhang actively pursued during his years in France and Germany. In the remaining weeks before his departure for Europe, Zhang further exchanged a few letters with Russell, which started a written correspondence that lasted until 1962 (ibid., 120).

3 The Student and Professor of the Foundations of Russell’s Thought: Mathematical Logic and Analytical Method

In the years following his return from Europe in 1923, Zhang gradually re-established his position in Chinese academia, teaching at various universities across the country. In his subsequent career, Zhang retained his special connection to Russell’s theoretical philosophy and his revolutionary theory of mathematical logic, teaching almost exclusively courses on Russell, modern Western philosophy (probably with a focus on New Realism, Vienna School (late 1920s – early 1930s), and dialectical materialism) and, last but not least, mathematical logic. As a professor of mathematical logic and modern analytical philosophy, Zhang made his next significant contribution to the dissemination and establishment of Russell’s thought in China, and eventually as a professor of philosophy at both Qinghua and Peking Universities (1929 on) also became one of the leading popularizers of the notion and discipline of mathematical logic, as well as Russell’s *Principia Mathematica*, in China.

As a concept, mathematical logic first appeared in Zhang's writings in connection with the evolutionary background of mathematics. Because, in Zhang's understanding, mathematical logic was at the heart of Russell's philosophy, an exposition of its developmental history would also serve as a demonstration of the objectiveness and the revolutionary character of his work.

At the earliest stage, Zhang understood Russell's philosophy as a derivation of his philosophy of mathematics (which we would today describe as logicism or logical atomism), based on a methodological foundation of mathematical logic. Three months before the May Fourth event (1919), Zhang wrote an article entitled "A Historical Outline of the Relationship between Philosophy and Mathematics" (*Zhexue shuxue guanxishi lunyin* 哲學數學關係史論引), in which he attempted to outline the historical coexistence of mathematics and philosophy, from the beginning of Western science down to the 20th century. Zhang emphasized how both disciplines shared a common methodological foundation, namely logic (Zhang Shenfu 2005 II, 1).⁴⁰ As far as the evolutionary development of both was concerned, Zhang believed that their main point of confluence was Russell's philosophy of mathematics, founded upon his advances in the study of mathematical logic. As I will try to demonstrate in the following discussion, in his early encounters with the concept Zhang most probably understood mathematical logic as a method binding together the dialectical principles of thought and numbers, or philosophy and mathematics, respectively. Because these principles were understood in an ontologically positive sense (principles embodied in logic corresponded to the laws of nature), logic was also believed to equip mathematics and philosophy with a higher level of epistemological validity. In the same sense, Zhang related the occurrence of mathematical logic with Russell's philosophy of New Realism, logical atomism, and neutral monism (*ibid.*, 4). He did not regard mathematical logic as a mere technical outgrowth of formal logic, but rather as an outcome of a dialectical harmony between mathematics and logic. The theme and approach of the above-named article were more or less in line with a common tendency in the Chinese intellectual world of the time to assess both traditional and modern scientific ideas from the West through the perspective of evolutionary cosmologies. In short, what Zhang wanted to show or discover was the positive evolution of mathematical logic, in harmony with the evolutionary laws of the universe.

Apart from the above, the article may be the earliest mention of the contemporary Chinese term *shuli luoji* 數理邏輯 for "mathematical logic". Zhang's

40 He believed that logic is embodied partially in mathematics and language. Zhang also recognized that logic is a universal language and as such the foundation of all expressions of truth.

use of the word *luoji* 邏輯 instead of *lunli* 論理 was almost certainly the result of Zhang Shizhao's influence. At the same time, Zhang also used the same Chinese translation to refer to another synonym for "logistics", an early synonym for mathematical logic, and was also aware that the field was generally also referred to as "symbolic logic", "algebra of logic" or "algorithmic logic". Finally, the article represented one of the earliest overviews of the history of mathematical logic in China, mentioning the contributions of its main figureheads, such as Grassmann, Schröder, Peirce, Burali-Forti, Frege, Peano, Dedekind and so on.

Another of Zhang's reflections on the evolution of mathematical logic took place in the article "A Revolution in Science" (*Kexue li de yi geming* 科學里的一革命) from the year 1920, where he compared mathematical logic to Einstein's Theory of Relativity, calling it a revolution in mathematics and philosophy. Zhang noted that while in physics Einstein's relativity replaced Newtonian mechanics, in the domain of logic mathematical logic superseded Aristotelian logic (Zhang Shenfu 2004 II, 30).

3.1 On the Practical Utility of Mathematical Logic

The earliest text in which Zhang described the immanent utility of mathematical logic was the article "Liberty and Order" (*Ziyou yu zhixu* 自由與秩序) published in 1919, when the spirit of the May Fourth movement was in full swing. The article called for the establishment of the "order of liberty" (*ziyou de zhixu* 自由的秩序), a social order that would approach the ideal of unity with the natural (*ziran* 自然). According to Zhang, at the collective level such an order is attainable only through inner liberation (self-cultivation), while the latter is possible only by means of knowledge of the facts. At this point Zhang combined the Confucian ideal of bringing order (pacification) to the people through inner perfection (attainment of humaneness (*ren* 仁)) with scientific empiricism, because in turn he claimed that true knowledge can only be attained with the help of the scientific method, application of Descartes' methodical doubt, Occam's razor, and finally mathematical logic. In this way, through science, one's inner personal perfection would be transmuted into transcendence over one's inner epistemological or psychological constraints, for the "power of science will prevail over nature" (Zhang Shenfu 2005 III, 30-1). Zhang described the liberating power of mathematical logic with the following words:

The most modern logic (mathematical logic) can give our thoughts wings, empowers our abstract imagination, and equips us with a tool

of possibilities never imagined before. There are more worlds than this world, and more mankind than this mankind. To be Nietzsche's *Übermensch* [superman] is to recognize this. (Ibid., 32)

Apart from the Confucian idea of inner moral cultivation, Zhang also integrated into his early notion of mathematical logic another the traditional concept of the harmonistic complementarity (*xiangcheng xiangfan* 相成相反) of antagonistic cosmological principles. This application is exemplified in his interpretation of "principles of numbers" and their concrete use in resolving political dilemmas. In the article "Philosophical Principles of Numbers" (*Shu zhi zheli* 數之哲理), Zhang interrelates seemingly dialectical principles in mathematics, or the so called "laws of numbers", with complementary dialectical principles in nature. First, he introduces an idea of mutual complementarity of the physical principles of the world:

In the ever-evolving world, there always exist two aspects which mutually oppose and create each other. Being mutually correlative, together they form function and variable (*hanbian* 函變) ... If one progresses, at the same time the other recedes. If one is diverse and complex, the other is singular and simple. A dynamic factor has got a corresponding static one. If there is a progressive aspect, at the same time there also exists a complementary conservative factor... Therefore, the method of governing the world does not go beyond harmonizing and adjusting these two aspects. Following their natural posture, one certainly will attain their equilibrium. (Zhang Shenfu 2005 III, 18)

Zhang believed that this universal law of perpetual change was also embodied in the principles governing mathematical equations, in particular a mathematical function. He further remarks: "Many social theoreticians are familiar with this principle, and thus say that 'the society's progress is nothing but differentiation and integration'" (Ibid.). By "social theoreticians" Zhang probably meant socialists or Marxist philosophers. Most notably, as a dialectical pair differentiation and integration are mentioned in Engels' *Dialectics of Nature* and *Anti-Dühring*, where they are associated with incorporation of the dialectical principle of dynamic change from science into mathematics.⁴¹ While this is a strong indication that, to some extent, Zhang's ideas were already influenced by Marxist philosophy in the early May Fourth period, on

41 In *Dialectics of Nature*, for instance, Engels wrote: "...the turning point in mathematics was Descartes' variable magnitude. With that came motion and hence dialectics in mathematics, and at once, too, of necessity the differential and integral calculus..." (Engels 1987, 537) Differentiation and integration are mentioned also in connection with "negation of negation" in Engels' *Anti-Dühring*.

the other hand borrowings like that were still adapted to fit the traditional concepts of the dialectical complementarity (*xiangcheng xiangfan* 相成相反), harmonic unity (*tiaohe* 調和) and incessant metamorphosis (*bianhua* 變化) of the universe. Thus, Zhang entrenched the traditional cosmological perspective, while in almost the same breath he also postulated that, even if the universe might appear to be in a state of constant movement, never still or balanced, perceived as a whole it exists in a state of constancy. According to Zhang the same principle is amply illustrated by the fact of the consubstantiality of mathematical or logical form with the principle of harmonic balance in the universe:

Suppose that one [value in an equation] converges towards zero, and the other, at the same rate as the first one, converges towards infinity, then their product never changes, it always remains the same. In that way the world can always be at peace. This principle can be expressed with mathematical symbols: $a \cdot b = K$ (constant) (Ibid.)

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The most important point was that Zhang defined this principle in the terms of, as it were, “mathematical logic”. Hence, when he speaks about the mathematical logical principle of constant totality expressed by the said equation, what he probably had mind was the concept of a universal set and the operation of “multiplication” as a relationship defined between two subsets of this universal set.

Finally, Zhang also delivered a concrete example of the same principle governing the processes of social dynamics and mutual interactions between different social entities⁴²:

If a great country wants to unite, it cannot but turn into a federation. If one wants to join something together, one cannot but separate. If we want to achieve world unity, we must first side by side develop the individual and its pure independence to the perfection. After the ambition of occupying [territories] has shattered, the individual will enjoy absolute freedom and be individualistic through the career of creation. This all follows from the everywhere present and all permeating principle. This is also the same as: when the affairs in the contemporary world are getting more and more complicated, the methods to cope with them are required to simpler and more effort-saving. When economy is sought in industry and economy of thought in scholarship, it is all in order to save effort and produce great achievements. It is all a desire to spend as little effort as possible and reach the greatest possible profit, to achieve the

42 Most probably, Zhang was referring to the idea of class-struggle in historical materialism.

efficient functioning. This is also included in the principle of simple and complex assisting each other. (Ibid., 19)

Similar ideas continued to permeate Zhang's writings on social and political topics in the 1930s. An illustrative example thereof is the short article entitled "Women and Revolution" (*Funü yu geming* 婦女與革命) from 1930, where Zhang still uses concepts from "mathematical logic" to expound on the predicament of Chinese women, emphasizing that a social revolution is a necessary but not sufficient condition for improving the status of women in Chinese society. According to Zhang, complete emancipation could only be achieved by means of a "natural revolution" (*ziran geming* 自然革命), which would follow the same dialectical precepts as outlined above (see Zhang 1930).

3.2 Mathematical Logic, Infinite Sets and Russell's Theory of Types

Between 1917 and 1929, Zhang taught general or introductory courses on logic at various Chinese universities, from Peking University to Whampoa Military Academy, Jinan University (*Jinan daxue* 暨南大學), Dalu University (*Dalu daxue* 大陸大學) and Great China University (*Daxia daxue* 大夏大學). It is highly probable that, at least from 1919 on, his lectures on logic, at least to some extent, also included Russell's *Principia Mathematica*, elements of transfinite set theory and related chapters from the history of mathematical logic. Nonetheless, because there is no concrete evidence as to the actual content of his lectures, this remains only a hypothesis.

Even though we do not know much about the content of Zhang's lectures from his years at Peking University, some light on the nature and broadness of his understanding of mathematical logic is shed by a series of articles written in 1925, when Zhang took part in two written discussions about the Chinese translation of Russell's *Introduction to Mathematical Philosophy* and the meaning of infinitesimal (infinitely small), which developed in the *Contemporary Review* (*Xiandai pinglun* 現代評論) and the *Literary Supplement to the Peking Gazette* (*Jingbao fukan* 京報副刊). In an article entitled "Mathematical Logic" (*Shuli luoji* 數理邏輯), Zhang defended certain postulations in Russell's *Introduction to Mathematical Philosophy* by recapitulating the history of mathematical logic and its relationship with mathematics and set theory. In the rest of articles Zhang contributed to the debate, such as "Philosophy of Mathematics" (*Shuxue de zhexue* 數學的哲學), "The Infinitesimal" (*Wuqiongxiao* 無窮小) and "From Infinitesimal to Infinitely Large" (*Cong wuqiongxiao dao wuqiongda* 從無窮小到無窮大).

到無窮大), Zhang further expounded on the concept of the infinitesimal in transfinite set theory, mathematical analysis and Russell's philosophy of mathematics. In his articles Zhang mainly pointed out the authors and works in Western mathematical logic and mathematics, which in his opinion ought to be used as authoritative sources for a discussion on concepts such as the infinitesimal, variable, infinite numbers and so on. Apart from Fu Zhongsun and Wang Dianji, who also joined the debate on his side, Zhang's familiarity with mathematical logic, mathematics, and transfinite set theory⁴³ made him the most erudite participant in the debate. In the framework of this, Zhang also compiled and published a second bibliography of Russell's works, entitled "Russell's Recent Publications" (*Luosu jin kanwen* 羅素近刊文), which listed around sixty works published between 1924 and 1925. Like the majority of the remaining contributions to the abovementioned debate, the bibliography was published in a special number of the supplement to the *Peking Gazette* (*Jingbao* 京報) newspaper, the *Jingbao fukan* 京報副刊.

4 Epilogue – The Later Years

The final period of Zhang's active engagement with Russell's philosophy and mathematical logic extended between 1929 and 1936, when Zhang was at Qinghua University. During his tenure as a professor of philosophy, Zhang contributed significantly to the academic establishment and advancement of Russell's philosophy and logic in China. Concurrently, he also continued with the popularization of Russell's philosophy, mainly through the medium of the Intellectual Currents of the World (*Shijie sichao* 世界思潮) column of the *Dagong bao* 大公報 (*L'Impartial*). Between the years 1933 and 1934, when Zhang was editing the column, more than 30 articles were published on various aspects of Russell's current work and thought. Furthermore, Zhang also published reviews and lists of newly published books on logic and analytic philosophy, written in English, French or German. The Intellectual Currents column was also an important platform used by Zhang and his younger brother Zhang Dainian (張岱年, also called Jitong 季同, 1909-2004) for dissemination of their shared idea of a synthesis between analytical philosophy and dialectical materialism. Finally, by means of the abovementioned column, the Zhang brothers also for the first time

43 In his graduate studies of mathematics at Peking University, Zhang studied Cantorian transfinite set theory under the supervision of Feng Zuxun 馮祖荀 (1880-1940) (see Zhang 1918a/b; Guoli Beijing daxue 1917).

introduced the philosophy of the Vienna School to China. Nevertheless, it could be claimed that the main focal point of the column was still Russell, his philosophy and mathematical logic.

In 1936, following his arrest and incarceration for his participation in the student protests that broke out in the aftermath of the December 9 Movement, Zhang was discharged from his position as a Qinghua professor. Despite the fact that he would never be able to lecture on Russell again, he resumed writing about the English thinker and kept including his ideas into his own philosophical meditations. Thus, in the following decades he continued publishing translations of Russell's works and writing essays about the man's life and work. In 1942, for instance, he published a short text "To Russell on His 70th Birthday" (*Zhu Luosu qishi* 祝羅素七十) in the leftist newspaper *New China Daily*; while in 1946 an essay entitled "Russell – The Greatest Still Living Philosopher" (*Luosu – Xiandai shengsun de zui weida de zhexuejia* 羅素·現代生存的最偉大的哲學家) appeared in the *Xinwen pinglun*, where Russell was once again praised as "the great scholar of enlightened realism", whose keystone book the *Principia Mathematica* "opened up a new page in both mathematical logic and philosophy". Concurrently, on the philosophical meaning of mathematical logic, in 1946 Zhang still emphasized that (quoting Russell): "No problem in philosophy can be truly solved unless there is a breakthrough in mathematical logic" (Schwarcz 1991/2, 129).

The above overview of the main milestones and aspects of Zhang's intellectual relationship with Russell and his philosophy reveals his indisputable role in the introduction, establishment and advancement of Russell's philosophy and logic in 1920s and 1930s China. He was one of only a few Chinese intellectuals who were able to introduce Russell to China both in the period before his visit as well as in the decades following it. Zhang can moreover be credited for not only having played an important role in introducing Russell's philosophy to the Chinese but also for his seminal contributions to establishment of Russell's philosophy and mathematical logic at Chinese universities. Maybe his most important contribution is his undying efforts to popularize various aspects of Russell's thought and bring them closer to the ordinary people by advocating the idea which had also been hinted at by Russell during his visit to China. Specifically, that the East and West can be united in a harmonic synthesis, established on the basis of Russell's logical analysis, Lenin's dialectical materialism and Confucius' humanity.

5 Appendix: A List of Zhang Shenfu's Translations of Russell's Works (1919-1936)

Year	Original Title	Title in Chinese
1919	"What We Can Do" (1915)	<i>Women suoneng zuo de</i> 我們所能作的
	<i>Problems of Philosophy</i> (1912 – last chapter)	<i>Zhexue zhi jiazhi</i> 哲學之價值 (The Value of Philosophy)
	"Declaration d'indépendance de l'esprit" (1919)	<i>Jingshen duli xuanyan</i> 精神獨立宣言
1920	"The Nature of the State in View of its External Relations" (1916)	<i>Guo</i> 國 (The State)
	"Democracy and Revolution" (1920)	<i>Minzhu yu geming</i> 民主與革命
	"Dreams and Facts" (1919)	<i>Meng yu shishi</i> 夢與事實
	"Scientific Method in Philosophy" (1918)	<i>Zhexue li de kexuefa</i> 哲學裏的科學法
1926	"The Philosophy of Mr. Bertrand Russell" (1924) ⁴⁴	<i>Luosu xiansheng zhi zhexue</i> 羅素先生之哲學
1927	"Nature and Man" (1925) ⁴⁵	<i>Ziran yu ren</i> 自然與人
	"British Folly in China" (1927)	<i>Yingguo dui Hua de chunju</i> 英國對華的蠢舉
	"Is Science Superstitious?" (1926)	<i>Kexue shi mixin de ma</i> 科學是迷信的麼
	"The Meaning of 'Meaning'" (1920)	<i>Yiwei de yiwei</i> 意謂的意謂
	"The Training of Young Children" (1927)	<i>Youer de xunyu</i> 幼兒的訓育
1927/1928	"Introduction" to <i>Tractatus Logico-Philosophicus</i> (1922) by L. Wittgenstein	<i>Ming-li lun</i> 名理論
1928	"What is Matter" (1925) ⁴⁶	<i>Shenme shi wuzhi</i> 什麼是物質
	"Things That Have Moulded Me" (1927) ⁴⁷	<i>Luosu zixu sixiang de fazhan</i> 羅素自叙思想的發展 (Russell's own account on development of his thought)

44 Chapter 2 of the *Introduction to Modern Philosophy* by C. E. M. Joad. Zhang's translation of the entire book was published in 1926.

45 The first chapter of Russell's essay/booklet entitled *What I Believe* (1925).

46 Chapter 14 of Russell's *The ABC of Relativity*.

47 Introduction to the *Selected Papers of Bertrand Russell*.

1928	“Introduction” to <i>An Historical Introduction to the General Theory of Relativity</i> (1924) by A. V. Vasiliev	<i>Xiangduilun yu zhexue</i> 相對論與哲學 (Relativity and Philosophy)
	“Events, Matter and Mind” (1927) ⁴⁸	<i>Shi yu wu yu xin</i> 事與物與心
	“New Physics and the Wave Theory of Light” (1923) ⁴⁹	<i>Xin wuli yu guang de bodong shuo</i> 新物理與光的波動說
	“Behaviourism and Values” (1926)	<i>Xingwei zhuyi yu jiazhi</i> 行為主義與價值
1930	“Man and His Environment” (1927) ⁵⁰	<i>Ren yu qi huanjing</i> 人與其環境
	“Incompatibility and the Theory of Deduction” (1919) ⁵¹	<i>Luosu de yanyilun</i> 羅素的演繹論 (Russell’s Theory of Deduction)
	“Language and Meaning” (1927) ⁵²	<i>Yanyu yu yiwei</i> 言語與意謂
1932	“What is Western Civilization?” (1929)	<i>Luosu lun Xiyang wenming</i> 羅素論西洋文明 (Russell on Western Civilization)
1934	“On Locomotion” (1932)	<i>Lun dongzhuān</i> 論動轉
	“Probability and the Rate of Probability” (1930) ⁵³	<i>Gairan yu Gailü</i> 概然與概率
	“What Makes People Likable?” (1933)	<i>Youde ren weshenme rang ren xihuan?</i> 有的人為什麼讓人喜歡? (Why are Some People Liked by Others?)
1936	“Was Europe a Success?” (1934)	<i>Ouzhou shi yige chenggongzhe ma?</i> 歐洲是一個成功者麼?
	“What do We Really Know?” (1935)	<i>Women shizai zhidao shenme ne?</i> 我們實在知道什麼呢?

48 Chapter 26 of *Russell’s An Outline of Philosophy*.

49 A Part of Russell’s book *The ABC of Atoms*.

50 Chapter 2 of *An Outline of Philosophy*.

51 Chapter XIV of *Russell’s Introduction to Mathematical Philosophy*.

52 With Introduction by Zhang. According to Blackwell and Ruja, this is a translation of the excerpt from *An Outline of Philosophy*. Zhang, however, claims that the text was taken from *The Philosophy of Logical Atomism* etc.

53 Two excerpts from “Heads or Tails”.

Bibliography

- Ding, S. (丁石孫), Yuan, X. (袁向東) & Zhang, Z. (張祖貴) (1993). 'Beijing daxue shuxuexi bashi nian' 北京大學數學系八十年 (80 Years of Department of Mathematics at Peking University), *Zhongguo keji shiliao* 中國科技史料 [*China Historical Materials of Science and Technology*], 14 (1), 74-85.
- Engels, Friedrich (1987). *Dialectics of Nature*. In *Marx Engels Collected Works*. Volume 25. Moscow: Progress, 313-622.
- Guo, Hua-qing 郭華清 (2000). "Jiayin shiqi Zhang Shizhao de zhexue sixiang – tiaohelun" 甲寅時期章士釗的哲學思想 – 調和論 (Zhang Shizhao's Philosophical Thought in the Period of *Jiayin* (*The Tiger*) – the Theory of Harmony). *Supplement to the Journal of Sun Yatsen University (Social Science Edition)*, 20(3), 150-162.
- Guoli Beijing daxue 國立北京大學 (1917). "Like gemen yanjiusuo baogao" 理科各門研究所報告 (A Report on Research Institutes of All Sub-Divisions of the Science Division). November 29, 2.
- Guoli Beijing Daxue 國立北京大學 (1918). *Guoli Beijing daxue nianzhounian jiniance* 國立北京大學廿周年紀念冊 (*Commemorative Publication for the Twentieth Anniversary of National Peking University*). Beijing: Guoli Beijing daxue.
- Jiang, Tao & Ivanhoe, Philip J. (2013) ed. *The Reception and Rendition of Freud in China: China's Freudian Slip*. New York: Routledge.
- Jiang, Yi 江怡 (2009). "Weiyena xuepai zai Zhongguo de mingyun" 維也納學派在中國的命運 (The Fate of Viennese School in China). *Shijie zhexue*, 6, 6-23.
- Kurtz, Joachim (2011). *The Discovery of Chinese Logic*. Boston, Leiden: Brill.
- Kurtz, Joachim (2020). "Reasoning in Style: The Formation of 'Logical Writing' in Late Qing China". In Martin Hofmann et al. ed. *Powerful Arguments: Standards of Validity in Late Imperial China*. Leiden, Boston: Brill, 565-606.
- Lin, Xiaoqing Diana (2012). "Developing the Academic Discipline of Chinese Philosophy: The Departments of Philosophy at Peking, Tsinghua, and Yenching Universities (1910s-1930s)". In: John Makeham (ed.). *Learning to Emulate the Wise: The Genesis of Chinese Philosophy as an Academic Discipline in Twentieth-Century China*. Hong Kong: The Chinese University Press, 131-162.
- Lin, Xiashui 林夏水 & Zhang, Shangshui 張尚水 (1983). "Shuli luoji zai Zhongguo" 數理邏輯在中國 (Mathematical Logic in China). *Ziran kexueshi yanjiu*, 2(2), 175-182.

- Lynch, Catherine (2018). *Liang Shuming and the Populist Alternative in China*. Leiden: Brill.
- Meng, Guangwu 孟廣武 (2014). "Zhang Shenfu: Bei yiwang de shuxuejia gemingjia zhexuejia" 張申府：被遺忘的數學家革命家哲學家 (Zhang Shenfu: A Forgotten Mathematician, Revolutionary and Philosopher). *Journal of Liaocheng University (Natural Sciences Edition)*, 27(3), 1-32.
- Reynolds, D. (1986). *The Advancement of Knowledge and the Enrichment of Life: The Science Society of China and the Understanding of Science in the Early Republic*. The University of Wisconsin – Madison Ph. D. Dissertation.
- Schwarcz, Vera (1986). *The New Enlightenment: Intellectuals and the Legacy of the May Fourth Movement of 1919*. Berkeley, Los Angeles, London: University of California Press.
- Schwarcz, Vera (1991/2). "Between Russell and Confucius: China's Russell Expert, Zhang Shenfu (Chang Sung-nian)." *Russell: The Journal of the Bertrand Russell Archives*, 11, 117-46.
- Schwarcz, Vera (1992). *Time for Telling Truth is Running out: Conversations with Zhang Shenfu*. New Heaven & London: Yale University Press.
- Shi, Mingde 时明德 & Zeng, Zhaoshi 曾昭式 (1998). "Shuli luoji zai Zhongguo fazhan zhihuan de yuanyin tanxi" 數理邏輯在中國發展滯緩的原因探析 (An Exploration of Reasons of Slow Development of Mathematical Logic in China). *Xinyang shifan xueyuan xuebao*, 18(2), 29-33.
- Song, Wenjian 宋文堅 (2000). "Zhongguo shuliluoji bashi nian" 中國數理邏輯八十年 (80 Years of Mathematical Logic in China). *Beijing hangkong hangtian daxue xuebao*, 13(1), 12-7.
- Su, R. (蘇日娜), & Dai, Q. (代欽) (2019). Zhang Shenfu dui shuli luoji za Zhongguo zaoqi chuanbo de gongxian 張申府對數理邏輯在中國早期傳播的貢獻 (Zhang Shenfu's Contribution to Early Dissemination of Mathematical Logic in China). *Shuxue tongbao*, 58(10), 9-12, 19.
- Wen, G. (溫公頤) & Cui Q. (崔清田) (2001). *Zhongguo luojishi jiaocheng* 中國邏輯史教程 (A Course in the History of Logic in China). Tianjin: Nankai daxue chubanshe.
- Zhang, Shenfu 張申府 [Songnian 崧年] (1918a). "Like shuxue yanjiusuo baogao" 理科數學研究所報告 (The Report of Science Division's Research Institute of Mathematics). *Beijing daxue rikan*, February 8, 2-3.
- Zhang, Shenfu 張申府 [Songnian 崧年] (1918b). "Like shuxue yanjiusuo baogao" 理科數學研究所報告 (The Report of Science Division's Research Institute of Mathematics). *Beijing daxue rikan*, February 18, 2.
- Zhang, Shenfu 張申府 [Songnian 崧年] (1919a). "Zhaxue shuxue guanxi shi lunyin" 哲學數學關係史論引 (A Historical Outline of the Relationship between Philosophy and Mathematics). *Xin chao*, 1(2), 160-9.

- Zhang, Shenfu 張申府 [Songnian 崧年] (1919b). “Shu zhi zheli” 數之哲理 (Philosophical Principles of Numbers). *Xinchao*, 1(4), 90-2.
- Zhang Shenfu 張申府 (1919c). “Ziyou yu zhixu” 自由與秩序 (“Liberty and Order”). *Meizhou pinglun*, 30 & 32, 1-2.
- Zhang, Shenfu 張申府 [Songnian 崧年] (1920a). “Ji bianzhe” 寄編者 (Letter to the Editor). *Chenbao*, March 16, 4.
- Zhang, Shenfu 張申府 [Songnian 崧年] (1920b). “Luosu yu renkou wenti” 羅素與人口問題 (Russell and the Question of Population). *Xin qingnian*, 7(4),
- Zhang, Shenfu 張申府 [Songnian 崧年] (1920c). “Kexue li de yi geming” 科學里的一革命 (A Revolution in Science). *Shaonian shijie*, 1(3), 1-6.
- Zhang, Shenfu 張申府 [Songnian 崧年] (1920d). “Luosu” 羅素 (Russell). *Xin qingnian*, 8(2), 1-6.
- Zhang, Shenfu 張申府 [Songnian 崧年] (1920e). “Shi bian Luosu ji kan zhuzuo mulu” 試編羅素既刊著作目錄 (A Tentative Bibliography of Russell’s Published Works). *Xin qingnian*, 8(3), 1-14.
- Zhang, Shenfu 張申府 [Songnian 崧年] (1920f). “Zhi Luosu (Fu Luosu suo zhu shumu)” 志羅素 (附羅素所著書目) (A Footnote on Russell (Being an Appendix to Bibliography of Russell’s Writings)). *Dongfang zazhi*, 17(18), 130-133.
- Zhang, Shenfu 張申府 [Songnian 崧年] (1920g). “Jindai xinlixue” 近代心理學 (Modern Science of Psychology). *Xin qingnian*, 7(3), 95-99.
- Zhang, Shenfu 張申府 [Chi 赤] (1922). “Shehui wenti” 社會問題 (Social Questions). *Xin qingnian*, 9(6), 28-9.
- Zhang, Shenfu 張申府 [Songnian 崧年] (1925a). “Shuli luoji” 数理逻辑 (Mathematical Logic). *Xiandai pinglun*, 2 (33), 17-18.
- Zhang, Shenfu 張申府 [Songnian 崧年] (1925b). “Shuxue de zhexue” 數學的哲學 (Philosophy of mathematics). *Jingbao fukan*, 265, 73-77.
- Zhang, Shenfu 張申府 [Songnian 崧年] (1925c). “Wuqiong Xiao” 無窮小 (The Infinitesimal). *Jiayin zhoukan*, 1(19), 7-13.
- Zhang, Shenfu 張申府 [Songnian 崧年] (1925d). “Wuqiong Xiao yu Ding Xilin” 無窮小與丁西林 (The Infinitesimal and Ding Xilin). *Jingbao fukan*, 350, 2-3.
- Zhang, Shenfu 張申府 [Songnian 崧年] (1925e). “‘Wuwei de feihua’?” “無謂的廢話”? (‘Meaningless Nonsense’?). *Jingbao fukan*, 362, 3-6.
- Zhang, Shenfu 張申府 [Songnian 崧年] (1925f). “Buxing” 不幸 (Misfortune). *Jiayin zhoukan*, 1(23), 12-13.
- Zhang, Shenfu 張申府 [Songnian 崧年] (1925g). “Cong wuqiong Xiao dao wuqiongdà: da Xu Kejia xiansheng” 從無窮小到無窮大: 答徐克家先生 (From Infinitesimal to Infinitely Large: An Answer to Mr. Xu Kejia). *Jingbao fukan*, 369, 4-6.

- Zhang, Shenfu 張申府 [Songnian 崧年] (1925h). "Luosu jin kanwen" 羅素近刊文 (Russell's Recent Publications). *Jingbao fukan*, 294, 18-24.
- Zhang, Shenfu 張申府 (1993). *Suoyi* 所憶 (*Reminiscences*). Beijing: Zhongguo wenshi chubanshe.
- Zhang, Shenfu 張申府 (2005). *Zhang Shenfu wenji* 張申府文集 (*Collected Writings of Zhang Shenfu*). 4 Volumes. Shijiazhuang: Hebei renmin chubanshe.
- Zhou, Yunzhi 周云之 & Zhou Wenying 周文英 (1989). *Zhongguo luojishi* 中國邏輯史 (The History of Chinese Logic). Volume 5: Xiandai juan. Lanzhou: Gansu renmin chubanshe.
- Zhou, Yunzhi 周云之 (2004). *Zhongguo luojishi* 中國邏輯史 (The History of Chinese Logic). Taiyuan: Shanxi jiaoyu chubanshe.
- Zuo, Yuhe 左玉河 (1998). *Zhang Dongsun zhuan* 張東蓀傳 (*Biography of Zhang Dongsun*). Jinan: Shandong renmin chubanshe.