

**Envisioning Modernization of China:
Discourse on Science and Technology
in the New Youth Magazine (1915-1926)**

**by
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B.A. & B.E, Beijing Jiaotong University, 2018

Extended Essay Submitted in Partial Fulfillment of the
Requirements for the Degree of
Master of Arts

in the
School of Communication (Dual Degree Program in Global Communication)
Faculty of Communication, Art and Technology

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Summer 2020

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Abstract

The discourse on science and technology reflects the imagination and recognition of the mass to society in the future, shaped and formed by multiple social powers. This research goes back to the starting point in the Chinese history by addressing a large-scale promotion of “science and technology” by a prominent magazine the “New Youth” founded and led by Chen Duxiu. By analyzing the discourse on science and technology of the magazine, the research finds that China demonstrated an alternative answer to global process of modernization and modernity.

Keywords: The New Youth Magazine; Science and Technology; Discourse; Modernization; Modernity

Acknowledgements

By the time I wrote these words, my summertime in Vancouver nearly went to the grand finale, and my one-year studying abroad experience also came to the end with writing this acknowledgement. There were many happy and sweet moments during the year, such as: on a rainy night in December, I went shiny beautiful Christmas Market; as a teaching assistant for CMNS130 in the spring semester, I received many thanks from the instructor Anis and my students; I gave my first shot on skiing; successful presentation in Zhao's panel; going to Calgary and Banff before leaving Canada. It was these warm and tight bonds with friends that diluted my fear of the social distance from the COVID-19 pandemic, and gave me the support and courage to live alone in a foreign country (C'est la vie!).

Smoothly finishing this capstone project, the first person I should express my gratitude sincerely and deeply is my fabulous supervisor Dr. Svitlana Matviyenko. She is the most conscientious and responsible teacher I have ever met at SFU, whom also the first Ukrainian I made acquaintance with. When I saw her in the first sight (she was giving a workshop and was the host), I knew that it was an absolutely right choice to work with her, let alone her research interests and academic experience are exactly what I greatly appreciate. It turns out that I did learn a lot from her. She recommended Yuk Hui's book to me, and was always helpful with my proposal and every step of the project. After the school stopped the in-person course, she began to video with me regularly every week and listened to my every analysis of the articles of the New Youth magazine. She helped me to ask Prof. Zhao for any recommended books and theories for my research. At that time, due to the social isolation and other life trivia, I was at a state of adjusting my life mode. It was she that actually accompanied me on track of study during that time like a "life raft". For the presentation, she helped me polish the script and edit the slides. She is actually the invisible writer behind my paper. Although the intersection of a year is short, she will definitely have a long-term positive impact to me. I sincerely hope that she can be forever happy and healthy, and we can have the opportunities meeting in China when the global pandemic is lifted.

I would also like to thank Dr. Katherine Reilly, our project director, and Tahmina Inoyatova, the teaching assistant of course CMNS 860, my classmate Devan Prithipaul, the librarian Catherine Louie and my friend Ma Zhi. With the help of Katherine's course, I

have made clear the meaning and structure of the paper. Tahmina is a kind and gentle TA, who selflessly spent her time helping me edit the paper. Devan is a reliable classmate. I will always remember that on the flight back from Calgary, he provided help on my academic writing. I very appreciate Catherine helped me the submission process. I hope all my teachers and friends will live in a fruitful and fulfilling life. And lastly, always, thanks my parents who keep supporting and encouraging me. Goodbye, Simon Fraser! Goodbye, Vancouver!

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Chapter 1.

Introduction

1.1. The *New Youth* magazine

The *New Youth* magazine was a popular and fashionable media outlet focused on promoting “science” and “democracy” which became a leading press of guiding the May Fourth Movement (an important student’s strike). It was launched from 1915 and was out of circulation in 1926. During this decade, conflicts among politics, economics, and culture occurred severely in China where internal and external wars and changes happened for transforming an outdated country in the world into a “modernized” one. In this sense, *New Youth* was a great medium that recorded and reflected the social realities where reformers promoted their thoughts and opinions.

In Chinese history, this magazine was famous for propagating “Mr. De” and “Mr. Sai [Sci]” which are transliteration of “Democracy” and “Science”. They were the main exhortation of this magazine and triggered related student movements (i.e., the May Fourth movement) and other political movements. Another important deed was that this magazine was the first profound journal to promote Marxism and 1917 Russian revolution which later contributed to the establishment of the Chinese Communist Party. This historic choice and development are closely related to the editorial team of this magazine. Chen Duxiu, the founder and editor-in-chief, was the dean of the liberal arts department of Peking University and one of the founders of the Chinese Communist Party. His team and ambition greatly influenced the development and keynote of this magazine. Although it was in publication only until 1926, *New Youth* was undoubtedly an important platform of public opinions that reflected the social concerns and debates about modernization and revolution. Today, to understand better the role of science and technology for modernization and national transformation of China, we have to revisit these discussions.

1.2. Research question

Among other scholars (Bauman, 1990, 2000, 2013; Giddens, 2008; Inglehart, 2020; Inglehart & Welzel, 2005, 2010), Rozman (1982) views that modernization is a process in

which society is undergoing changes under the influence of the scientific and technological revolution. He regarded modernization as an extremely dramatic, far-reaching and inevitable event of social change in human history. By his definition, modernization is interpreted from a perspective of “changing” and “reform” which deeply intertwined with scientific innovation and usage. While widely recognized that industrial revolution firstly happened in the UK and then the imperialist western countries, China’s modernization is undoubtedly involved in the context of capitalism and colonialism when the world wars and other conflicts occurred. Under these circumstances, China was therefore in a more complicated point where how to conduct national modernization and transformation was concerned about. With this background, this project considers two key scholarly assumptions:

First is that modernization in the early twentieth-century China is a pragmatic choice of practices for dealing with multiple crises caused by the exhausting wars in the nineteenth century (i.e., the Opium wars in 1840 and 1860, and the Sino-Japanese war in 1894) and the subsequent need of rebuilding the social system and the organization of the state towards stability and efficiency as they were imagined in that particular historical moment with the consideration of the differences between the Western and Eastern intellectual traditions and their potential resolution. (Grasso & Kort, 2015; Harrell, 1997; Pomerantz-Zhang, 1992; Xu, 2011; Zheng, 1999)

Second assumption is that the development of science was perceived as a curtail way of modernization. Social change is connected to new scientific breakthrough and its large-scale application. A series of technological innovations contributed to the development of capitalism and global expansion represented by colonialism in Africa and India etc. It is under this circumstance that semi-colonial China turned towards Western science. The pursuit of science and technological development was an important part of the modernization of the country (Misa et.al, 2004; Mitchell, 2002; Toulmin, 1992)

The discourse on modernization was certainly broad and diverse. While it is hard to omit the impact of Western thought on the Chinese modern thinkers, the discourse on science and technology of China did not simply follow or mirror that in Europe and other Western countries. Drawing on the two mentioned assumptions, my work explores how the discourse on science and technology of the New Youth magazine envisioned China’s modernization. Instead of reinforcing dominant narratives about technology and

industrialization, I am looking for nuances, concerns, reservations, hopes and various particular understandings of science and technology that contest or escape the Western narratives about modernity and modernization.

1.3. Methodologies and steps

The methodologies of the research are the historical research, archival research and critical discourse analysis which examine the discourse on science and technology of the New Youth magazine. The New Youth magazine was launched in a special period in the early 20th century. To examine and analyze the discourse on such a historical magazine, specific methods on historical research are necessary for identifying particular social issues and context, including relatively reasonable justification on causes, evidences, trajectories and processes of change within the society (Howell & Prevenier, 2001; Ollman, 2003; Checkel, 2006; Bannerman & Haggart, 2014). As the historical and cultural context is crucial for the analysis of the discourse as well, I engage with the historical scholarly research and cultural studies that help me to situate the critical analysis of these discussions (Howell & Prevenier, 2001; Ollman, 2003; Checkel, 2006; Bannerman & Haggart, 2014). The opening section of Chapter 1 introduces the historical framework important for understanding many cultural processes that led to formation of the discussion on science and technology in the magazine.

I have worked with the whole online archive of the New Youth magazine from a newspaper database Late Qing and Contemporary Newspaper & Magazines accessible through the online library of Communication University of China. The database contains the photocopies of all issues of the New Youth magazine published from 1916-1926. I have thoroughly read the magazine's contents to identify the discussions on science and technology (as a simple keyword search could lead to avoiding particular discussions such as the one on "the science of ghosts"). I examined the economic, social and political background of the addressed problem or topic (various properties of the context including social meanings, the relation between the participants, their positions and roles in the debates) (Van Dijk, 2001; Fairclough, 2002; Mautner, 2008). In particular, I considered the institutional environment in which the New Youth magazine was produced. This contains two aspects: first, the network of practices the discourse is located within the magazine; second, the demographics and lifestyles of the audience (in terms of age, education, social class) (Van Dijk, 2001; Fairclough, 2002; Wodak & Meyer, 2008; Mautner, 2008). In order

to do this, I researched the details and context of the New Youth magazine's production process, and the history of its development.

I particularly paid attention to the properties of the text itself including the genre (opinion pieces, reviews, reports, philosophical essays and so on) and topics discussed, coherence as well as the style. I conducted the interdiscursive analysis (for example, by exploring the connections between religious or traditional beliefs and science), as well as the linguistic and semiotic analysis (for example, by identifying the local meanings or significances of some topics). I took a note of various ways of argumentation, rhetorical figures, lexical style, storytelling, references and quoting. Here, the goal of my reading was to reveal modernist ideologies of the editorial team and associated contributors (Van Dijk, 2001; Fairclough, 2002; Wodak & Meyer, 2008; Mautner, 2008).

In order to critically reflect on my own analytic work, I paid attention to the obstacles I encountered in the process (Van Dijk, 2001; Fairclough, 2002; Wodak & Meyer, 2008; Mautner, 2008). First, it is the historical hundred-year distance between now and the time the magazine was published. They were all written in traditional Chinese in vertical layout; some of the articles used classical Chinese that requires a special linguistic knowledge to understand. Secondly, translation in English was time-consuming. And finally, my third challenge was in doing additional research of the historic context. However, this work was certainly rewarding in many ways, one of which was educating myself (and hopefully, others) about the efforts people devoted to transforming and improving their country in a challenging historical moment.

Chapter 2.

Historical Context Where the Need for Modern State is Formed

2.1. Chronology of important events mentioned below

1840	The first opium war 第一次鸦片战争
1861-1894	The Western Affairs Movement 洋务运动
1898	The Hundred Days' Reform 戊戌变法/百日维新
1911	The 1911 revolution 辛亥革命
	Three Principles of the People of Sun Yat-sen 三民主义
1913	Yuan Shikai's imperial restoration 袁世凯尊孔复古
1915	Japan's 21 requirements 日中二十一条
	New Culture Movement 新文化运动
	The publication of New Youth 新青年创刊
1919	The May Fourth Movement 五四运动
1921	The founding of Communist Party of China 中国共产党成立
1923	The collaboration of CCP and Kuomintang 国共合作
1924 -1927	The First Revolutionary Civil War 国民大革命
1925	The May 30 Movement 五卅运动
1927	Kuomintang-Communist cooperation broke down 国共合作破裂

2.2. Before 1915: dynastic decline and capitalist revolution

Although China had a relatively strong economic power and creative capability in the Middle Ages (5th century to 15th century), it still gradually fell behind relatively more developed countries such as the United Kingdom and other countries in Europe. One of the most prominent issues in the Chinese history of technological development, as proposed by historian Joseph Needham is, why did the Industrial Revolution not occur in China in the fourteenth century? (Lin, 1995) As Redding (2016) notes, one of the reasons from sociological and economic perspectives is that the ruling of central order hindered the initiatives to innovate by the private-sector. Consequently, China had never developed modern theoretical physics and industrial machines until Western capitalism violently opened China's market.

The First Opium War between Great Britain and the Qing dynasty of China occurred in 1840. The Opium trade led to financial problems for the Late Qing dynasty, disorder on the China coast, and the invasion of Anglo-Chinese monopolists. The war was ended with the defeat of the Qing dynasty. Thus, had the effect of opening more treaty ports as The Treaty of Nanking with Great Britain required, which gradually deepened its imperialist aggression. It is under these circumstances that China started to realize its lag from western countries. As a result, China started to pay attention to developing its modern military technology and seeking modernization. In general, China's modernization and transformation in governance from federalism to becoming a republic is closely associated with severe wars and conflicts with western countries. This is why Chinese development of technology and domestic innovations cannot be detached from the history of communication with Western countries. Science, technology and the process of modernization should be put into specific contexts in order to discuss the continued influence of political, economic, diplomatic and cultural forces.

In this part, I will briefly introduce the important historical events in East-West communication related to discourses of modernization and developments in science and technology. Before the birth of New Youth magazine in 1915, from 1840 to 1914, China was in a status of struggling to survive internal disorder and external conflict. Inside China, peasant movements broke out and wars frequently occurred with western powers like Great Britain, Japan, Russia, and Germany. To save the declining Qing dynasty, some important movements occurred, such as The Western Affairs Movement (or Self-

strengthening movement), and The Hundred Days' Reform (or The Reform of 1898). However, the two movements did not rescue the feudal empire. The 1911 revolution showed the new national proposal from the republicans. The weakness from the republicans contributed to the drama of Yuan Shikai (袁世凯), who stole the revolutionary result and eventually led to the domination of warlords from 1915 to 1926 in China.

2.2.1. Salvation and hope concerning science and technology from 1840 to 1911

In the 1860s, the Qing dynasty started the Western Affairs Movement, also named “self-strengthening” (自强) movement in an attempt to save the dynastic decline. It was launched by some ministers and lords and consisted of three major policies. Firstly, the movement advocated the learning of western technology, particularly industrial and military technologies. Under this guideline, they established new military industries, trained new army forces and built modern navies. For instance, the largest modern military industrial enterprise, Jiangnan Manufacturing Bureau, was established in Shanghai in 1865. Secondly, the movement encouraged the pursuit of “wealth”; hence national industries regarding ships, railways, telegraphs, mining, textiles were established. Lastly, it founded new-style schools, selected students to study abroad, and taught subjects such as translation, military affairs as well as science and technology. The guiding principle of this movement was to “learn western technologies to resist western threats” which hopes to maintain traditional Confucian values while also embracing western military and industrial practices. Technology was seen as “skills” or “utensils” to serve the improvement of society, which reveals a rooted idea that the mastery and proprietary control of core technologies is fundamental to Chinese success (Zhao, 2010). However, China's defeat in the Sino-Japanese War of 1894 “marked the failure of the Western Affairs Movement [which] proclaimed to be for defense against foreign powers” (Fairbank, 1978)

In 1898, irritated by the tragic failure of the Sino-Japanese War of 1894, the intellectuals Kang Youwei (康有为) and Liang Qichao (梁启超) launched the Hundred Day's reform. They restructured Confucius's theory with new interpretations to promote the reformist ideas. Hence, for the first time, Chinese cultural essence was being judged under the impact of western thought. In general, Kang and Liang regarded Japan as a successful example of reforming and modernizing state system into a developed country,

and hoped that the Late Qing dynasty could learn from Japan to comprehensively reform its systems into a constitutional monarchy. At this time, science and technology were no longer restricted to the connotations of being implements but was extended to signify further fundamental social systems. However, the political proposal from the constitutionalists also broke down and it was acknowledged by historians that the top-down plan of modernization of China was not feasible in that time. (Kwong, 1984, 2000; Gao, Zhang & Tian, 2015)

2.2.2. The 1911 revolution

Ultimately, the Western Affairs Movement and The Reform of 1898 were incapable of saving the dynastic decline and its ineffective transformation resulted in provincial revolts and uprisings. New revolutionary groups could no longer tolerate the feudal ruling of the Late Qing, and they secretly developed their strength in order to subvert the old order. The big revolution happened in the 1911, when the republics accumulated enough assistance and power from overseas Chinese businessmen, intellectuals and new soldiers. Together, they successfully overthrew the Qing Dynasty and ended the history of feudal monarchy of China. Sun Yat-sen (孙中山) was the leader of this revolution who left his well-known political legacy “Three Principles of the people”: “Minzu Zhuyi (民族主义, nationalism, or independence from foreign imperialist domination), Minquan Zhuyi (民权主义, rights of the people, or democracy), and Minsheng Zhuyi (民生主义, people's livelihood, or people's welfare)” (Linebarger, 1957; Bergère & Lloyd, 1998). Sun served as the provisional president of the Republic of China and the leader of the Kuomintang (国民党, KMT), and it is under his management that the Communist Party of China collaborated with the Kuomintang from 1923 to 1927 to fight against the remaining warlord forces.

2.2.3. The stolen accomplishment and imperial restoration

However, the new national government founded by the 1911 Revolution was soon thereafter monopolized by Yuan Shikai, which led to decades of political division and domination of warlords from 1911 to 1927, including several attempts at imperial restoration. In 1913, Yuan announced himself as the emperor of China and dissolved the national and provincial assemblies based on the power of his new armies. There are

primarily two reasons which contributed to Yuan's success. Firstly, during this period, there was not a thorough, national, or cultural reform to shake the millennium-long foundation and tradition of Confucian civilization and feudal imperialism in China, which led to a large number of followers of the restoration ideology. On the other hand, as a general serving the Qing dynasty for a long time, Yuan had personal ambition. Historians describe Yuan's occupying revolutionary achievement as "the ugly drama of Yuan Shikai's veneration of Confucius and imperial restoration" (Fairbank, 1978).

2.3. Brief introduction to society of China in 1915 – 1926

From 1915 to 1926, China was in the domination of warlords first from Yuan Shikai and his subordinates, then from provincial warlords after Yuan's death in 1916. Until 1927, the Kuomintang collaborated with the CCP to take down the warlords during the first revolutionary civil war. In this decade, the warlords nominally represented the republic of China to negotiate with western powers, and they signed many unequal treaties (i.e., Japan's 21 requirements), thus directly triggering various political movements throughout the country.

2.3.1. The May Fourth Movement in 1919

The May Fourth Movement has had a profound and long-lasting influence in Chinese history as a movement for the social enlightenment of science and democracy. This movement was mainly launched and organized by college students among whom the New Youth magazine promoted the western intellectual traditions.

In 1914, Japan secretly and improperly seized the land leased by Germany in Shandong, China. In 1915, Japan asked China to accept its 21 requirements about Japanese benefit in China which triggered nationalist sentiments in China. The intellectuals were very dissatisfied and angry with Yuan's incompetence in regards to western imperialism and they thought it was a shame to accept Japan's requirements. Since then, political movements occurred frequently and public emotion was intensified. In 1919, China emerged as one of the victorious countries in the First World War, and abolished those unequal treaties signed with Western countries. However, the Paris Peace Conference did not respect this intention and decided to transfer Germany's interest in China to Japan. Having heard this information, students in Peking University

held an emergency meeting and called on everyone to fight for national salvation, and decided to rally in a protest in front of the Tiananmen Square.

On the afternoon of May 4, 1919, more than 3,000 student representatives broke through the obstruction of the military and police, and gathered in Tiananmen Square with slogans and print posters written in big characters like "swear to fight and return our land", "withdraw Shandong rights", "refuse to sign the treaty", "repeal 21", "boycott Japanese goods". The vigorous student movement spread to the masses, and in June of that same year, large-scale nationwide worker strikes broke out. (Chow, 1980)

2.3.2. The founding and rise of Communist Party of China in 1921

In Russia, the Bolsheviks had transformed themselves into the world's first socialist state in the Revolution in 1917. This exciting achievement spread to Chinese intellectuals like Li Dazhao (李大钊) and Chen Duxiu (陈独秀), who wrote articles to promote communist revolution and Marxism, and published them on the New Youth (i.e., 1918, Volume 5 Issue 5) magazine. In 1919, the May Fourth Movement evolved into a nationwide worker strikes in which early communists practiced and developed. From 1920, Chen and Li began to explore the idea of creating a communist group or even a communist party in China. In September of 1920, Chen proclaimed that New Youth magazine would be transformed into the official publication for the Communist Party of China. In July of 1921, the first National Congress of the Communist Party of China was held in Shanghai. At this meeting, the establishment of the Communist Party of China (or CCP, Chinese Communist Party) was announced, and Chen was elected as the chief secretary. (Feigon, 2014)

2.3.3. Collaboration to exterminate the left federalist

As mentioned above, China was in a chaotic state of warlord domination during 1915 to 1926. Both the Kuomintang (KMT) and the CCP hoped to have a democratic and peaceful country without the invasion of foreign forces and internal feudal debates. Considering a common pursuit, the KMT and the CCP decided to collaborate to exterminate the resident federalists represented by the warlords. From 1924, the first revolutionary civil war (The national revolution, 国民革命) began and achieved success in 1927, while, at the same time, the KMT broke down its cooperation and the internal second

revolutionary civil war (or Agrarian Revolutionary War) erupted between the KMT and the CCP because of the inner divergence of two parties.

2.4. Three sections of the New Youth magazine

According to the historical facts above, it is clear that severe changes took place in a revolutionary time directly related to modernization. To track the changes and discussion of New Youth magazine, I analyzed the articles chronologically, paying special attention to those featuring important historical events. I further divided them into three sections according to the magazine's attention to both the social reality of the time and profound historical events.

First, New Youth was founded and published its first issue in 1915. From 1915 to 1918, it developed and gained reputation for its great articles. The May Fourth Movement in 1919 became the first significant node for dividing these sections due to the fact that since then, Marxism spread fast through the magazine. Another node can be traced to 1921, when the CCP was officially founded and the chief editor Chen transformed the New Youth into a theoretical journal for promoting Marxism and socialism. In summary, the three timespans of the New Youth magazine are: 1915-1918 (development stage), 1919-1921 (debate stage), 1922-1926 (socialist stage).

2.5. Summary: salvation of the country, modernization and the intellectuals

Before the introduction of foreign capitalism, China relied on its handicraft industry and small-scale farming economy to achieve self-sufficiency. However, the first Opium war changed the independent state of China, and complicated the transnational modernization process. New elements such as an advanced military, mechanical industries, and medical treatments influenced China and forced it into the global process of modernization. The feudal imperialism of the Qing dynasty could not adapt to the severe changes brought out by western intellectual tradition.

In terms of economy and finance, after the introduction of capitalism in China, China started evolving its armaments industry and began to develop its modern merchants and industry. An example of this can be seen in the Jiangnan Manufacturing Bureau in

the Western Affair Movement. However, due to the turbulent political situation and continued exploitation by foreign capitalism, national capitalism and the domestic farming industry could not get enough development and support from the government. In terms of education and development of science and technology, the Late-Qing dynasty abolished the imperial examination and advocated for students to learn abroad, which was an imitation of the Meiji Reform of Japan. This initiative had a great influence in the later historical choices. "It is a total change from traditional system to foreign system" (Rozman, 1982), which (the direct turn) showed that China ignored the understanding of its intelligent tradition to modernization that could be an alternative response to modernity.

From 1840 to 1915, three important missions and connotations of modernization of China appeared: Firstly, eradicate feudal monarchy and its remnants; secondly, acquire national independence from colonization, economic and political aggressions of western imperialism; thirdly, build a stable and new social system.

There were some proposals of modernization that had been practiced by different dominant social classes from the feudalists, the constitutional monarchists, finally the revolutionaries. Officials of the Western Affair Movement tried to protect and preserve Chinese cultural essence and monarchy system by introducing and applying western science and technology. However, it broke out and didn't save the fall of the Qing dynasty. The second try was the Reform of 1898 when a comprehensive systematic reform was implemented by the constitutionalists, who updated the understanding of traditional Confucian culture but it failed again. Until the 1911 revolution, the first target of modernization that eradicating feudal monarchy was partly finished because of the success of reversing the rule of Qing dynasty. However, the stolen accomplishment of Yuan Shikai made it an approximately decade-long mission to eradicate the resident feudalists.

In 1915, the intellectuals started to exert their influence in modernization. Chen Duxiu gained his reputation from founding Youth Magazine (the predecessor of the New Youth magazine) in 1915. Meanwhile, other intellectuals with experience of studying abroad also gathered to reflect the lessons from previous failure tries of modernization. For them, an exhaustive reform aiming cultural essence and tradition was unstoppable after seeing Yuan Shikai's drama of restoration of antiquity and imperial intention. It was widely acknowledged that the New Youth magazine was the main platform of the New

Culture Movement, which seeks to regenerate China through the fundamental transformation of culture starting from the literary revolution (Sato Shinichi, 2008). The New Youth magazine was interrelated with the core appeal of the New Culture movement and the “new thoughts”, which opened the prelude for the intellectuals and their effort in ideological modernization of China.

Moreover, the intellectuals had faced a lot of discrimination when they studied abroad with the costumes and other customs (i.e., long braids) from the Qing Dynasty. The more they saw the advancement of western industries and science, the more they felt humiliating of being injustice and neglected by western powers in the Paris Peace Conference. As Rozman (1982) commented, “people have formed a surprisingly clear consensus on the issue of national goals: the most important issue is the unification of the nation.” At this critical juncture, what challenged the intellectuals with uprising nationalism and patriotism was how to view the shock and pound from western intellectual traditions marked by advanced science and technology and the controversies between eastern intellectual traditions and it. The ideological decision and collision were right in front of the intellectuals. Under this circumstance, the New Youth magazine became the representative of mainstream discourse of intellectuals in the wave of exploring the future path of modernization of China.

Chapter 3.

Discourse on Science and Technology of the New Youth Magazine

3.1. Section 1 History and structure of the New Youth magazine

3.1.1. History and developments in hard times

In 1915, Chen Duxiu founded the Youth Magazine in Shanghai, China. As the name showed, the target audience of the magazine was Chinese young people. From 1915 to 1918, not as famous as Chen expected, the magazine was so ordinary that Chen exaggerated that they would get some articles from intellectual celebrities to attract the audience (Wang, 2010). In the September of 1916, the “Youth Magazine” was renamed to the “New Youth” magazine because the Shanghai YMCA (Young Men's Christian Association) accused the Youth Magazine of having similarities and confusion with the name of their journal, and asked the Youth Magazine to change its name. In 1917, the New Youth magazine came to Beijing with Chen being appointed as the dean of literatures and arts of Peking University. From the January of 1918 (volume 4), the New Youth magazine stopped soliciting contributions from outsiders and turned to selecting, editing, and translating articles mainly from its editorials. Also, since the volume 4, the magazine began to adopt a collective discussion system, which meant an editorial meeting was held to jointly agree on articles before issuing. The editorial team took turns to edit since volume 5. For example, volume 6 was edited in turn by Chen Duxiu, Qian Xuantong, Gao Yihan, Hu Shi, Li Dazhao, and Shen Yinmo, most of whom were professors at Peking University.

The New Youth got reputation mainly because Chen's occupation of being the dean of literatures and arts of Peking University and his scholar editorial team. Given Peking University was the top university in China at that age, the magazine quickly became popular and subscribed by many students and intellectuals. It worth noting that an event happened in the spring of 1919 also increased fame for this magazine when some old school scholars put label of 'too trendy' on the magazine (Wang, 2010). It started from an old-school scholar named Lin Qinnan who attacked the New Youth magazine and

Peking University by publishing his open letter to the president of Peking University Cai in February of 1919. Cai of course argued back by replying an open letter, thus causing a wide attention from media and the public. Mass media enlarged and exaggerated the academic argument, and described the debate as "the battle between the old and the new intellectuals". The debate around "new and old" occurred that directly made the sales of New Youth soaring and expanded the reputation of the magazine, which made it a symbol of "new thought".

However, the magazine suspended and reissued many times in ten years. According to the management of Li (2018), there were total 5 times of suspending New Youth. I rearranged the table of Li to help understand the complicated and burdensome history of the New Youth magazine in a wartime. In 1925, the magazine ended because the difficulty of getting access to resources and the CCP paid its attention on the first revolutionary civil war.

Table 3.1. History of suspensions of the New Youth magazine (1915-1926)

Five reasons for suspending	Suspending time	The last issue
War	191602-191609	Volume 1
Low sales	191708-191801	Volume 3
Chen Duxiu was arrested	191906-191912	Volume 6
Reorganization	192005-192009	Volume 7
Becoming party journal	192207-192306	Volume 9

3.1.2. Structure and the editorial team

The New Youth magazine didn't have a strict and invariant structure of content. It demonstrated a very broad interest of news and comments, especially preferring new knowledge and opinion. Generally, the content was made up of foreign and domestic news and opinions, literary works (poems, novels, plays), articles introducing western culture and advanced ideas, audience letters. Since Chen was one of the faculty members of Peking University from 1917, he invited many scholars as general editors of the magazine. In this sense, the taste and style of the magazine is very advanced and academic.

As mentioned above, there were six main editors who were Chen Duxiu, Qian Xuantong (钱玄同), Gao Yihan (高一涵), Hu Shi (胡适), Li Dazhao (李大钊), and Shen Yinmo (沈尹默). Next, I will introduce this editorial team.

In 1917, Chen Duxiu (1879-1942) was invited by the president of Peking University Cai Yuanpei (蔡元培) to be the dean of the literatures and arts school. In order to promote new ideas and culture, Chen went to Beijing with his new founding magazine "New Youth". At that time, Peking University was the most famous and prominent university nationwide where many influential intellectuals are gathered. For example, Shen Yinmo (1883-1971) had taught in the Chinese Department of Peking University since 1913 and was proficient in calligraphy and traditional Chinese classics. And Qian Xuantong (1887-1939) also came to Peking University two years before Chen Duxiu, teaching philology and phonology.

As soon as Chen came, he became the figure in the spotlight. Because of the New Youth magazine, he had been known in the intellectual circle with the label of "new thought" and "new school". After he arrived at Peking University, he became the representative of the new-school intellectuals. It was precisely because of his innovative side that the president Cai introduced him to the Peking University, aiming to reform the bureaucratic and old-school style of Peking University. The New Culture Movement is the first milestone movement led by Chen and his accompanies. Hu Shi (1891-1962), Qian and Shen all experimented the new thought in their own fields. Both Qian and Shen are experts in poetry, classics and literature who promoted vernacular Chinese. After years of observation and thoughts, Qian has formed a suspicious approach to the Chinese classics. As one of the leaders of the Doubting Antiquity School (that applied critical historiographic approach to Chinese tradition), Qian was the first to reconstruct the vowel system of Old Chinese. Compared to Qian, Shen paid more attention to innovate the form of literature. He was one of the first to write the new-style poems and published them in popular periodicals such as the New Youth magazine and The Renaissance (新潮) magazine. Hu came to Peking University in 1917 and joined the editorial team of the New Youth magazine in 1918. As the youngest of the six main editors, only 29 years old at the time, he was the most westernized. It was him who was the most active in promoting vernacular Chinese and abolishing ancient Chinese writing. On the August of 1910, Hu was sent to study agriculture at Cornell University in the U.S. In 1912 he changed his major to philosophy and literature. After receiving his undergraduate degree, he went to study philosophy at Teachers College, Columbia University, where he was greatly influenced by his professor, John Dewey. Hu became Dewey's translator and a lifelong advocate, helping Dewey about his lectures in China during 1919 to 1921. John Dewey's pragmatism has become a theoretical weapon for him to reform Chinese phonology and writing.

Similar to Hu, who came to Peking University in the year of 1918, Gao Yihan (1884-1968) graduated from Meiji University in Japan. After graduation, Gao returned to China in July 1916, and founded the Morning News newspaper with Li Dazhao (1889-1927). Before appointed as a faculty member of Peking University, he already knew Li and Chen, and cooperated with them in the Jiayin (甲寅) magazine. In Peking University, he taught political science. Gao was especially good at writing political opinions which Hu admired very much and gave a high evaluation to. Gao was very productive. When he was one of the main editors in the New Youth magazine, he kept serving as editor for other publications like the Morning Bell, and Weekly Commentary as well. For the New Youth magazine, he was the person who published the most articles besides Chen.

Li was the director of the library at Peking University at that time. He was about 10 years younger than Chen and he was Chen's most trusted partner and communism believer. Li reported the Russian October Revolution in 1917 and promoted Marxism among the New Youth magazine. Firmly believing in Marxism, in 1921, he and Chen created the first group of the Communist Party of China.

The life of the New Youth Magazine from 1915 to 1926 was the most brilliant and shining stage of chief-editor Chen's life. He was so energetic, active, and full of passion that he influenced many intellectuals and even the next generation of academic figures at Peking University. He injected far-reaching power into the history of China's modernization by promoting new culture, launching the student and labor movements and introducing Marxism. Furthermore, his influence was not limited to the field of literatures and arts, but also a group of science and engineering intellectuals to publish articles about science and technology on the New Youth magazine. For example, Ma Junwu (马君武, 1881-1940), Wang Xinggong (王星拱, 1888-1949), Chen Daqi (陈大齐, 1886-1983), and Ren Hongjun (任鸿隽, 1886-1961). The latter three also served as professors at Peking University during that time. Ma, as the first Chinese scientist to obtain a Ph.D. in engineering in Germany, followed Mr. Sun Yat-sen to protect the achievements of revolutions. Overall, the articles and efforts of these people have forever left the legacy and their mark on the New Youth magazine. (Ma, 1974)

3.1.3. Discourse on science and technology

The magazine's discourses were of four major streams 1) discussion on philosophy of science, 2) questions of hard science, 3) the philosophical discussions about the definitions, nature and purpose of science; 4) reports concerning the practical application of science.

The discussion on philosophy of science was represented by the choice of several philosophers such as Ernst Haeckel, Charles Darwin, John Dewey, Thomas Robert Malthus, Bertrand Russell, Karl Marx and Vladimir Lenin. The choice of these philosophers was based on 1) the familiarity with Western philosophy of science and 2) the relevance of these authors to the current concerns of the journal's discussion. For example, the discussion on pragmatism, including the linguistic reform addressed through the lens of pragmatism (i.e., "The evolvement of Mandarin" 1920, Volume 7, Issue 3) and the discussion of Malthus' ideas about demographic problems (i.e., "The mathematics of calculating population" 1920, Volume 7, Issue 4).

The discourse on the questions of hard science varies between popular articles for the general audience and in-depth discussion and literature review on the theme of hard sciences for the readers familiar with the topics discussed (such as the discussion on the role of fossils in geology in "The living creatures before Human" in 1919, Volume 6, Issue 1 and "Introduction to biological evolution and spherical evolution" in 1921, Volume 9, Issue 3). These discussions negotiated the distinction between science and what could be identified as pseudoscience or beliefs without simple dismissal of them. Instead, the question of the existence of ghosts was approached through the scientific lens and engaged the scientific discussion on matter and materiality. For example, "Questions about ghost" by Chen Duxiu in 1918 Volume 4, Issue 5.

The philosophical discussions about the definitions, nature and purpose of science firstly took place among some scientists then extended to the debate of "science and philosophy of life" in 1923. It mainly discussed the nature of science from a methodological or philosophical way and expressed different consideration to modern science and its usage like scientific aesthetics and social function. For example, "What is scientist" (Volume 6, Issue 3) and "The origin and effect of science" (Volume 7, Issue 1) in 1919.

Reports concerning the practical application of science about new technology and the comment it triggered appeared from time to time mainly associated with current domestic and foreign events. The background of these reports lies in the global wave of technological revolution and innovation particularly in the industries and military. On the one hand, the reports paid attention on the influence of new technology. For example, “The thoughts of Two contemporary scientists” by Chen Duxiu (1916, Volume 2, Issue 1 & 3). On the other hand, a distinct call to promote the invention of new technologies was represented. For example, “Youth and tools” (1916, Volume 2, Issue 2).

3.2. Section 2 Development stage in 1915 – 1918

3.2.1. Integrated attention

The year 1916 witnessed 93 articles published. Among them, the attention of introducing western ideas in education, philosophy, history and culture was gradually obvious.

There are total 8 issues in 1917. The first three issues (Volume 2, Issue 5; Volume 2, Issue 6; and Volume 3, Issue 1) were relatively average in numbers of articles and diverse in content that most articles were foreign or domestic news while the number of articles about western culture and traditional classics kept around 7 to 10 per issue. Since the second issue of volume 3, the New Youth magazine started to discuss revolutionaries which might be influenced by the news from Russia where the 1917 revolution broke out. In this issue, 3 papers introducing the principles of national economics were also published. The next 2 issues (Volume 3, Issue 3 and Issue 4) kept updating news about the Russian revolution. The last 2 issues published many articles about literature and culture. It's worth noting for the whole year there were some papers about women's right which has historical enlightening significance for thinking about feminism in China.

Speaking of the year 1918, the magazine was very active with 12 issues, total 246 papers publishing. In general, the magazine paid more attention to the New Culture Movement and published many literary works with the new form (i.e., new-style poems in vernacular Chinese). For example, both the first and second issue of volume 4 focused on publishing the new poems. In the third issue of volume 4, the New Culture Movement was discussed officially. Since it, the magazine took a whole year to discussing the New

Culture Movement and its practices mainly in literatures. For example, volume 4 issue 4 witnessed the discussion about the characteristics of Mandarin and vernacular literature. Volume 5 issue 4 saw the papers about how to reform the style of Chinese drama and opera to meet the requirement of “New Culture”. Moreover, there are many valuable literary works among them that are valuable attempts to use vernacular Chinese and spread modern ideas. In addition to the main topic, in volume 5 issue 5, the earliest proponents of Communism and Marxism Li Dazhao published two famous literatures “The Victory of the Public” and “The Victory of the Bolshevik” to praise the Russian revolution in 1917, which have been seen as the earliest and the most significant Marxist-Leninist literatures in China.

3.2.2. Four streams and its general representation

From 1915 to 1918, as the picture below demonstrates, the four streams of discourse represented different attention of the editorial team of the New Youth magazine. For the first stream of philosophy of science, it's obvious that Darwinism and theories of social evolution attracted the attention of the intellectuals. As for the second stream, some articles relating the origin of human and basic geology in hard science were published. What interesting in this stream is that the debate concerning whether ghost exists was firstly put on the agenda. It discussed “ghosts” through a scientific lens and initially demonstrated a distrust and rejected attitude to long-lasting traditional spiritualism. To be a distinct comparison with the previous two streams, only one piece took place on the third discourse stream. This article (“Thoughts of Machines facilitating the Great Commonwealth”, 1918, Volume 5 Issue 2) showed a strong willing and inclination to view “science and technology” as an optimistic, practical tool that will contribute to the social development. The intrinsic value was consistent with the fourth stream that many reports concerning the practical application of science were published which mostly reflected the common desire of developing industries and applying tools. Overall, considering the diverse western translated literatures and news reports with less independent reflection on technology, I take the period from 1915 to 1918 as a development stage when the main task for the New Youth magazine was to promote western science and launch the New Culture movement.

Table 3.2. The articles on science and technology in the New Youth magazine from 1916-1918

Year	Discourse stream 1: philosophy of science (pragmatism, demographic problem issue)	Discourse stream 2: questions of hard science (ghost debate)	Discourse stream 3: definitions, nature and purpose of science (science and philosophy of life)	Discourse stream 4: practical application of science (materials/devices/tools/scientists/revolution)
1916	1916-2-2 Monistic philosophy of Ernst Haeckel: Chapter 1 Anthropology Section 1 Unsolved problems in the world			1916-2-1 Thoughts of Two Contemporary Scientists: Metchnikoff
	1916-2-3 Monistic philosophy of Ernst Haeckel (Continued)			1916-2-2 Youth and tools
				1916-2-3 Revising the tools
				1916-2-3 Major events abroad: German submarine cut across the Atlantic
				1916-2-3 Thoughts of Two Contemporary Scientists (continued issue one): Wilhelm Ostwald
			1916-2-4 Major events abroad: German submarine warfare along the US coast	
1917	1917-3-1 Material realism (Research for philosophical issues)	1917-2-5 The origin of human culture		1917-2-5 Domestic major events: American Industrial Loan
	1917-3-3 Survival Competition and Morality	1917-2-6 The origin of human culture (continued I)		1917-3-1 Major Events Abroad: New Developments in the War Situation: Attitudes of Neutral Countries Outside China and America to submarine strategy; Domestic Events: Technology School built its own factory; Major Events Abroad: New Developments in the War Situation: Impact of New Submarine Strategy on Neutral and Warring Areas; Major Events Abroad: New Developments in the War: Germans Implement New Submarine Strategy; Major Events Abroad: New Developments in the War Situation: Submarine Shipwreck Capabilities
	1917-3-6 Science and Christianity (Unfinished)	1917-3-1 The origin of human culture (continued II)		1917-3-1 Cang Hui Room Stories: Zhou Houkun newly invented the Chinese typewriter: [Photo]
		1917-3-4 Reader Forum: On Superstition of supernatural being		

Year	Discourse stream 1: philosophy of science (pragmatism, demographic problem issue)	Discourse stream 2: questions of hard science (ghost debate)	Discourse stream 3: definitions, nature and purpose of science (science and philosophy of life)	Discourse stream 4: practical application of science (materials/devices/tools/scientists/revolution)
1918	1918-4-1 Science and Christianity (Continued)	1918-4-4 The earth before living things	1918-5-2 Thoughts of Machines facilitating the Great Commonwealth	
	1918-5-2 Unnatural elimination	1918-4-5 Questions about ghost		
		1918-4-5 Attacking Spiritualism		
		1918-5-1 Chinese classics on no ghost views		
		1918-5-2 Questions for Yi Yixuan		
		1918-5-2 Answering Mr. Chen Duxiu's "Questions about ghosts"		
		1918-5-6 Communication: Research on Ghost Appearance		

3.2.3. Discourse stream 1 : philosophy of science: Ernst Haeckel, Darwinism, and Material realism

In this period, the New Youth magazine mainly introduced and discussed philosophers Ernst Haeckel and Darwin. Other discussions also took place like the introduction of material realism. In total, 7 articles were published.

In the volume 2 issue 2 of 1916, monistic philosophy of Ernst Haeckel was firstly introduced in the New Youth magazine. Ernst Haeckel was a German naturalist and philosopher who discovered, described and named thousands of new species, mapped a genealogical tree relating all life forms, and coined many terms in biology (Richards, 2008). He was well-known for promoting and popularizing Charles Darwin's work in Germany. In the New Youth magazine, the first article about him was a translation of Chapter 1 of Ernst Haeckel's book *The Riddle of the Universe*, in which Haeckel expressed a clear standpoint of opposing the church's worship of the God because it hindered the development of modern science. Ma Junwu translated that:

It is church that opposes our current education and knowledge of nature...For other spiritual aspects and social relations, not only there is no progress, but there is regression... It is very dangerous for politics and society.

In Issue 3 of the same volume, Ma continued to translate the work from Ernst Haeckel. This time the article mainly targets on the “three doctrines of creation” (Anthropism) of church which is the foundation of dualism. To oppose it, Haeckel listed 12 cosmic axioms and advocated that:

For seeking the real knowledge of nature and explaining the mysteries of the world, it relies on conscience [Vernunft, or rationality] ...breaking down the so-called [creating man by God] [eternal life] and [freedom of will without boundary].

The two articles expressed the worry that social opinions lag behind the advancement of natural knowledge because of the old religious system. In these articles, we can see the implicit intention to replace traditional religious opinions with modern scientific system. Although in China Christianity and was not the mainstream theology, it

was still worth introducing the monistic philosophy that was used as ideal weapon to attack traditional beliefs and religions in China.

The thought of Ernst Haeckel undoubtedly attracted the attention of the editor-in-chief Chen. In 1917, Chen translated other chapters of the same book of Ernst Haeckel, *The Riddle of the Universe*, and named the articles as “Science and Christianity”. He divided the translated work into two articles and published them in the sixth issue of volume 3 in 1917 and the first issue of volume 4 in 1918. As the title “Science and Christianity” showed, the articles explained the fierce conflict between science and Christianity by analyzing the history of church and some branches of Christianity. Like the work of Ma, the articles suggested that the church attacked modern science and the theory of evolution in which the story of Giordano Bruno and Johnno Huss were taken as examples.

Evidently, the monism and Ernst Haeckel were introduced emphatically on the New Youth magazine during the period and the theme of supporting monism was repeated. In the philosophy of science, Ernst Haeckel was famous for promoting the monism and Darwinism. It helped explain the other two articles, “Survival Competition and Morality” (1917, Volume 3, Issue 3) and “Unnatural elimination” (1918, Volume 5, Issue 2), which were about Darwinism. “Survival Competition and Morality” stressed a view that China should reform itself now and it was urgent that China should not be constrained by old morals because it already fell far behind western developed industrial countries. Unnatural elimination was a translation of August Strindberg’s story collection *Giftas*, which tells a story that a noble hired a poor woman as a breast mother and his considerations of the choice. The story also reflected social Darwinism.

Apart from Ernst Haeckel and Darwinism, other philosophical thoughts also appeared. For example, Yun Daiying (恽代英) wrote “Material Realism” (Research of philosophical issues, 1917, volume 3 issue 1) discussed four traditions of recognizing materials: absolute realism, hypothetical realism, critical realism and idealism. He cautiously expressed his belief in material realism.

3.2.4. Discourse stream 2: questions of hard science: how nature evolves and the ghost debate

The questions of hard science began from 1917 when Tao Menghe (陶孟和) wrote three articles named “The Origin of Human Culture” and published it continuously on the issues of New Youth (1917, Volume 2, Issue 5; 1917, Volume 2, Issue 6; 1917, Volume 3, Issue 1). He thought that “to explore the origin of human culture, we must first explore geology and paleontology for reference”. In the series, he introduced the modern awareness to the origin of language, symbols and the development of human’s mind. Particularly, he praised using “hands” and “making machines” which were regarded as the start of human civilization. He said that “the origin of culture is to drill the wood to get fire, and then language and machines started to develop.” Tao had learned sociology in London. It makes sense that he mainly introduced the human culture from the perspective of sociology.

Similar to Tao’s view, an article called “The earth before living things” (1918, Volume 4, Issue 4) by Wang Xinggong (王星拱) who was an important and productive intellectual in promoting science and technology, was published on the New Youth magazine. This article illustrated the origin and process of the earth from the perspective of chemistry and geology.

The origin of earth can be explained by two theories. One is the theory about the fire clouds; the another is meteor theories. The heat of the sun is generated by the rotation of chemical capabilities, and there is currently no energy to compensate for the daily heat...Fossils, the representatives of ancient creatures, will play the key role in demonstrating the biological evolution of the earth in the future studies...

Later, he wrote many similar popular science articles to explain the basic principles of chemistry and physics. It lays the foundation and style for popular science articles.

Among many topics of questions of hard science from 1915 to 1926, the debate about ghosts (total 8 articles) emerged in several subsequent issues of the New Youth magazine in 1918, which was a crucial debate in promoting science and technology. Ghosts are discussed through a scientific lens (like compared with microorganisms,

seeking an evidence and experiment) and an international view (the ghost debate is discussed with a macro consideration of comparison).

The debate started from 1917, when one article from reader forum called “On superstition of supernatural beings” (by Xu Changtong, 徐长统, Volume 3, Issue 4) published. Xu was worried about the superstitions and its countless activities in the local and rural areas, which hindered the modernization. He wrote that:

Why people don't explore the mines and build the roads? It is said that the Feng Shui indicates a bad luck. Why people spend money on superstition rituals rather than work? It is said that ask ghosts and gods for blessings can avoid misfortune. Why people don't develop own industries and business but sorrow and sigh all day? It is said that I am destined to die on a certain day according to divination.

Xu put forward two solutions to resist the superstitions: be brave, and learn more about modern science. The articles had a specific context. On the fall of 1917, some traditional intellectuals founded a spiritual society (灵学会) in Shanghai and published a journal called Spiritual Series (灵学丛志) from the January of 1918, shaping a tide of restoration of feudalism and Confucius culture that believes in the existence of ghosts and gods (Wu, 1981). What interesting was that the traditional intellectuals also tried to combine their spiritual theories with the western science to acquire the legitimacy and rationality. For example, they even claimed that they had invited the spiritual soul of Sir Isaac Newton and Lev Nikolayevich Tolstoy to help them predict the future. They set up altar divination and did fortune-telling. What they did contributed to the criticisms of the New Youth magazine. The volume 4, issue 5 in 1918 can be regarded as a special issue of attacking superstition and spiritualism.

Chen Daqi (陈大齐) published his article “Attacking Spiritualism” (辟灵学), which directly commented the Spiritual society and its journal:

Recently, some people in Shanghai have set up altars to do the prophecy and thought-reading, even collect their articles and publish in a journal called Spiritual Series. They set up a spiritual society to engage in the popularization of spirituality. I have seen the first issue of the first volume of the magazine. Its content is really ridiculous.

Chen denounced that in the 20th century when science was prospering, the spiritualism still wanted to fool the public with the unreasonable ideas of superstition that came from primitive tribal society. Standing with Chen Daqi in the same line was the chief editor Chen Duxiu, who clearly asked eight questions about ghosts skeptically in the article “Questions about ghost” (1918, Volume 4, Issue 5) including the nature of ghosts, the conflict of dualism, spatial occupation, material form of ghosts, etc. Chen Duxiu adopted an opposing attitude to the existence of ghosts. Take his second, sixth and seventh questions as example:

I dare to ask: If the ghosts have shapes and qualities, it is just not visible to ordinary people; then we can guess that present individuals are to ghosts like the ancients to microorganisms. So, although not everyone can see the ghosts, the material existence and activities of them can be explained scientifically certainly. In this case, is there a room for the dualism? This is question two.

I dare to ask: If the ghost is spiritual, and it is different from materials, why they can keep the sound, face, and other material existences after death? This is question six.

I dare to ask: If it is said that ghost belongs to the spiritual realm and expresses differently from our physical realm so we cannot speculate them with thoughts in our universe, why we can find the same differences of ghosts in nationality, language, customs, clothing as our world? This is question seven.

A very scientific tone surfaced with usage of words like “microorganisms”, “explain” and “differences” which represented that the author was concerned with scientific evidences and logical deduction. Meanwhile, an international view was obvious by referring to different nationality, language, customs and clothing. These are new ways of discussing “ghosts” and other spiritual things. However, subsequently, the New Youth magazine received the rebukes from the Spiritual Society represented by Yi Yixuan (易乙玄) and Mo Deng (莫等). For example, Yi’s “Answering Mr. Chen Duxiu’s ‘Questions about ghosts’” (1918, Volume 5, Issue 2) and Mo’s article in “Communication: Research on Ghost Appearance” (1918, Volume 5 Issue 6). The articles then evolved into a debate and caused more critical articles from the New Youth magazine, among which the

counterattack from Wang Xinggong and Chen Daqi were the most scientific and persuasive (1918, Volume 5 Issue 6).

The conflict, application and attitude to Western science and Eastern tradition were flashed in the debate. First, western view of science and technology has been regarded as an authority to both the traditional and the new-school intellectuals. For the traditional intellectuals, they used the name of western scientists, even western scientific theories to prove the existence of ghosts and gods and learned from the supernatural groups that existed in the Western society at the same time. While for the new-school intellectuals, they did not believe the existence of ghosts and gods and used their more comprehensive scientific knowledge to attack back.

In “Communication: Research on Ghost Appearance” (1918, Volume 5 Issue 6), Mo Deng, who supported the Spiritual Society, said that human could feel things because everything in the world had radiant light which our nerves can sense. Therefore, for people who sensed the existence of ghosts and gods, they were just more sensitive than ordinary people to perceive the radiant light from the ghosts and gods. Wang Xinggong, a chemist, asked back Mo, to clear the usage of theories and terminologies. He differentiated and analyzed the terms regarding molecule, atom, electron and the elements that can have radioactivity. Finally, he stressed that we should have scientific evidence to explain ghost phenomenon (that spiritual society cannot provide with). Chen Daqi, as a modern psychologist, argued that we should at first assure the existence of ghost’s phenomenon after which scientific certification and explanation follow. Chen mentioned a Japanese psychologist Fulai Youji (福来友吉), who was famous in studying parapsychological phenomenon, especially so-called thought photograph. Chen disagreed with his ghost study because he thought there was no ghost at all.

The second thing worth mentioning was the obvious difference and attitude to Chinese tradition between the two sides of the debate. Compared to the old school intellectuals using western science to preserve the spiritual belief of ghosts and gods, the new intellectuals used traditional classics to oppose religious beliefs instead. On the volume 5, issue 1, 1918, Yi Baisha (易白沙), who was very familiar with Chinese traditional classics, wrote an article called “Chinese classics on no ghost views”. He commented on the ideological origins of the thinkers of traditional Chinese culture, especially the culture of the pre-Qin period (先秦时期). He believed that most thinkers in the pre-Qin period

firmly supported the opinion of no ghosts and gods, which leads to the fact that no religion exists in China:

Guan Zhong, Lao Dan, Zhuang Zhou, Han Fei, Liu An, and Wang Chong all said that ghosts and gods are created by the human mind. Confucius's attitude is not clear, but he would rather consider about realistic personnel more than the ghosts. Only the Mo group worships the gods and ghosts, and tell the stories of them to the ordinary people, forming the customs to establish an authority. The fact that Chinese religion cannot be established, should be merited of the non-ghosts' theories from the most thinkers except the Mo group.

To conclude, the standpoint of the New Youth magazine in the debate was firmly excluding the possibility of promoting theories of ghosts and gods on behalf of the traditional knowledge system. The new intellectuals were worried that believing in ghosts and gods would obstruct the political reform and economic modernization. In the debate, the role that traditional culture played was crucial and worth further discussion. From the interpretation of traditional classic in Yi 's article, not all the Chinese traditional intellectuals were superstitious to Feng Shui, divination and other spiritual indigenous knowledge. There is a possibility that materialism has been vague but fundamental in metaphysics of China for a long time before the Westernization. The Western learning (technology and pragmatism) broadly amplify, update and encourage the communication of the ancient materialism.

3.2.5. Discourse stream 3: the philosophical discussions about the definitions, nature and purpose of science: the great commonwealth

From 1915 to 1918, only one article “Thoughts of machines facilitating the Great Commonwealth” (1918, volume 5 issue 2) was published regarding the discussion about the definitions, nature and purpose of science. It was written by Wu Jingheng (吴敬恒). It claimed that the human beings should produce more machines to replace manual labor. He imagined that “machine will do all the labor and there are very few parts requiring human to deal with. Each person just needs spend two hours a day for working [in the future].” Great imaginations of mechanical world were full of his article. For example, he said that “our head will become larger and the legs and arms will become thinner since

we will use brain more often and do not need to go outside by walking.” As an article reflecting the primary recognition of the purpose of science, it illustrated a proposal of communism that “machines should belong to the public.” However, by thinking that “the machine is the angel for reducing human labor”, his view is sometimes over idealistic.

The great commonwealth is a typical beautiful imagination of Chinese utopian faith that lasts long history. It refers to a society where people live in a happy and harmony style. In modern context, the new intellectuals have been shocked with the advancement and effectiveness of western technologies at the first sight, thus leading to the classic imagination that facilitating the living of the public by making use of western technologies. The starting point is good, and it is commendable to foresee the disadvantages of the privatization of machines. However, Wu still lacks of a sufficient critical perspective to provide a feasible plan of modernization.

3.2.6. Discourse stream 4: reports concerning the practical application of science: attention to western scientists and machines

The reports concerning the practical application of science were mainly made up of three contents in this period: Chen Duxiu’s feature stories of introducing western scientists; Opinions about tools and other machines; News about technologies and industries.

Chen wrote two articles to introduce contemporary scientists Metchnikoff and Wilhelm Ostwald. “The Thoughts of Two Contemporary Scientists: Metchnikoff” (1916, Volume 2, Issue 1) mainly introduced the Russian scientists Metchnikoff who was best known for pioneering research in immunology. The structure of the article contains three parts: brief biograph, the prolongation of life (research on phagocytes and lactic acid bacteria), moral principles of Metchnikoff. The general tune was positive. Similarly, “Thoughts of the two contemporary scientists (continued): Ostwald” (1916, Volume 2, Issue 3) introduced the Baltic German chemist and philosopher Wilhelm Ostwald who received the Nobel Prize in Chemistry in 1909. The structure of the article was also made up of three parts: brief biograph, energy formula for mechanical engineering, comments and opinion to his work. Chen said that:

The prosperity of science produces two fruits: material energy which is greatly used in human life, and another is that when the raw energy becomes useful energy, its efficiency must increase...Since the invention of the steam engine, human labor has been saved and energy efficiency has increased...Western people feel their writing letters lacks efficiency, and want to remove the ‘-’ of ‘t’, ‘-’ of ‘i’; what to do with our complex hieroglyph!

According to Chen’s narrative of the two scientists, western technology and science was respected and all Chinese culture and lifestyle should be reassessed under the new reference. It was urgent to acquire efficiency and accelerate the speed of development.

The news about tools and machines indicated the same attitude. Wu Jingheng published two articles, “Youth and tools” (1916, Volume 2, Issue 2), and “Revising the tools” (1916, Volume 2, Issue 3). In the first one, Wu thought material civilization is very significant to happiness and tools can promote social production and development. Considering the problem of modernization of China, he hoped that teenagers could pay more attention to practices and creativity. Wu was visiting the Great Britain at that time and was inspired by British teenagers, most of whom had toys in their study rooms and the youngers around 13 to 20 had models which help them practice creative capability. Wu wrote what he saw and published it on the New Youth magazine, which the chief editor Chen was really interested. Chen invited Wu writing more to record specifically what toys and tools western teenagers played. Hence Wu wrote the second article. By comparing toys that western teenagers played with Chinese teenagers’, Wu recommended some tools, machines and noted their prices, which can benefit the intellectual development of Chinese teenagers. Also, the second one mentioned where can buy those things in Shanghai.

Major events related to technologies and industries became a great annotation to the strong desire of introducing western science and technology. However, the attitude is constructed multifacetedly. During the period, eight reports were published about the German submarine strategy and its military influence. It shows that science and technology was an important deterrence which exerted urgent pressure on China’s process of modernization. Opinions about learning western technology and news about

national capitalism nearly became mainstream for all authors and editors from the New Youth magazine, which demonstrated the close attention of the intellectuals about developing capitalism and industries.

3.3. Section 3 Debate stage in 1919 – 1921

3.3.1. Integrated attention

From 1919 to 1921, the New Youth magazine made a significant turn to focusing more on Marxism and socialism, which was closely related to the social changes and Chen Duxiu's personal inclinations. Specifically, after the May Fourth Movement evolving into nationwide worker strikes, the New Youth magazine published many social surveys about the living and working conditions of workers. In 1921, the CCP was founded by Chen and other socialists when the magazine started to introduce more about the leading country Russia.

In the year 1919, the magazine totally published 7 issues with 175 articles (6 issues for the whole volume 6; and Volume 7, Issue 1), in which the Volume 6 Issue 5 mainly introduced Marxism.

The year 1920 published 9 issues (from the Volume 7 Issue 2 to the Volume 8 Issue 4) with total 393 articles. The year 1920 witnessed a great interest of the New Youth magazine on labor research and social surveys for labors. At first, it concentrated on a social organization that targeted to the cooperation between workers and professional teachers (工读互助团) in the volume 7, issue 2. Then, from the fifth issue of the volume 7, large-scale social researches on the working class was launched and their living conditions were described. Shanghai was the main area, and other areas like Tangshan, Wuhu, Tianjin, Jiangsu, Zhejiang, Hongkong, as well as some overseas labor movement and organization in Japan, Paris and the UK, were also recorded and described (i.e., Volume 7, Issue 6). Starting from the first issue of volume 8, a special column "Russian Studies" commenced which mainly introduced the socialism, revolutions and multifaceted aspects of Russian society, politics, economy, culture and history (i.e., the Volume 8, Issue 3 translated many Russian poems). In this year, we keep seeing articles about philosophers John Dewey and Bertrand Russel, and other meaningful social topics such as demographic problem, economic policy, and juvenile delinquency taking place in the

magazine. For example, the Volume 7 Issue 4 is a special issue about the demographic problem, in which 9 out of 11 articles are discussing issues in terms of demography, census, and population control.

In 1921, the inclination and preference of Marxism and Russian Studies became obvious. Seven issues from the volume 8, issue 5 to the volume 9, issue 5 and total 196 articles were published, in which most were about the series Russian Studies and socialism. The style was gradually political and topics like how to reform China into a socialist country appeared (i.e., Volume 9, Issue 3). In a word, 1921 is a year when the magazine paid more attention to learning about Russian revolutions and introducing socialism.

3.3.2. Four streams and its general characteristics

From 1919 to 1921, sever political movements like the May Fourth Movement were launched by the editors of the New Youth magazine and radical debates more frequently occurred. An international communication happened on the ground with John Dewey and other philosophers coming China to have lectures. Writers were asking questions like “what is scientist?” (1919, Volume 6, Issue 3), the origin and effect of science (1919, Volume 7, Issue 1) and “what is the scientific method?” (1920, Volume 7, Issue5), etc. This period was the most prosperous and active one for the magazine among three timespans and it can be regarded as a debate stage because of its deep thinking about the nature of science and how to develop science and technology in China.

Table 3.3. The articles on science and technology in the New Youth magazine from 1919-1921

Year	Discourse stream 1: philosophy of science (pragmatism, demographic problem issue)	Discourse stream 2: questions of hard science (ghost debate)	Discourse stream 3: definitions, nature and purpose of science (science and philosophy of life)	Discourse stream 4: practical application of science (materials/devices/tools/scientists/revolution)
1919	1919-6-2 Animism	1919-6-1 The living creatures before Human	1919-6-3 What is scientist?	1919-6-4 Ideological revolution
	1919-6-4 Pragmatism	1919-6-4 Origin of living creatures	1919-7-1 The origin and effect of science	
		1919-6-4 Communications: Ghosts and Psychic		
1920	1920-7-2 Dr. Dewey's Lecture: Social Philosophy and Political Philosophy: (3) The first two lectures were divided into three groups: social philosophy and political philosophy...	1920-8-2 Survival competition and mutual assistance	1920-7-5 What is the scientific method?	1920-8-1 Communication: philosophy and chemical industry
	1920-7-3 The evolvement of Mandarin			
	1920-7-4 The mathematics of calculating population; More numbers, good quality; Discussing the tendency that the growth of population is greater than living materials; Russell and population issues			
	1920-8-2 On scientific method in philosophy			
	1920-8-3 An introduction to Russell's logic and cosmology		1920-8-3 An introduction to Russell's logic and cosmology	

Year	Discourse stream 1: philosophy of science (pragmatism, demographic problem issue)	Discourse stream 2: questions of hard science (ghost debate)	Discourse stream 3: definitions, nature and purpose of science (science and philosophy of life)	Discourse stream 4: practical application of science (materials/devices/tools/scientists/revolution)
1921	1921-8-5 Darwinism	1921-8-6 Sex/gender biology	1921-9-5 What and Why	1921-8-5 Implement socialism and develop industry
	1921-9-1 From scientific socialism to socialism in action	1921-9-3 Introduction to biological evolution and spherical evolution		1921-9-2 Communication: Guangdong: Scientific thinking
	1921-9-2 Two roads from capitalist organization to socialist group: evolution and revolution	1921-9-4 Physiology		

3.3.3. Discourse stream 1: philosophy of science: more philosophers and the preference of Marxism

From 1919 to 1921, the three years witnessed more philosophers introduced into China through the magazine. Among them, John Dewey and Bertrand Russell were two main concerned subjects. Dewey is well-known for pragmatism. By his student, Hu Shi, also the leader of the New Culture Movement and one of the six main editors of the New Youth magazine, Dewey was invited to China to give lectures in 1920 with his books translated in China. Bertrand Russell, was given special attention in the issue 4 of the volume 7, 1920, where most articles were discussing “demographic questions”. Later, his theories and attitudes to capitalism and socialism were also discussed when a final choice of supporting and promoting Marxism was decided.

During this time, previous philosophers appearing in the New Youth magazine like Ernst Haeckel and Darwin, were still discussed. For example, in the Volume 6, Issue 2, 1919, Liu Shuya (刘淑雅) translated the chapter 3 of Ernst Haeckel’s work *The Wonders of Life* and in the foreword of Liu’s translation, Liu wrote that:

In the past two years, people in China have become more mentally disturbed because of turmoil, political disorder, and oppression of living. They lack scientific knowledge and are stubborn with old ideas. For example, we can see the Spiritual Society and its journal, Shengde altar and etc.... In an era of scientific prosperity, we should not allow such things to confuse and hurt the public...I think that today's Chinese ideology is still in the stage of the Middle Ages of Europe. There is no good medicine except for the materialistic monism.

He mentioned the ghost debate and still believed Haeckel’s monism was the best medicine to cure the problem of faith of Chinese.

In the year of 1919, Hu Shi published his article “Pragmatism” (Volume 6, Issue 4) that almost like a literature review by which Hu wants to introduce and promote pragmatism in China. The article was made of four parts: “Introduction”, “Pierce: the founder of pragmatism”, “James and his psychology”, “James and pragmatism”. Hu claimed that the development of modern science is related with pragmatism, referring two big developments: change in scientific principles and Darwin's theory of evolution. In the

final part, he mentioned three significances of James's pragmatism: theory of method, theory of truth, theory of reality. In order to make it more accessible, Hu quoted Chinese classic philosophers as counterexamples or analogy to the theories of John Dewey.

Hu as the leading figure in the New Culture Movement who promoted vernacular Chinese, took pragmatism as the ideological foundation for modernization of China. However, he met across disagreements that claiming simplified and vernacular Chinese is inferior and rude. Hu argued these disagreements back in his article "The evolvement of Mandarin" (1920, Volume 7, Issue 3) in which he thought that the increase of application ability should be regarded as the evolvement of a language. The application ability can be understood in four functions of language: expression, recording, education and communication. Under this criteria, literary Chinese is complicated and hard to use in daily life. He praised the convenience of vernacular from the changes of phonology and application scenario in history.

The changes in vernacular are very free and flexible because they are not subject to the interference of literati; there are coherent order and reasons in the changes. It's all improvement! It's all evolution!

The upsurge of pragmatism in China, on the one hand, relies on the new-school intellectuals like Hu and Gao Yihan. Hu graduated from Columbia University where he had taken the course of John Dewey and influenced by his thought. On the other hand, the linguistic reform meets the internal need of modernization which requires a language to be effective in daily communication. It helps explain why it was pragmatism that attracted the attention of the New Youth magazine.

The fourth issue of the volume 7 in 1920 was a special one mainly discussed demographic problem of China, in which Bertrand Russell was frequently referred to especially in the articles about mathematics. T.R. Malthus was also mentioned in those articles. Ma Yinchu (马寅初), who was a famous Chinese demographer, wrote his first article about demographic problem "The mathematics of calculating population". This article was very technical and professional in which Ma introduced mathematic calculation methods of census by applying different formulas to solving calculation. Zhang Songnian (张崧年) analyzed the population issue with Russell's philosophical view. He later translated more Russell's work and published it on the New Youth magazine. For instance,

“On scientific method in philosophy” (1920, Volume 8, Issue 2) introduced Russell’s cosmic view and his approach of researching philosophy. What we can find in the demographic issue was a diverse discussion where the new intellectuals tried to interpret realistic and political policy with western scientific theories.

Given the fact that Chen became the important founder of CCP, the preference of Communism and Socialism was confirmed. The last two articles “From scientific socialism to socialism in action” (1921, Volume 9, Issue 1) and “Two roads from capitalist organization to socialist group: evolution and revolution” (1921, Volume 9, Issue 2) paid attention to promoting socialism. For example, the previous one translated by the communist Li Da (李达) was from a Japanese scholar to comment Russell’s book *Proposed Roads to Freedom*. It criticized Russell was a capitalist philosopher who actually could not lead the society to collective freedom. By contrast, Marx and Marxism became the “right” choice.

3.3.4. Discourse stream 2: questions of hard science: popularization of scientific knowledge

The three years have witnessed a productive period of the New Youth magazine of promoting scientific knowledge mainly in the field of biology, geology, chemistry and physiology. The articles of popular science analyzed the material composition of our world, which was meaningful to educate the public.

Wang Xinggong gave a brief introduction for biology and geology. He listed some tables for biological species and geological ages in the article “The living creatures before Human” (1919, Volume 6, Issue 1). In the article “Introduction to biological evolution and spherical evolution” (1921, Volume 9, Issue 3), Wang continued to introduce biological evolution and geology. To make it easy to accept, he mentioned Mendel’s pea experiment, theories against acquired genetics, genetics and geological structure, to stress that it was the earthquakes and volcanic movements that raised the surface of the earth instead of imaginations from folk myths and legends. Zhou Jianren (周建人) wrote the “The origin of Living creatures” (1919, Volume 6, Issue 4) which was a literature review about the history of biology with regard to the question about the origin of living creatures. In another article “Survival competition and mutual assistance” (1920, Volume 8, Issue 2), Zhou discussed Darwin and basic principles of biology. In terms of human physiology, Gao Kuo (高钰)

gave a primary introduction of biology by differentiating the terms of body, cell, regeneration in his article “Sex/gender biology”. Gao also published another article called “Physiology” (1921, Volume 9, Issue 4) in which he briefly introduced germ-cell, copulation, fertilization and embryology that were used to describe the process of human physical growth.

Wang Xinggong, Zhou Jianren, and Gao Kuo produced most articles in this stream of discourse. They are also the main force of writing popular science articles for the New Youth magazine. A common characteristic for the three authors was the attitude to traditional knowledge about human and nature. They often took traditional classics as counterexample to explain modern science. For example, when Gao Kuo introduced physiology, he commented that:

I remember our old saying, [Yin and Yang are the nature], and [Yin and Yang intercourse then give birth to everything], it is completely upside down, and the error is needless to say.

Looking back on an old saying that [rot grass can be turned into firefly], it is even believed by some people right now. Those who don't know the biogeny principles, when hearing my introduction of physiology, must view it as a new legend.

The authors were eager to reform the traditional and unscientific worldview of the public for which it was necessary to apply a serious and urgent tone. This may have been helpful to promote the modernization process of the Western style, but at the same time behind the overly radical words, Chinese traditional imagination and aesthetics were also lost.

3.3.5. Discourse stream 3: discussions about the definitions, nature and purpose of science: try to break through and reflect metaphysically

At the same time, some scientists started to write reflective and methodological essays about the definitions, nature and purpose of science, which reflects unique thinking.

In 1919, Ren Hongjun wrote “What is scientist?” (Volume 6, Issue 3) when he graduated from the U.S. and came back to China. As a scientist, he was expected to give

a talk about his experience and reflection about learning abroad as a chemistry student. By introducing the academic system and training plan of universities of the U.S., he illustrated that acquire a qualified scientist was time-consuming and labor-intensive. Actually, in this article, the recognition of scientist was very western and modern. He said:

Science is a science rather than an art. The essence of science are facts rather than words... How are scientists cultivated? Learn the methods of observation, experimentation and recording first, and then calculation judgment, because these methods are necessary tools for scientific research... Only by discovering what has not been discovered can you be considered as a scientist when you contribute to human intelligence.

Ren graduated his bachelor degree of Chemistry from Cornell University, and acquired the master degree of Chemistry from Columbia University. He accepted a very systematic and complete western scientific education. When in the USA, he founded the predecessor of Chinese Science Society as an academic community. This organization greatly promoted the development of modern scientific research in China. In 1918, he served as professor of Chemistry Department in Peking University.

Same as Ren with education background in chemistry, the scientist Wang yet had a different view toward the essence and nature of science. In “The origin and effect of science” (1919, Volume 7, Issue 1), he claimed that the internal appeal of the human to explore science is to seek the surprise, truth, and beauty. The effect of science is prediction and aesthetic. The article conveyed the reflection of technological aesthetics. He wrote:

There are two indispensable elements of beauty: one is the order, the other is harmony.

In his opinion, the nature and purpose of science are not limited in the pursuit of facts and truth, but also the inner beauty of sensing the order of the world. The distinction in interpreting the nature of science between Ren and Wang might lie in the different purpose of their articles. Ren was writing for public speaking and introducing the modern system of academic research to the mass audience, while Wang was more for personal reflection. In addition, the order and the harmony have been the keywords of Chinese philosophy and culture for a long time. The reflection of Wang was precious because it

tried to transcend the simple promotion of Western science and combined his observation with Chinese aesthetic thinking. Later, in “What is the scientific method?” (1920, Volume 7, Issue 5), Wang thought the scientific method is the substantive logical method of manufacturing knowledge.

The last article was written by Gao Kuo named “What and Why”. Attacking old thoughts from Chinese metaphysics and grand formalism, the article promoted the western thinking way of asking what and why and solving them by observation and reflection. It said that “what I reject is not the faith, but the superstition.” He argued that if the superficial and irrational traditional ideas regarding the nature weren’t broken out, the public would always live with barbaric instincts.

3.3.6. Discourse stream 4: reports concerning the practical application of science: develop industries

The theme of the reports concerning the practical application of science and technology is to call for the industrial development of industry during 1919 to 1921.

In 1920, Gao Kuo wrote “Many schools are called industrial schools, agricultural schools, etc., which are all just using chalkboards and pieces of chalk. This kind of school is really harmful.” (Volume 8, Issue 1). At the same time, he thought the logical system and science was more important than literature and art. He called for the practice and building modern laboratories. The desire of developing industries also echoes in a letter to the New Youth magazine by a reader in Guangdong province. In the letter “Communication: Guangdong: Scientific thinking” (1921, Volume 9, Issue 2), the author believed that science relies highly on facts, who hoped there could be more translations of hard science instead of philosophy and other social science. He wrote that:

If philosophy has no basis in science, it then loses the foundation of facts. And, the words without facts is just rumor or crazy nonsense.

In the last, chief editor Chen replied the letter with supportive opinion. Chen responded that “Not only in China, but also in the whole world, it is time to study science, and we are no longer in an era of empty talk about philosophy.”

3.4. Section 4 Socialist stage in 1922 – 1926

3.4.1. Integrated attention

Since 1922, the style of the New Youth magazine has changed into a party publication that most articles were about socialism, the international communists, Marx and Marxism, Russia and revolutions. In 1922, the magazine just published one issue (Volume 9, Issue 6, total 33 articles) focusing on the first national congress of the Chinese socialist youth league and communism. In 1923, two issues were published with total 39 articles discussing issues of international communists, Eastern revolution, Marx and Marxism, Russian new economic policy.

Similarly, two issues were published in 1924 mainly focusing on Marx's dialectics, the application of historical materialism, the First National Revolution of China (from 1924 to 1927, the first time Kuomintang and CCP cooperated to attack resident feudal warlords in the northern part of China) and other international political messages.

Given that Lenin passed away in 1924, the New Youth magazine published many articles related to Lenin in the first issue in 1925. The other issue kept introducing the updates about Soviet socialism and other political movements. Three issues were published in the 1926, the final year of the magazine, whose articles kept discussing revolutions in China and Marx.

3.4.2. Four streams and its general characteristics: New Youth as a theoretical journal for the new party

From 1922 to 1926, the New Youth magazine started to go to the end phrase although a significant discussion (Science and Philosophy of Life) happened which led to profound influence to Chinese intellectuals in 1923. In philosophical level, Marx's dialectics and political economy became mainstream of this magazine and Lenin's theories about revolution were translated and published. Finally, the magazine finished its discussion on that China should take the path of socialism and communism.

Table 3.4. The articles on science and technology in the New Youth magazine from 1922-1926

Year	Discourse stream 1: philosophy of science (pragmatism, demographic problem issue)	Discourse stream 2: questions of hard science (ghost debate)	Discourse stream 3: definitions, nature and purpose of science (science and philosophy of life)	Discourse stream 4: practical application of science (materials/devices/tools/scientists/revolution)
1923	1923-1 Opinion: about socialist thought of Russell		1923-2 Preface: Science and Philosophy of Life	1923-1 Oriental Culture and World Revolution
1924	1924-3 Dialectics and Logics; Pragmatism and revolutionary philosophy		1924-3 Answer Zhang Junmai and Liang Rengong	
	1924-3 Explanation of Historical Materialism on the Development of Human Society and History (Annex)			

3.4.3. The big debate: Science and Philosophy of Life

In 1923, Chen wrote a preface (which he later published in Issue 2 of the New Youth magazine) for Yadong Publication (亚东书局) that collected a series of articles in the big debate “science and philosophy of life” for publication, in which Chen summarized opinions in the big debate and gave some comments.

The debate did not happen abruptly. Before 1923, due to the promotion of science and technology from the leaders of the reformers, revolutionaries and the intellectuals, the word “science” was widely acknowledged as a sacred and advanced concept. Western intellectual traditions and cosmic view severely impacted Chinese tradition, leading to the argument between the old and new intellectuals. In the discourse of the New Youth magazine on science and technology from 1915 to 1922, western thoughts were very powerful and well-founded. However, it still hadn’t formed a direct conflict on the philosophical aspect. For example, in the ghost debate, the new intellectuals remain at the level to use scientific research methods, scientific terms and discoveries to attack traditional religious beliefs and superstition activities. With the continuous promotion of scientific concepts, a scientific discussion on the level of fundamental philosophical and cultural values is destined to occur in the old-school and new-school intellectuals.

The debate starts from Zhang Junmai (张君勱), who was invited to give a speech at Tsinghua University to students who would study abroad in Feb 14th, 1923. He claimed that there were five distinct differences between science and the philosophy of life: subject, intuitive, comprehensive, free will and singularity. In a word, he thought that science cannot solve all the problems in life. However, this triggered his friend Ding Wenjiang’s (丁文江) dissatisfaction because Ding believes that science can guide the life. So, Ding wrote an article called “Science and the philosophy of life” to refute Zhang. The debate between the friends gradually turned into a big discussion among the intellectuals and academia that many famous intellectuals made opinions to whether science can be the approach of all questions in life. Then Yadong Publication collected all the articles from the new and old intellectuals and invited Chen Duxiu and Hu Shi to write prefaces. Among all the articles, two camps appeared: one was the school of believing metaphysics represented by Zhang Junmai and Liang Qichao (梁启超), the other was the school of supporting scientism represented by Ding Wenjiang, Hu Shi and Wang Xinggong. Chen

Duxiu and other communists finally became the third group because of their belief in Marxist materialism. They were regarded as getting propositions closing to the scientism. We can see it from Chen's article:

If there is no evidence to show us, we definitely cannot abandon our faith [of materialism] ...Believe in historical materialism. Now from the superstitious era to the scientific era, it is natural to go through the barking of Mr. Metaphysics. The different institutions of life are caused by the objective environment, not by the subjective...We believe in science because of its power of being undisturbed by human will which is exactly the greatest purpose of scientists.

By stressing the "evidence" and depreciating the position of metaphysics that calling it "the barking of Mr. Metaphysics", Chen and the new communists didn't support or acknowledge the effect of subjection and institution. The linear narrative of "going through" one age to the scientific age, also implied a metaphor of "evolvment and Darwinism". It's clear that Chen agreed more with the scientism. The series ended with prefaces from Chen and Hu also signifies the winning of the school of the new intellectuals and western scientific view.

3.4.4. The hasty and unexpected end

Since 1924, the First Revolutionary Civil War broke out and the newly founded CCP paid all attention to it. Due to lack of manpower and material resources, as well as tensions of the war, the New Youth Magazine finally ceased publication in July 1926. Although it has only existed for ten years in history, it has contributed its unique ideological and cultural value in an era when the intersection of civilizations and the surge of thoughts took place. Under the leadership of Chen, the New Youth magazine is known for advocating "science and democracy" and has played an indelible role in China's modernization and ideological enlightenment.

Chapter 4.

Envisioning the Modernization of China

4.1. Conclusion: Four streams of the discourse on science and technology

In chapter 3, I mainly analyzed the four streams that are interconnected with each other in different timespans and the development of each stream.

For the first stream, the authors and editors of New Youth introduced many western philosophers and their theories and they hoped one of them may become the guiding thought for building a new country. Specifically, we can find an obvious philosophical attention on introducing some western philosophers from Ernst Haeckel, Darwin, John Dewey, Thomas Malthus, Bertrand Russell to Vladimir Lenin and Karl Marx. At last, Marx and Lenin became the theoretical foundation of Chinese democratic revolution which contributed to the birth of the Chinese Communist Party. From this perspective, China didn't simply imitate the western democratic revolution but took the different intellectual traditions and cultural backgrounds of countries in the world into account, and chose to learn from the revolutionary path of Russia. The criticisms to the capitalism by Marx and Lenin are still lively in today's context in China, which manifested that the new intellectuals considered China's special nationality and revolutionary conditions.

For the second stream, the magazine rebuilt the cultural view of the world by introducing basic western scientific knowledge of biology, chemistry, geology and physics and attacked some traditional beliefs in China. The intellectuals were dealing with the conflicts between traditional and western cosmological views. A typical example was the attitude to the folk beliefs to the ghosts and gods. In the past, Chinese was accustomed to relying on Fengshui and other religious rituals as crucial cultural elements to maintain the stable operation of an agricultural, self-sufficient society. However, the old system collapsed when facing the challenges from western industrial civilization. On the basis of emergency of dealing with the fracture, the debate between the traditional and the new-school intellectuals emerged. The old intellectuals still tried to combine the western scientific theories with the traditional indigenous knowledge while the new intellectuals

could not stand with the misuse of scientific principles and the mangle interpretation. Therefore, we see that the new scientists attacked the religious beliefs and published articles to explain the objective natural phenomena with scientific principles in the ghost debate. By their efforts, science and technologies established its authority and justifiability in Chinese context.

The third stream was the philosophical discussions about the definitions, nature and purpose of science. The New Youth magazine considered the science and technology as the fundamental method and process for achieving traditional Chinese ideals like the pursuit of “harmony” and “the great commonwealth”. In this sense, although the New Youth magazine promoted “science and technology”, the envision of modernization by the intellectuals is still based on Chinese classics. However, there is implicit defect that the reflection of whether science and technology can approach to Chinese ideals to human society is scarce or nearly absent.

It is worth noting that the second stream and the third stream have very close connection and make significant historical influence together to the future discussion on science and technology in China. The second stream stressed the authority and rationality of science and technology and tried to explain all the things and objects through scientific principles, which demonstrated a trend of scientism. The radical conviction of science and technology led to the debate in 1923 “science and the philosophy of life”. Hu Shi said in his preface of the debate that “science” has got such a supreme position that no one dare to attack it. However, Zhang Junmai, who showed the different opinion to science and technology with Hu Shi and Chen Duxiu in the debate, proposed to pay attention to China’s core moral philosophy and warned the defect of science. Zhang and his colleagues insisted on preserving Chinese cultural essence. However, the New Youth magazine as the cutting edge of promoting science and democracy, didn’t value this point. At the end of the big debate in 1923, the scientism, pragmatism and the belief of learning western technologies were the most popular social opinion.

The last stream of discourse advocated for developing national capitalism, introduced many tools and machines to educate the young generation and even did the linguistic reform with pragmatism. The attitude to industrial development and national capitalism is consistent with the previous three streams, which highlighted the practices and application of modern science and technology.

In the New Youth magazine, science was promoted in multiple ways. The four streams show us that the understanding of science is not restricted in hard science knowledge, but deepened into philosophical and core aspect. However, we can see that science was mainly interpreted in western way. For example, in ghost debate, ghost was explained with scientific lens including chemist and physic terminologies and principles. Moreover, Chinese traditional classics were disdained or used as evidence to argue a scientific truth. In general, fully westernized thinking way and logic were the mainstream of New Youth on the discourse of science.

4.2. Discussion: Modernity of China

There was a trend of Westernization in the process of modernization of China. As I introduced in Chapter 2, the Western Affair Movement and other important reforms gradually deepened the learning of western intellectual tradition not only from the “technological” level that learning western machines and industries, but also from “political system” and other levels of social changes. Until the New Youth magazine started to promote science and technology into a cultural and ideological level.

The editors and authors of the New Youth magazine passionately engaged with the Western view of modernization achieved by means of the four crucial elements: fast industrialization, capitalization of society, colonialism and imperialism that are often discussed as driving forces and conditions of possibility for each other. Having debated all these aspects of Western modernization, which was crucial for producing important understanding of the role of science and technology for the social change, not all of these elements were implemented in China. In fact, only one of them, technological industrialization that became the driving force of the modernization in the country along with another crucial event of the land reform. In the 1930s, the National Government’s policies discouraged research on literature, art, and other social sciences, but emphasized “practical courses”, namely science, technology, agriculture, and medicine by controlling scholarships and grants (Rozman, 1981), which shows the strong support of the government to technological innovation and application. Also, national capitalism develops with more and more factories built in Shanghai, Hongkong and other harbor cities. Capitalization of society follows the industrialization; however, it didn’t represent like the Western way. On the one hand, the fast industrialization didn’t covered all areas of China; on the other hand, the CCP always insists on controlling the degree of capitalization

by exercising the power of state to achieve at least around 50% public ownership. In terms of the colonialism and imperialism, China hasn't gone through the two stages with relatively low degree of capitalization. Which makes the transforming China of the 1910s to 1920s an important case of the non-colonial and non-imperial modernity.

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