"Modern" Science and Technology in "Classical" Chinese Poetry of the Nineteenth Century

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This paper is dedicated to the memory of Prof. Daniel Bryant (1942-2014), University of Victoria, a great scholar and friend.

Introduction

This paper examines poetry about science and technology in nineteenth-century China, not a common topic in poetry written in Classical Chinese, much less in textbook selections of classical verse read in high school and university curricula in China. Since the May Fourth/New Culture Movement from the 1910s to the 1930s, China's literary canon underwent a drastic revision that consigned a huge part of its verse written after the year 907 to almost total oblivion, while privileging more popular forms from after that date that are written in vernacular Chinese, such as drama and novels.[1] The result is that today most Chinese confine their reading of poetry in the *shi* 詩 form to works created before the end of the Tang Dynasty (618-907), missing the rather extensive body of verse about scientific and technological subjects that began in the Song Dynasty (960-1278), largely disappeared in the Ming Dynasty (1368-1644), and then flourished as never before in the late Qing period (1644-1912). Except for a growing number of specialist scholars in China, very few Chinese readers have explored the poetry of the nineteenth century—in my opinion, one of the richest centuries in classical verse—thinking that the writing of this age is dry and derivative. Such a view is a product of the culture wars of the early twentieth century, but the situation has not been helped by the common name given to the most important literary group of the nineteenth and early twentieth century, the Qing Dynasty Song School (Qingdai Songshi pai 清代宋詩派), a term which suggests that its poetry is imitative of earlier authors, particularly those of the Song Dynasty. However, the comments of one of this school's more prominent authors and critics, He Shaoji 何紹基 (1799-1873), suggest that such a view is highly questionable:

> I only study [past poets'] writings to allow me to get my hands on

> the subject. Once I have taken control of my own hands and eyes, I ought to be able to gallop side by side with the ancients. If I had been born before Du Fu, Du Fu would have had to study *me*![2]

He Shaoji and other major Chinese poets of the nineteenth century learned from earlier authors, but they also believed that a writer had to develop his or her original style, from which even the greatest authors of the past such as Du Fu 杜甫 (712-770) could learn something. They were fully aware that they were living in a new age and were writing highly original poetry.

The actual literary accomplishments of the Song School poets would also suggest that the current neglect of nineteenth-century poetry is untenable. I do not have the space here to give a detailed introduction to these authors as a group, but my monograph on the poet Zheng Zhen 鄭珍 (1806-1864) would suggest that he is one of China's greatest authors, a view that was shared by many of his contemporaries and critics of the early twentieth century before the May Fourth Movement's drastic revision of the literary canon. The prominent poet and literary critic Zhao Xi 趙熙 (1867-1948) called Zheng China's "greatest poet, of the very first rank" (絕代經巢第一流) and the outstanding twentieth-century scholar Qian Zhonglian 錢仲聯 (1908-2003) said that he was the "number one poet of the Qing Dynasty" (清代第一詩人) and "the equal of Su Shi 蘇軾 (1037-1101)" (*buzai Dongpo xia* 不在東坡下), better known in China today as Su Dongpo 蘇東坡 and generally regarded as the greatest poet of the Song Dynasty. Although many scholars in Chinese departments in China still ask me "Zheng who?" when I mention his name to them, the situation in that country is changing rapidly, and more and more graduate students and established scholars are working on Qing verse.

The Two Cultures

Modern Western readers' possible doubts about nineteenth-century Chinese poetry on science and technology most likely arise from one of the most prominent fissures in Western culture since the beginning of the nineteenth century, i.e., the deep divide between the humanities and science, or what some term the "two cultures." Many humanists of the seventeenth century found the new scientific knowledge of that period positively exhilarating, but when the Industrial Revolution got under way in the late eighteenth and early nineteenth centuries in Great Britain, English authors such as William Blake (1757-1827) began talking about the "dark, satanic mills" of the new economic and technological order and lamenting the end of earlier traditional life styles.[3] Although a French author like Jules Verne (1826-1905) celebrated the new technology in his highly popular novels, many writers, especially poets, exhibited a profound ignorance of the new technology, Alfred Lord Tennyson (1809-1892) telling his readers that the first time he

took a steam-driven train, he thought the vehicle rode in grooves rather than on rails!

> Not in vain the distance beacons. Forward, forward let us range.
> Let the great world spin forever down the ringing grooves of change.[4]

European society was becoming more and more specialized; poets rarely delved into scientific and technological matters, while most scientists and technicians were too busy with the "real world" to write (or perhaps even read) poetry.

Assuredly, this divide between the worlds of science and literature was not yet as apparent in nineteenth-century China as it is in both China and the West now. However, it was one of the most persistent literary debates in Chinese history, namely, the argument between some critics who maintained that poetry in the *shi* form was not an appropriate vehicle for the discussion of ideas and those who did not agree with this view. In spite of possible support for Chinese critics opposed to the use of poetry as a vehicle to discuss ideas, the literary theory of the Qing Dynasty Song School encouraged the discussion of ideas and the use of learning in poetry. For them the greatest verse was a perfect blend of what they called the poetry of learned scholars (*xueren zhi shi* 學人之詩) and the poets' poetry (*shiren zhi shi* 詩人之詩), i.e., poetry of feelings. This ideal might seem difficult to realize, but Zheng Zhen frequently succeeded, a good example being a set of two poems that he wrote about vaccinating his grandson against smallpox. This work combines a brief review of Chinese medical literature on the disease over the centuries with a clinical description of the young boy's reaction to the vaccination but concludes with a deeply moving depiction of the profound love that the poet had for his grandson. [5]

Poetry of Ideas

However, as I have just suggested, Zheng's approach was contrary to the ideas of some of China's more influential critics. As a member of the Qing Dynasty Song School, he was influenced by Song Dynasty authors such as Su Shi, many of whom used poetry to discuss all sorts of ideas, including those of a scientific or technological nature. Yet, by the end of the Song Dynasty the critic Yan Yu 嚴羽 (fl. 1180-1235) initiated an attack on many of the practices of Song poets in the *shi* form, declaring that "poetry has its special 'interest,' but it is not ideas," and had criticized such Song authors as Su Shi who "in recent ages...used their talent and learning to write poetry or who used discussions of ideas to write poetry..., which is not [as good as] the poetry of the ancients.[6] The Ming poet and critic Li Mengyang 李夢陽 (1473-1530) concurred with Yan's view:

> The men of Song made ideas primary and used the language of ideas....But when was poetry ever lacking in ideas? If you use the language of ideas alone, why not write prose essays? Why write *poetry*?[7]

As a result of the criticisms of Yan Yu and Li Mengyang, Song *shi* poetry and its interest in ideas became unpopular during the Ming Dynasty, and it was not until the Qing Dynasty that attitudes began to shift, the thinker Fang Yizhi 方以智 (1611-1671) retorting: "Who says you cannot use allusions? Who says you cannot put discussions [of ideas into your poems]?"[8] Song influence on Qing verse is already very apparent by the eighteenth century in the work of such widely read and influential masters as Yuan Mei 袁枚 (1716-1798), but it reaches new heights in the early nineteenth century with the work of Zheng Zhen's and He Shaoji's teachers, especially Cheng Enze 程恩澤 (1785-1837).

Zheng Zhen on Science and Technology

Cheng had been a close friend of Ruan Yuan 阮元 (1764-1849), a man whose collection of biographies of Chinese mathematicians and astronomers, *Chouren zhuan* 疇人傳 (Biographies of Astronomer-Mathematicians), had been quite influential in the revival of interest in mathematics and astronomy in China during the nineteenth century, but Cheng was also an expert on agricultural technology, particularly new methods for rearing silkworms. The very first book that the poet Zheng Zhen himself published was not a collection of his verse but rather a detailed technical treatise on a new form of sericulture that had revolutionized the rural economy in the region of Guizhou Province in which he spent most of his life. Zheng does not seem to have had any knowledge of the new Western science and technology of his age, but he had probably read Ruan Yuan's account of Chinese mathematicians and astronomers, which included biographies of Westerners such as Euclid (fl. 300 B.C.), as well as European Jesuit missionaries who brought knowledge of Renaissance mathematics and astronomy to China during and after the sixteenth century. There was, however, no way for scholars like him to learn about the new astronomy of Galileo (1564-1642) and Kepler (1571-1630) or about the revolution in mathematics brought about by Isaac Newton's (1643-1727) and Gottfried Leibniz's (1646-1716) invention of calculus. This was not possible until the establishment of China's first Western-style industrial enterprise, the Jiangnan Arsenal (Jiangnan zhizao ju 江南製造局) in Shanghai in 1865 by another outstanding Song School poet Zeng Guofan 曾國藩 (1811-1872), better known today in China as the man who defeated the Taiping 太平 Rebellion (1850-1864). The Translation

Bureau (Fanyibu 翻譯部) that was set up in the Arsenal began translating a substantial number of books on contemporary Western science and technology, including monographs about modern astronomy and the first book on calculus in Chinese.

In spite of his ignorance of these more recent developments, Zheng created more poetry of high quality on science and technology than any author before his age whose works I have read. Since I have already written extensively about these in my book on Zheng, I do not want to dwell on them here but will mention that these included poems on sericulture, a particularly fascinating work about the so-called "paddy horse" (*yangma* 秧馬)—a newly invented agricultural machine—a poem on road building, and the work on smallpox vaccination already mentioned.[9]

But even more interesting than these poems is Zheng's exploration of the economic, social, and political dimensions of scientific and technological innovation before any contact with the new developments in the West. Zheng wrote works about the problems involved in technology transfer, explored the issue of how new technology frequently favors the rich and powerful over the poor and disadvantaged, and even dealt with the problem of industrial pollution.[10] Again I do not wish to discuss these topics in detail, for they are all covered in my book, but I will give two examples in a poem series about pollution from lead mining (1836):

Lead Smelters at Zhehai (Two Poems of Three) 者海鉛廠三首

(1)

Let's have no more of this heating and forging for money; 無斯煎煆利
Even demons would turn around and run from this place. 鬼亦掉頭還
Human voices issue from ink-black pits; 墨井人聲底
Glowing furnaces merge with the setting sun. 爐場夕照間
For a century there's been no shade from trees; 百年無樹影
Those masses of wrinkles are soot-stained hills. 衆皺是灰山
We can imagine that on those barren peaks, 誰識荒荒頂
No claws of flying swans ever dare to linger. 飛鴻爪自閒

(2)

Forgers sleep by the side of their furnaces; 竈甬邊爐宿
Colliers lean against rocks as they cook. 煤丁倚石炊
Their families idly wait for their pay, 妻兒閒待養

Scrap metal adorning the tombs of their dead.[11]	喬罐死猶隨
Their resources count for so very little,	物力秖斯數
But how long can the life of a human last?	生涯能幾時
Lead is shipped north and south each year;	年年南北運
Don't people see the tragedy of these impoverished mountains?[12]	不見窮山悲

Zhehai 者海 is located near modern Huize 會澤 District in Yunnan Province not far from the border with Guizhou, and Zheng passed through the place in 1836, when he was on his way to visit his uncle in Pingyi 平夷 and take on a post as one of his advisors. Zheng provides a haunting portrait of Zhehai, where the lead pollution is already so severe that the trees have stopped growing and all animal life has vanished. The toll that the pollution had exacted on the natural environment was terrible enough, but the human toll was beyond imagination. As Zheng writes, "Human voices issue from ink-black pits," the entrances to which are eerily illuminated by forges that resemble the fires of hell. The families of the miners and forgers sit about idly, while the workers themselves slave constantly, rewarded only with a tomb made of waste material from the furnaces they once tended. Here we have the Wasteland before the Industrial Revolution even came to China, but the motive for its creation is the same as in the West, the yearning for money by people who are rich already, the same sort of people who would soon inflict the First Opium War (1839-1842) on Zheng Zhen's nation.[13] Although pollution must have been even more "advanced" in Europe than in China at this period, so far I have not been able to find any poems by major Western poets about this problem coming from such an early date.

However, since the main purpose of my paper is to examine how Chinese responded to the "modern" technology introduced from the West in their "classical" poetry, I will say no more about Zheng Zhen, who spent most of his life in Guizhou Province, which was about as far as one could be from Western influence in China then, except to comment that his positive attitudes about the possible benefits of technological innovations for ordinary Chinese remained an abiding concern of Chinese intellectuals throughout the rest of the nineteenth century and into our present age and was an important component of what I have termed his "modernity" in my book. His discussion of the economic, political, and social implications of technological change was considerably ahead of his own age and was prophetic of growing interest in such issues among later Chinese intellectuals and, more and more today, the general public. We normally think of the present Chinese discourse on science and technology as being of Western origin, but my own preliminary research on this topic suggests that much of it was already in place before

Zheng Zhen died in 1864.

Now I will turn to focus on Zheng's followers and other poets who were connected either directly or closely with the Qing Dynasty Song School. The authors who were closely associated with Zheng Zhen are now usually called the Shatan Group 沙灘派, because they were mostly from the small town of Shatan, which lies southeast of Zunyi 遵義 in Guizhou Province. The first author I would like to discuss is Zheng Zhen's son Zheng Zhitong 鄭知同 (1831-1890), who is even less well known than his father but definitely a writer of major importance. During the chaotic period that followed the Taiping invasion of Guizhou in 1862, Zheng Zhen's house and library were destroyed. After he and his family were forced to seek refuge in a mountain stockade nearby their former home, Zheng died a most horrible death from an ulcerated jaw, a condition probably brought on by the suffering and deprivation of his later years.

Zheng Zhitong's Voyage

After the destruction of the family home and the death of his illustrious father, economic necessity soon forced Zheng Zhitong to leave Guizhou and seek employment with one of the most renowned figures of the age, Zhang Zhidong 張之洞 (1837-1909), a progressive member of the Foreign Matters Movement (Yangwu yundong 洋務運動), which was attempting to strengthen and modernize China by the use of Western science and technology. Although Zhang's literary accomplishments have been little studied so far, he was also a major poet of the Song School and, hence, had a good deal in common with Zheng Zhitong and his father. At this time, Zhang was serving in Sichuan, which is not far from Guizhou, so Zheng Zhitong was obviously delighted at the prospect of working for him. Unfortunately, Zhang's term of office in Sichuan soon came to an end, and Zheng had to begin thinking of other options, eventually doing what many others did during his age, heading "downriver." By early spring of 1879 Zheng was in Wuchang 武昌 in Hubei Province and by the end of the season he was riding on a steamship heading for Shanghai, possibly the first time that a member of the Shatan Group traveled on a form of modern transportation. Zheng must have found his first contact with the new technology of the modern age exciting, because he wrote a series of four quatrains describing his voyage:

I Was About to Travel to Hangzhou, so I Rode a Steamship, First Arriving at Shanghai, Four Poems Describing Scenes	將適余杭，乘火輪船，先至上海，即景四首
(1)	
At morning I leave Hubei's Ezhu and am at Poyang by evening,[14]	朝辭鄂渚晚鄱陽
Cloudy mountains racing busily in front of my eyes.	奔走雲山過眼忙
Only Xiaogu's peak welcomes me and sends me off,	獨有小姑迎送客
But when I turn round, it shines green, a hundred li away.	回頭百里尚蒼蒼
(2)	
After sailing all night, I wake up at Anhui's Wuhu;[15]	宵行一覺是蕪湖
A thousand li of rivers and mountains seem to have never existed.	千里江山了若無
But despite this, I haven't let down my enthusiasm for travel—[16]	畢竟不孤遊覽興
For in my dreams I really visited Jiangxi's Mount Lu!	夢中贏得到匡廬
(3)	
Morning colors intoxicate Nanjing's White Gate willows;[17]	白門柳色正朝酣
How could I be satisfied without a stop in this southern capital?	不住金陵那便甘
But I'm in a rush to view West Lake in the third month of the year,	為趁西湖三月景
And, alas, must forego Jiangnan's flowering apricots.	杏花時節負江南
(4)	
When I pass by Jiangsu's Dantu, the evening tide is rising,[18]	行過丹徒又晚潮
And I point at Zhenjiang's holy mountains by	卻從月下指金焦

the light of the moon.[19]
Though spring has ended, I wanted to stop for a while, 管教春盡還停泊
And take a close look at Yangzhou's twenty-four bridges.[20] 看到揚州廿四橋

The modern reader may be disappointed that Zheng's poems say nothing about the black smoke and clattering machinery of the steamship and fail to mention the Westerners who were almost inevitably on board a vessel heading downriver from Hankou 漢口 (just across the river from Wuchang), which had been opened to Western trade in 1861 and was developing quickly as a major *entrepôt* for products being shipped from the Yangtze Basin to Shanghai. Nonetheless, these "deficiencies" of Zheng's poems do not allow us to deny the early modernity of the series, for although their overt content is completely traditional, Zheng is already exploring the effects of new technology on the themes of classical verse. Without any special difficulty he has transferred his father's fascination for Chinese technology to the newest Western inventions then transforming the Qing empire, and he had performed this feat six years before the diplomat Huang Zunxian's 黃遵憲 (1848-1905) similar work was written while riding on a steamship back to China from his post as Chinese Consul-General (Zonglingshi 總領事) in San Francisco.[21]

In Zheng Zhitong's poems, everything has been speeded up. A journey that would have taken weeks, perhaps months with the many side excursions favored by the leisurely literati of past ages, is reduced to a matter of a few days.[22] The trip begins in the morning in Hubei but by evening Zheng has reached Jiangxi, and when he remembers to turn around and say goodbye to Xiaogu Island, it is already one hundred li (thirty-five kilometers) away! The ship travels on relentlessly the entire night, and Zheng misses all the beautiful scenery between Jiangxi and Anhui, only being able to envision a side trip to the holy Mount Lu in his dreams. Nor can he stop in the southern capital Nanjing, the second most important city in the empire, because he has accepted the new pace of the modern technology and has set a date to arrive in Hangzhou's West Lake to view the scenery of the third month so admired by ancient writers. At the end of the fourth poem, Zheng is close to Shanghai and thinks about going on a tour of another famous beauty spot, Yangzhou, but the ship forges on. One suspects that Zhitong's father, with his special fascination for agricultural machinery, might have written very different poems, but his son has been faithful to his Shatan background and brings the same open-minded approach to his writing of poetry that was being transformed by the new technology of travel.

Zheng Zhitong in Shanghai

As soon as he arrived in Shanghai, Zheng Zhitong became so busy editing scholarly texts and working over his deceased father's philological manuscript *Hanjian jianzheng* 漢簡箋正 (Commentary and corrections to bamboo tablets of the Han) that he never seems to have to have had time for the voyage to Hangzhou that he had planned. Shanghai itself also had undeniable attractions, including outstanding library collections and the largest Western presence in any Chinese city, a result of China's defeat in the First Opium War and the opening of the city to foreign trade. Shanghai had become a refuge for Chinese escaping from the Taiping Rebellion and had been shaken by its own uprising of the so-called Society of Little Swords (Xiaodaohui 小刀會), but as the Taiping Rebellion declined and Qing control over the region was restored, Shanghai began to flourish.[23]

Shanghai was so different from most Chinese cities that Zheng Zhitong was lucky to have Mo Shengsun 莫繩孫 (?-1919), the second son of the great poet Mo Youzhi 莫友芝 (1811-1871), Zheng Zhen's closest friend, as his cicerone on his first excursion to the foreign settlement. To say the least, Zhitong was flabbergasted by what Shengsun took him to see:

I Went Together with Shengsun on an Outing to Look at the Garden Residences of the English to the North of the Shanghai City Wall	偕莫繩孫游觀上海城北英國人園林
The Ocean People live by the Huangpu River,[24]	春申江頭海人居
Which has become more luxurious than old Suzhou.[25]	爾來奢麗逾姑蘇
Buildings and gardens twist this way and that,	樓臺園苑相縈紆
Each completely different in form and construction.	剪裁裝拘百迥殊
I take my friend, call a carriage, and ride to the green suburb,	攜朋命駕青郊驅
Where the verdant shade resembles the spring's third month.	陰綠初長春三餘
Suddenly I leave the dusty world and soar to the pure void;	忽離埃俗超清虛
My soul flutters, my eyes tremble, and I am sighing in amazement.	魂翻眼倒方詫吁
Has my body suddenly ascended to the paradise of immortals,	此身倏爾躋蓬壺
Where pearl palaces and nacre gates vanish and reappear?[26]	珠宮貝闕光有無

With a colored halo, the morning sun first rises from its home;[27]	扶桑彩暈朝暾初
Fairy flowers fall to the ground, where jasper grass is scattered.[28]	若華墮地瑤草鋪
Gorgeous ladies ride in cloud-covered coaches one after another;	雲軿絡繹來藐姑
Even their servants have blue eyes with large black pupils.[29]	方瞳碧眼為隸奴
This paradise is hidden, but these women are not alone;	洞天幽深良不孤
There are pet birds and lapdogs with women and children.[30]	果然雞犬偕妻孥
I seem to float in the sky as I gaze at one beauty,	飄飄乘風參彼姝
But she looks back and seems to say I'm not her match.	顧我乃似非其徒
I turn around and suddenly realize how foolish I've been;	回頭驚悟何其愚
Were all my fantasies about romance just a self-deception?[31]	非非幻想寧不誣

Zheng Zhitong was not the first Chinese author to use such language to describe Western buildings constructed with the aid of modern architectural technology in China, for nine years earlier (1870) the young Huang Zunxian had written about the "bejewelled church towers for worshipping Jesus" (*baota li Yesu* 寶塔禮耶穌) and the luxurious mansions erected on land worth more than "a thousand gold pieces per foot" (*chituo guo qianjin* 尺土過千斤) in the British colony of Hong Kong.[32] Huang was intrigued by the sexual side of Western life, too, but instead of fantasizing about a liaison with a young English lady like Zheng, he described how the English in Hong Kong:

Get lost in jeweled topknots of Barbarian hairdos	蠻雲迷寶髻
Or dissipate themselves in fleshpots with flowerlike courtesans.[33]	脂夜蕩花妖

There was, however, a much more "serious" side to Zheng Zhitong's poem, for just after the young lady rebuffs his advances, he continues:

Isn't Europe a land of gold and jewels?	豈非歐羅金碧都
The treasures of China are hardly its equal.	華夏瑰奇無彼如
We are startled that the human realm can	訝殊人境惟仙廬

become a paradise,
A fact we have ignored for a thousand years. 千年茫昧誰覺諸
Now Heaven must be laughing at China's southeast, 天公笑倒東南隅
Where people race to get rich but cannot catch up. 趨來繁盛益莫逾
The Western machines are very clever, and Westerners plan for wealth, 機制極巧規利圖
Wracking their brains to perfect a hundred new products.[34] 取竭百產精英枯

In Zheng Zhitong's piece there is not a trace of the xenophobia found in some of his contemporaries' writings, and following the practice of his father in his poem and prose preface written just after the First Opium War (1843), he prefers to use neutral words like "Ocean People" or the more accurate geographical label "European" to designate foreigners rather than the pejorative terms usually translated "barbarian" in Western books. Although Zhitong was certainly as nationalistic as his father, he feels no malice toward these outsiders and would rather learn from them than confront them. Like his father, Zheng Zhitong had spent practically all his life up to this point in a remote part of China with little or no knowledge of the West, but he felt nothing but admiration for what he saw in Shanghai, quickly realizing that the great power of nations like England derived from the combination of an orderly pursuit of wealth with the use of modern technology, an approach similar to what his father had espoused, which can transform "the human realm" into a veritable "paradise." Unfortunately, Zhitong was not able to pursue his study of Foreign Matters in any serious way during the rest of his one-year stay in Shanghai, for he was still assailed by guilt over his inability to salvage his father's Shatan tradition from the ruins of the Taiping Rebellion by fulfilling his promise to his dying father to print as many of his unpublished manuscripts as possible. Hence, rather than learning English or studying calculus as other progressive Chinese of the age did, he spent most of his time in that city editing classical texts and working on his father's scholarly treatise on the Han *Bamboo Tablets*.

The Railway Debate and Li Shufan's Poem on the Wusongkou Railway

Even before the First Opium War, a number of Chinese scholar-officials had admired certain aspects of Western science and technology, Ruan Yuan writing:

> Westerners are familiar with geometry, and so the instruments they manufacture are extremely well made. In general, if instruments are

> well made, then measurements are accurate. If measurements are accurate, then [what is observed] corresponds closely to the movements of celestial bodies.[35] That Western laws of science are confirmed by [what we observe] in the sky is because they are based on [observations made with] good instruments.[36]

Shortly before the war and after its humiliating conclusion, the premier architect of China's anti-opium policy, Lin Zexu 林則徐 (1785-1850), began urging his government to learn from Westerners, but it was not until the reign of the emperor Xianfeng 咸豐 (r. 1851-1862) and under the leadership of Zeng Guofan that any of his recommendations were taken very seriously.[37] By this time, even the court conservatives begrudgingly admitted the necessity of mastering certain elements of modern Western military technology in order to deal with future aggression and to help put down the numerous rebellions that threatened the very existence of the dynasty, but they were not willing to go much beyond such minor changes, as we can see from the debate about railroads that soon erupted.

Western businessmen were eager to open up China to further commerce, and once they got their feet into major seaports like Shanghai after the war, they soon saw the advantages they could reap from the construction of railroads into the interior. The first application to construct a railroad in China came in 1865, just two years after Zheng Zhen's death, when Sir Rowland Macdonald Stephenson (1808-1895), a pioneer in the development of railroads in British India, tried to persuade the statesman Li Hongzhang 李鴻章 (1823-1901) to build various railroad lines and offered to arrange financial loans for their construction.[38] This was just one year after the conclusion of the bloody Taiping Rebellion, and Li probably thought the moment was still inopportune and sent Stephenson packing.

The first railway to be constructed on Chinese soil had to wait eleven more years, when the forty-kilometer line from the port of Wusongkou 吳淞口 to Shanghai was opened by Jardine-Matheson on the eighth of the fifth intercalary month (June 30) of 1876.[39] Western investors had only succeeded in building this by resort to a subterfuge, for knowing that the Qing court was still vehemently opposed to railways, they applied to local officials to build a "road" from the seaside to Shanghai, failing to tell them that this "road" would be supplied with iron rails along which fire-breathing steel dragons would race. Contrary to what one might suspect, the general public reception of the railway by local Chinese was initially quite positive, and it was soon packed with goods and passengers racing back and forth from Shanghai's major sea berth to the city itself, many of the common people riding it for the novel experience it provided. It was a profitable venture and was of vital importance for the development of Shanghai's economy, because it allowed

goods to be transported more quickly from the only place where large steamships could dock to the city's markets.

Some troubles did eventually arise when one person was killed by the train on the fourteenth of the sixth month (August 3) of 1876, causing concerns that current negotiations between China and Great Britain, which eventually led to the Treaty of Chefoo, might be jeopardized. Thomas Wade (1818-1895), the British ambassador to China, ordered the railway to halt all operations until the negotiations could be completed, which it did twenty-four days later.[40] The Qing government was not happy about the line and exerted sufficient diplomatic pressure to force the owners of the railway to sell it "at cost" to them on the eighth of the ninth month (October 24). Although it reopened on the seventeenth of the tenth month (December 2) and continued to carry large crowds of enthusiastic passengers, while the government paid its purchase price in three installments and foreign companies lobbied the Chinese to keep it open, the train took its last trip on the fourth of the ninth month (October 20) of 1877, and a few days later Chinese workers began dismantling the entire railway line. China's first railroad had come to an abrupt and ignoble end.[41]

Nor did anti-railroad sentiments die an early death in China, even when more and more Chinese intellectuals had chances to travel in countries where the new technology had been fully accepted. One of the more prominent foes of railroad building was Liu Xihong 劉錫鴻 (*juren* 1848), the number two man on China's first permanent embassy to the Western world, who started his diplomatic career by serving in Great Britain in 1877 and then became China's ambassador to Germany the following year.[42] Liu had been appointed to the first embassy in London to serve as a counter-weight to Guo Songtao 郭嵩燾 (1818-1891), the ambassador, because Guo was considered too pro-Western and too pro-reform to be completely trusted. Liu succeeded in making life miserable for Guo in England and sent many malicious reports back to Beijing about his supposed misdeeds.[43]

During his first year as a diplomat in England, Liu had many opportunities to observe the advantages of modern Western science and technology, traveling by steamship from China to England, riding on railroads numerous times, and even attending demonstrations of electricity and other modern scientific marvels.[44] He clearly recognized that these scientific and technological advances had had positive effects in Western countries, but he thought that such innovations would only cause trouble in China:

> When I saw the English ambassador Thomas Wade in the capital the first time, he immediately told me that the most important task for a government is to ensure the livelihood of its people and that the most urgent thing we ought to do is open coal and iron mines and

> construct railroads.[45] This time when we traveled south from Tianjin, the Westerners who were together with us on the ship centered their conversations with us on this point.[46] I maintained that we Chinese give priority to righteousness in our teachings and do not emphasize profit, and I informed them that we do what is suitable for the people and what does not bother them. They just kept on debating with me without any signs of fatigue, and at first I did not know why they took so much pleasure in making China rich and strong and why they were so insistent in making these proposals.
>
> But when I arrived in Shanghai, I went to see the Science Academy on the tenth, where Circuit Intendant Feng showed me a map of railroads that the Westerners had presented him, with lines stretching from India and other places outside our passes to our capital city, a complete line from south to north.[47] Then I knew that their intentions were not the same as the old ideas that caused them to occupy ports and force us to do business with them. If those in authority do not resolutely oppose this, then [Chinese] who work on the seaboard or along the border and who are entranced by every new thing, will fall into the [foreigners'] trap and will not wake up until it is too late…
>
> I must sincerely express my humble opinion that the construction of railroads is not only harmful to China but is harmful to England, too. The anger of the commoners [over the construction of the Wusongkou-Shanghai railroad] has not yet calmed down, and if we suddenly construct more railroads and damage more of their fields, houses, and tombs, the fury of the commoners will become greater.[48] Bandits who lie low now will use this as an excuse to kill more Englishmen and will exploit the feelings of the commoners to raise a rebellion. Not only will the commercial areas of our coastland be trampled upon, but the railroads that [are planned] to pass [to China] from India will also serve as a resource for these bandits…
>
> The talent and knowledge of the many generations of China's sagely rulers and virtuous ministers are hardly inferior to the Westerners, but none of them constantly rummaged around in the sky and in the earth or tried to compete with the forces of creation in order to become rich and powerful, probably because they understood the profundity of the principles involved and were worried about the long-term hazards, and most certainly they did not think of profit exclusively the way the English do.[49]

Liu's anti-railway tirade is at least partially a product of the immediate political environment. Thomas Wade was exerting pressure in Beijing to try and

save the Shanghai-Wusongkou line from demolition, and representatives of Jardine-Matheson even badgered Guo Songtao on this issue as he and Liu were traveling by slow relays from Beijing to north China's main seaport, Tianjin 天津, on their way to their point of embarkation in Shanghai.[50] China also had legitimate concerns about the ways that Westerners might exploit an envisioned railway network stretching from British India to the Chinese capital, for a railroad system that could transport troops quickly to defend China's borders could also be used by foreign invaders. In addition, there was the possibility that the building of railways might cause social dislocation. One of the early anti-railroad arguments was that their construction would increase unemployment for the many coolies who carried most of China's goods on their backs, but anyone like Liu who had traveled extensively in the West should have understood that the economic advantages of railroads far outweighed any harm they caused.[51]

Economic and political factors all played a role in Chinese opposition to railways, but deeper intellectual issues were involved, too. One of the ironies of Liu Xihong's prose passage is that Thomas Wade quotes Confucian ideals that Zheng Zhen and his teacher Cheng Enze would most certainly have agreed with, i.e., one of the basic responsibilities of the government is to improve the livelihood of the people by promoting the use of new technology such as the paddy horse, smallpox vaccination, or advanced methods of sericulture. In their poems and prose essays, Zheng Zhen and Cheng Enze constantly urged people to adopt such new techniques because they will derive material benefit from them. Neither Zheng nor Cheng (nor even Thomas Wade) would have claimed that profit is the sole concern of a government or the society it serves, but they would have disapproved of the way that Liu Xihong was willing to sacrifice the possibility of raising living standards to the levels in the West because of his blindness to the potential benefits that the new knowledge offered.

Zheng and Cheng would have been particularly displeased by Liu's disparagement of modern science's "rummaging around in the sky and earth," for nineteenth-century intellectuals like Ruan Yuan, Zheng's model and Cheng's closest friend, had already done a good deal of "rummaging" themselves. As accomplished Han Studies (Hanxue 漢學) scholars, Ruan, Cheng, and Zheng knew very well that rational enquiry can frequently lead to conclusions which fly in the face of long cherished ideas, and although they honored China's ancient sages just as much as Liu Xihong, their respect was not merely a blind worship of antiquity. But then again, Liu never did Han Studies scholarship, and he most certainly was not a Song School poet![52]

By the time that the Wusongkou-Shanghai line was completed, Zheng Zhen had already been dead for twelve years, so it is impossible to say with

absolute certainty how he would have reacted to this first debate about major technology transfer from the West to China, but we can hazard an intelligent guess based on a poem that his student and cousin Li Shufan 黎庶蕃 (1829-1886), the famous diplomat and prose stylist Li Shuchang's 黎庶昌 (1837-1897) elder brother, created shortly after the demolition of the railway. In 1867 Li Shufan helped his mother move from Guizhou to Nanjing, where Shuchang was then working as an advisor to Zeng Guofan, and then himself took up the job of Salt Commissioner for the Lianghuai Region (Lianghuai yan dashi 兩淮鹽大使) in Yangzhou, the center of the government salt trade. After Li Shuchang joined Guo Songtao's embassy to England in 1876 and moved their mother once more to Shanghai, Shufan frequently traveled between Yangzhou and that city to look after her welfare.[53] Although the precise date of Li's poem is not mentioned in its preface, it was certainly written in late 1877 or early 1878, shortly after the railroad was dismantled, a date confirmed by its position in Li Shufan's collected verse, which is arranged in chronological order:

The Railroad, with Prose Preface 火輪車 并序

All the Western countries have made railroads with steel wheels that can travel more than a thousand li in a single day. At the beginning of the Guangxu era (1875-1908), the English purchased land from the Chinese and built a railroad track from Shanghai to Wusong, which allowed a return trip of less than an hour. No vehicle is superior to this for carrying heavy loads over a long distance. I was able to see the railroad myself, but unfortunately it has now been destroyed.

All year I've closed my doors like some hibernating worm; 終年閉戶幾蟄蟲
Now I'm a wild bird that breaks out of its cage! 耆如野鳥初出籠
I buy fish and purchase wine, calling for my light cane; 買魚沽酒喚輕策
As the sun starts setting, I require an outing to Wusong. 日斜更欲游吳淞
On a Western train, I'm an immortal who rides the wind;[54] 西洋火車列子御
I gallop in stars, race past clouds, and soar in the void. 星馳電騖雲騰空
The train sounds like two blades that slice through silk, 又如并刀裂縑素

Flying past you like a bird glanced hurtling through mist. 鳥飛瞥過投煙中
It's a scared deer running from a net, an arrow shot from a bow, 驚麋脫網箭辭弩
A light boat shooting some rapids, a shuttle flying off a loom. 輕舟下瀨梭無蹤
It's not just a magic stallion racing from a whip, 豈獨揮鞭失神駿
And I marvel at the wind grazing against my ears as if coming from heaven.[55] 但怪掠耳號天風
It's a pity how clouds and hills flash by my eyes so quickly— 雲山過眼殊可惜
I can't detect how deep the colors of the mist and clouds are. 未辨煙霞深幾重
I finish a return journey of a hundred li in a short period of time, 朅來斯須盡百里
And the guards on the city wall still await the evening bell. 城頭尚待鳴昏鐘
But an occasional thrill of this sort is a trifling affair, 偶然一快亦細事
When you think of the unfathomable skill that made this train. 卻思至巧真難窮
Who would believe that the earth itself can be shrunk? 世間誰言地可縮
For this train makes us feel that Heaven has lost its power! 有此更覺天無功
The year I sailed down the Gorges, I was especially delighted— 當年出峽差可喜
In one day I reached Jiangling, traveling a thousand li.[56] 一朝千里江陵通
My safe journey made me happy, but dangerous ones cause concern,[57] 猶嫌夷險異憂樂
For the river tide rises and falls from autumn to winter.[58] 又況漲落殊秋冬
But this train is even more powerful than a team of horses, 何如此車勝馬力
Carrying heavy loads with you over a very long distance. 負重致遠皆從同
The Westerners hoped to use it to transport their goods, 西方轉餉若待此
Not imagining it would be destroyed after only three years.[59] 懸知易轍三年終

Chinese who do not cherish the great inventions of our land,	國之利器不自惜
Fail to learn the past's lessons, and are craven cowards![60]	後車失鑒非英雄

Although Li Shufan's prose preface tells us that he has penned his poem to mourn the tragic end of the Shanghai-Wusong Railway, its first three lines seem ordinary enough, and we think that we are about to read a rather conventional work inspired by a pleasant outing, the poet first complaining about his confinement at home, buying a meal with wine, and then preparing his walking staff. The first hint that something new is afoot comes in line four, when we realize that Li is proposing an eighty-kilometer hike at a time when the sun is about to set! Yet this surprise hardly prepares the reader used to pre-nineteenth century poetry for the next twelve lines of Li's work, which can only be read as a paean to the modern technology that enables an eighty-kilometer journey in such a short time. Li is no longer ambling along, staff in hand, viewing flowering trees or delighting in the graceful contour of the landscape, but is traveling at an exhilarating speed which allows him to imagine that he has left the material world behind like some latter-day Liezi and is "riding the wind." It is true that the last two lines of this section also suggest that there might be negative aspects of this mode of transport, since its very speed makes it difficult to appreciate the beauty of the scenery fully, but despite this minor reservation, we are left with the feeling that Li Shufan's impression of the new technology is highly positive.[61]

In spite of its revolutionary content, one of the more delightful features of this poem for a learned nineteenth-century reader would have been the clever and witty way that Li Shufan uses and transforms his literary tradition to accommodate the new world of science and technology then opening up to the Chinese people, a technique which allows him both to find connections between the old and new ages and also to show how the new age is totally different from what preceded it. We have already mentioned Li Shufan's allusion to the story of the mythical sage Liezi, first seen in the Zhou Dynasty text *Zhuangzi* 莊子, where he is described as being able to "travel by riding on the wind with cool skill" (御風而行, 泠然善也).[62] This allusion functions both ways, for Liezi's experience of riding on the wind resembles the feeling that someone has when taking a modern form of transport, but it also points out how the modern age differs from the pre-modern, because now Liezi's experience is not restricted to transcendent beings but is available to anyone able to purchase a railway ticket.[63]

The double character of Li Shufan's allusions is illustrated even better in the way that he employs one of Su Shi's most famous poems, "The Hundred

Pace Rapids" 百步洪, which Su created for a close friend, the Buddhist monk-poet Daoqian 道潛 (alternate name Canliao 參寥).[64] Su Shi's original work begins with an exhilarating account of how his monk friend and he ride in a light boat down the Hundred Pace Rapids (lines one to ten), which then changes to a meditation on the transitory nature of human life (lines eleven to twenty-two), concluded with Master Daoqian "scolding me for my noisy rambling" 多言譊譊師所呵, and in Michael Fuller's words "denying that, as a mere phenomenon, the rapids are anything special," in line with the Buddhist philosophy of the emptiness of all things.[65]

Li actually quotes a number of words verbatim from Su's original description of his exciting experience. In the following lines (two, six, seven, and nine) of Su's work, the words copied verbatim by Li Shufan are italicized, and the line numbers in which they appear in Li's poem are enclosed by parentheses:

2. My *light boat shoots down* to the south like a tossed *shuttle*.
   輕舟南下如投梭 (Li Shufan, line ten)

6. [It resembles] a spirited *stallion* dashing down a mile-long slope;
   駿馬下注千丈波 (line eleven)

7. A snapped string leaving its peg, an *arrow* leaving a hand.
   斷絃離柱箭脫手 (line nine)

9. The mountains on all sides make me dizzy as they turn, and the *wind grazes against my ears*.
   四山眩轉風掠耳 (line twelve)

Up to this point it would seem that Li Shufan echoes Su Shi's language to point out the similarities between the modern experience of rail travel and Su's account of a boat trip in classical poetry, but in line seventeen of his poem he copies Su Shi again but with a very different effect.

Su Shi's original for Li's line seventeen appears in lines eleven and twelve of the Song master's work, where he ends his description of his wonderful boat trip and begins to meditate about the illusory nature of human experience:

The joy I obtain among such perils is an *occasional thrill*,	嶮中得樂雖一快
How is this different from the River God boasting about his autumn river?[66]	何異水伯夸秋河

In other words, realizing that his enjoyment is only temporary and that he is

but a mere mortal, Su tells his readers that he would not adopt the ignorant perspective of the River God before he saw the boundlessness of the sea.

In line seventeen of his poem, Li Shufan uses the expression "occasional pleasure" (*yikuai* 一快) to end his description of his experience on China's first train, but he does not continue with an exposition of Buddhist philosophy but instead praises the new technical "skill" that has made his journey possible. This knowledge has "shrunk the world" and made people feel that "Heaven has lost his power," a startling proposition in a society which, like the pre-modern West, gave primacy to Heaven.[67] Li then proceeds to contrast his trip on the train with an earlier, more traditional voyage he took down the famous Yangzi Gorges on his way from Sichuan to Jiangsu Province and eventually Shanghai, alluding to Li Bai's quatrain, "I Set Out in the Morning from the White Emperor's Fort" 早發白帝城, another renowned evocation of rapid travel in the classical tradition:

In the morning I left the colored clouds of White Emperor's Fort,	朝辭白帝彩雲間
And returned a thousand li to Jiangling in a single day.	千里江陵一日還
Gibbons cry continuously on both banks of the river,	兩岸猿聲啼不住
But my light boat has already passed myriad layers of mountains![68]	輕舟已過萬重山

The link between Li Shufan's experience and that of Li Bai more than a thousand years earlier would have been self-evident to all his readers, but once again Li Shufan uses his classical original to point out the superiority of modern technology to that available to the ancients. To be sure, he enjoyed the outstanding natural scenery of the Yangtze Gorges, but he was always worrying about the dangers of riding on a traditional boat along this perilous stretch of river.

In the last six lines of the poem Li returns to his strong feelings of regret and even anger that the Qing government has destroyed the country's first railroad, a technological marvel that "is even more powerful than a team of horses" and that can carry great loads "over a very long distance." Western merchants had hoped to increase their trade with China by means of this railroad, but they had hardly imagined that the backward-looking Qing government would have torn it up after "a mere three years," denying its obvious benefits to both foreign and Chinese businessman as well as to common people like himself. For Li, the government officials who have supported this fatal decision "do not cherish the great inventions of our land" and are "craven cowards." He even uses the language that these opponents of

change understand to show how harmful their decision has been, citing an old Chinese proverb, *qianche zhi jian* 前車之鑑, or "take warning from the preceding cart," in the very last line. This traditional saying urges human beings to learn from earlier mistakes, just as a following cart must take precautions if the cart in front overturns due to problems in the road. But here there is a modern meaning, too, for the Chinese expression for "train" at the time (*huolunche* 火輪車) also contains the graph for "cart" (*che*), suggesting that future makers of railways in China will have to learn from the Qing court's blunder. Li's allusion demonstrates once more the connection between ancient and modern learning but also shows how ancient Chinese proverbs can be used to refute the appeals that reactionaries like Liu Xihong made to the Confucian tradition to prevent China from entering the modern world. Nor is it any coincidence that a man from the Shatan Group made the only literary protest that I have found so far against the dismantling of the Shanghai-Wusongkou railroad, for Li Shufan had been tutored by Zheng Zhen himself.[69]

Huang Zunxian and the Eiffel Tower

I shall conclude the paper with one more poem, written by the diplomat-poet Huang Zunxian, who has already been mentioned several times. Although Huang was not a member of Zheng Zhen's Shatan Group and is usually not classified as an author of the Qing Dynasty Song School, he has a good deal in common with both groups, being strongly influenced by Su Shi and also by Zheng Zhen's two favorite Tang poets, Du Fu and Han Yu 韓愈 (768-824). Nor would Huang Zunxian have objected to the Song School's ideal of great poetry being a perfect synthesis of the poetry of learning and the poetry of poets. At present Huang is the most widely studied Chinese poet of the nineteenth century, at least partially because he is also greatly admired as one of China's most prominent diplomats and reformers. He should be of special interest to Canadians because of his major contributions to Canadian Chinese, the subject of a study I am presently engaged in writing. The following poem was written during a trip that Huang took to Paris while he was serving as a diplomat in Europe in 1891, two years after the Eiffel Tower was completed:

On Climbing the Eiffel Tower	登巴黎鐵塔
The tower is three hundred French meters tall (about one thousand Chinese feet) and is the world's highest man-made structure.	
The tower bursts from the ground and rises straight up,	拔地崛然起
Soaring like a mountain hundreds of feet in the	崚崢矗百丈

air.	
If you don't happen to have a pair of wings on your back,	自非假羽翼
You won't be able to take a trip to its top.	孰能躡履上
A golden lightning rod crowns the tower's summit,	高標懸金針
And a lattice of steel hangs down on four sides.	四維挂鐵網
Below the pinnacle, they hang a fifty-foot flag,	下竪五丈旗
Just the right size for a thousand-man tent.	可容千人帳
Granite foundation stones huddle like trees in a forest;	石礎森開張
Dew-laden arches face each other grandly.	露闕屹相向
Tourists stand on tiptoe to get a closer look,	遊人企足看
Thrilled by this new spectacle revealed to their eyes.	已驚眼界創
An elevator car suddenly shoots up its cable,	懸車倏上騰
And I'm startled when I hear the whine of its engine.	乍聞轆轤響
I really am flying without any wings on my back,	人已不翼飛
Soaring on a journey to the heavens above!	迥出空虛上
Nothing in our world is as sublime as this tower,	並世無二尊
Rising alone without any support.	獨立絕依傍
Even when you stand on its lowest platform,	即居最下層
You're already beyond the reach of other buildings.	高已莫能抗
The only roof above you is heaven's blue dome,	蒼蒼覆大寰
And below, planet earth displays her infinite variety.	森芒列萬象
The air I exhale blows against Heaven's throne;	呼吸通帝座
I can commune directly with the deities in paradise![70]	疑可通肹蠁
Everything under heaven, everything on the earth	自天下至地
Can be seen looking down (no more looking up!).	俯察不復仰
I only regret I don't have perfect vision,	但恨目力窮
For here no obstacles block my view.	更無外物障
Square field boundaries stand out precisely,	離離畫方罫
A million acres of the world's most fertile	萬頃開沃壤

farms.	
A hazy line stretches far into the distance,	微茫一線遙
Where the broad River Seine flows hundreds of miles.	千里走河廣
Palace towers and the ramparts of forts	宮闕與城壘
All merge together in the blue, misty air.	一氣作蒼莽
You can't tell the cows from the horses or men,	不辨牛馬人
All swarming beneath you like tiny midges.	沙蟲紛擾攘
Soon as I arrive from the world below,	我從下界來
Things large and small are magically transformed.	小大頓變相
Do you imagine that everything looks smaller than this,	未知天眼闚
When a god gazes down at the world beneath him?	么麼作何狀
The north wind arrives from a sea crammed with ice;	北風冰海來
The autumn air suddenly turns crisp and chilly.	秋氣何颯爽
A few wisps of mist rise west of the sea,	海西數點煙
Where the British Isles glower far in the distance.	英倫鬱相望
I remember the engagements of the Hundred Years' War,	緬昔百年役
How England rent France and battled for empire.	裂地爭霸王
Two kings drove their people against enemy swords,	驅民入鋒鏑
Exhausted their treasuries, and bankrupted their nations.	傾國竭府帑
In later ages Napoleon Bonaparte arose,	其後拿破侖
A hero without peer in the entire world.	蓋世氣無兩
As long as he kept winning, he was emperor of Europe,	勝尊天單于
One defeat, and he became the world's number one exile.	敗作降王長
All of Europe is an ancient battlefield;	歐洲古戰場
Its people love war and don't compromise lightly.	好勝不相讓
Today six great emperors divide the continent,[71]	即今正六帝
Each boasting that he's the strongest leader of	各負天下壯

the world.	
These fellows resemble the proverbial kings in a snail shell,[72]	等是蠻觸爭
Who wasted their time chalking up victories and defeats.	紛紛較得喪
I'm afraid that my body is a tiny grain of rice;	嗟我稊米身
I'm just a feeble creature, who's always overrated himself.	尪弱不自量
The world seems to shrink when I see it from here;	一覽小天下
Its seven continents would fit in the palm of my hand.	五洲如在掌
As soon as I climb to the pinnacle of the tower,	既登絕頂高
I begin to daydream about flying on the wind.	更作凌風想
When can I harness the air as my steed,	何時御氣遊
Ride on a hydrogen balloon wherever I want?	乘球恣來往
I would soar on a whirlwind, ninety thousand li straight up;	扶搖九萬里
I laughed out loud, because I might just do it![73]	一笑吾其儻

Although, as we just mentioned, it might be preferable to read Huang as a close ally of the Qing Dynasty Song School, the late Qing reformer and critic Liang Qichao 梁啟超 (1873-1929) considered him a pioneer of what Liang called the late Qing Poetic Revolution (Shijie geming 詩界革命), one of the special characteristics of which was the use of language and themes drawn from foreign (particularly Western) sources, a trait of Huang's poem on the Eiffel Tower that is so obvious it requires little explanation. Although not all critics of Huang's age agreed with this employment of foreign material and many take issue with Liang's approach today, Liang felt that the use of such foreign devices would help rejuvenate a literary practice which he considered to be overly conservative and in decline.[74] Many of his contemporaries agreed, and Huang Zunxian's use of foreign language and themes served as a major inspiration for the late Qing and early Republican verse of the large literary group called the Southern Society (Nanshe 南社), which dominated the literary scene in Shanghai and the surrounding area during the early decades of the Republic. The group finally collapsed due to many factors, but one of the most important was a nasty argument about the relative value of Tang or Song *shi* poetry as a model for authors, one of the last chapters in a literary battle, which went back to the late Song critic Yan Yu.[75]

At least equally impressive as Huang Zunxian's references to foreign places and history is his deft use of earlier Chinese texts, an example of the

"learning" that Song School poets found so essential in great verse. We cannot examine this question fully here, but Qian Zhonglian's detailed notes cite examples from such disparate works as the poetry anthology the *Chuci* 楚辭 (Songs of Chu), the verse of the Tang authors Du Fu and Han Yu, the Han historian Sima Qian's 司馬遷 (ca. 145-ca. 85 B.C.E.) *Shiji* 史記 (Records of the grand historian), the *Yijing* 易經 (Classic of Changes), the philosophical text *Zhuangzi*, and even Buddhist scriptures. Huang uses these allusions in ways similar to what we found in Li Shufan's poem, both to point out the similarities between ancient experiences and the modern world but also to let contemporary readers understand how they differ. The allusions to *Zhuangzi* and the Buddhist texts are particularly interesting, because, again similar to Li Shufan, Huang sees a resemblance between the mastery of the world that the Eiffel Tower's new technology offers the human race with the transcendence of the world that Daoism and Buddhism had promised to their followers, concluding his poem with the hope that, like some modern Daoist immortal, he will be able to fly off into the void, not on wings he has sprouted after years of meditation and imbibing elixirs, but rather on a hydrogen balloon!

However, as Huang had begun realizing, the technology that he admired so much also presented new challenges and dangers to the human race. After his initial celebration of the Eiffel Tower's revolutionary innovations, a somber note is introduced by the arrival of the cold wind from the North Sea, reminding Huang that the same Europe which has produced the Eiffel Tower has been the site of endless bloody conflicts including the Hundred Years' War (1337-1453) between France and England and that its great progress in science and technology suggests that its future wars will be even more terrible than those of the past and may even threaten the survival of the human race. Toward the end of the poem Huang moves beyond his musings on this question to imagine a voyage through the sky by means of another modern technological marvel, but in some of his other writings of the period, he shows that he was increasingly worried about the prospects of massive bloodshed in the world's most technologically advanced region and the disastrous consequences this could have for the human race as a whole.[76] From the time of the First Opium War onward Chinese authors had noted how technological superiority had enabled countries like Great Britain to defeat their country again and again, a perception that soon led to the Foreign Matters Movement, but the idea that the new technology could threaten the human race's future had not been discussed by Chinese authors before Huang.

Concluding Remarks

This paper has briefly examined more than five decades of poems written about science and technology in the Classical Chinese language by four

different poets, including Zheng Zhen himself, other authors from his Shatan Group, and Huang Zunxian, who was closely allied to the larger Song School to which Zheng Zhen belonged. All of these authors disagreed with Yan Yu's and the more conservative Ming critics' rejection of the Song practice of writing poetry about ideas, which in their case included the discussion of scientific and technological matters. All of them promoted progress in scientific knowledge and the adoption of new technologies, but even at the very beginning of the period we have studied, they were aware of the dangers of technological progress, Zheng's poems on pollution being an early example of this concern. Zheng's son Zheng Zhitong was also one of the first (perhaps the first) to treat the issue of how the speed of modern transport and communication is very convenient to human beings but can also cause the loss of cherished values and lead eventually to a sense of disorientation and alienation, a theme that is treated in greater detail by Huang Zunxian.[77]

In addition to being of interest to us today as examples of early Chinese intellectual modernity, the poems by these authors have great literary merit. Some of Zheng Zhen's works on science and technology are among the most moving pieces he created, and although his followers did not always reach his level, their creations are a fascinating example of how Chinese authors strove to express the brave, new world of modern science in a poetic form with a history of more than two thousand years. That they succeeded so admirably demonstrates their genius as writers but also attests to the great flexibility of the *shi* form, a literary genre that thousands of Chinese writers are using skillfully at the present to express their feelings and discuss their ideas about an age of jet transport and computers, which, like the nineteenth century, is fraught with both great promise and grave danger.

Endnotes

1. See my discussion of this revision in J. D. Schmidt, *The Poet Zheng Zhen (1806-1864) and the Rise of Chinese Modernity* (Leiden: Brill Press, 2013) (hereafter abbreviated ZZ), 7-12.
2. He Shaoji, "Yu Jiang Jushi lunshi" 與江菊士論詩, in *Jindai zhongguo shiliao congkan* 近代中國史料叢刊, 5.27ab, in *Dongzhou caotang wenji* 東洲草堂文集, vol. 1, no. 885 (Taipei: Wenhai chubanshe, 1973), 205-206.
3. This phrase comes from Blake's poem "Milton," in *Blake Complete Writings*, ed. Geoffrey Keynes (Oxford: Oxford University Press, 1972), 481.
4. Alfred Lord Tennyson, "Locksley Hall," in *Poems of Tennyson* (London: Oxford University Press, 1917), 175. For Tennyson the "grooves" of change are the railway, his note to this line reading: "When I went by the first train from Liverpool to Manchester (1830), I thought that the wheels ran in a groove. It was black night and there was such a vast crowd round the train at the station that we could not see the wheels. Then I made this line."
5. See the translation and discussion of these poems in ZZ, 486-492.
6. Yan Yu, "Shibian" 詩辨, in *Canglang shihua jiaoshi* 滄浪詩話校釋 (Beijing: Renmin wenxue chubanshe, 1998), 26. Even if they were published in simplified characters, I cite both the titles and texts of modern editions of classical works in the traditional forms. I also use traditional forms for the names of authors without regard to their period.
7. Li Mengyang, "Fouyin xu" 缶音序, in *Mingdai lunzhu congkan* 明代論著叢刊, in *Kongtong xiansheng ji* 空同先生集 (Taipei: Weiwen tushu chubanshe, 1976), 51.1462.
8. Fang Yizhi, "Shishuo" 詩說, in *Tongya* 通雅, *juanshou* 卷首, 3.4a, in *Siku quanshu zhenben sanji* 四庫全書珍本三集, ed. Wang Yunwu 王雲五, no. 757 (Taipei: Shangwu yinshuguan, 1972).
9. For poems on sericulture, see ZZ, 481-486; for the paddy horse, see ZZ, 477-481; and for road building, see ZZ, 496-500.
10. See ZZ, 492-500.
11. Literally, "Iron platters and crucibles still follow them in death," i.e., workers use left-over equipment to build their tombs. Three crucibles containing molten lead were placed on each iron platter.
12. Zheng Zhen, "Zhehai qianchang sanshou" 者海鉛廠三首, in *Chaojing-chao shichao zhushi* 巢經巢詩鈔注釋, comm. and ed. by Long Xianxu 龍先緒 (Xi'an: Sanqin chubanshe, 2002), "Qianji" 前集, 3.124. Both of these poems are translated into modern Chinese in Liu Date 劉大特,

Songshipai Tongguangtishi xuanyi 宋詩派同光體詩選譯 (Chengdu: Bashu shushe, 1997), 47.

13. For a brief discussion of another aspect of Zheng Zhen's concern about environmental problems and deforestation, see Tang Moyao 唐莫堯, "Zheng Zhen de shengtaiguan" 鄭珍的生態觀, in *Guiyang wenshi* 貴陽文史 41.3 (2005): 27.
14. Ezhu 鄂渚 is in Wuchang District of Hubei, and Poyang 鄱陽 is the name of the large lake in northern Jiangxi Province.
15. Wuhu 蕪湖 is located in southeastern Anhui.
16. I am taking the word *gu* 孤 here in the sense of *gu* 辜.
17. This was the southern gate of Nanjing when it served as the capital city of the Southern Dynasties.
18. Dantu 丹徒 is located southeast of Zhenjiang 鎮江 city in Jiangsu Province.
19. Literally, "Jin 金 and Jiao 焦," two hilly islands located respectively to the southwest and northeast of Zhenjiang and famous for their scenery and Buddhist monasteries.
20. These bridges were already in existence during the Sui Dynasty, but their number has varied over the centuries. Zheng Zhitong, *Qulu shiji jianzhu* 屈廬詩集箋注 (Beijing: Zhongguo wenlian chubanshe, 2004), 4.170-171.
21. Please refer to the translation and discussion of Huang's poem on his journey by steamer from San Francisco to China in Schmidt, *Within the Human Realm: The Poetry of Huang Zunxian* (Cambridge: Cambridge University Press, 1994) (hereafter abbreviated HZX), 191-194 and 254-255. I have also discussed this poem in J. D. Schmidt, "Jinshan sannian ku: Huang Zunxian shi mei yanjiu de xin cailiao" 金山三年苦: 黃遵憲使美研究的新材料, in *Cong chuantong dao xiandai de Zhongguo shixue* 從傳統到現代的中國詩學, ed. by Lin Zongzheng 林宗正 and Zhang Bowei 張伯偉 (From Tradition to Modernity: Poetic Transition from Eighteenth to Early Twentieth Century China), 177-205 (Shanghai: Shanghai guji chubanshe, 2017).
22. We have a detailed and famous account of one such journey in the opposite direction written by a poet favored by many members of the Song School, namely, Lu You's 陸游 (1125-1209) *Ru Shu ji* 入蜀記 (Record of entering Sichuan). Although Lu was sailing upstream, he was on government business, so he could not travel at the leisurely pace favored by many literati. The section of Lu's journey from Wujiang 吳江 District (near modern Suzhou) to Huangzhou 黃州 (modern Huang-gang 黃岡 in eastern Hubei on the north bank of the Yangzi River) is roughly the same distance as Zheng Zhitong's trip. Lu started out from

Wujiang on the ninth day of the sixth month (July 24) of 1170 and arrived in Huangzhou on the eighteenth day of the eighth month (September 29), a journey of sixty-eight days. See the English translation of the relevant sections in Chun-shu Chang and Joan Smythe, *South China in the Twelfth Century: A Translation of Lu Yu's Travel Diaries* (Hong Kong: Chinese University Press, 1981), 45 and 115.

23. There is a fairly detailed history of early Shanghai in Linda Cooke Johnson, *Shanghai: From Market Town to Treaty Port 1074-1858* (Stanford: Stanford University Press, 1995), 21-175. Another useful history of Shanghai is found in Betty Peh-T'i Wei, *Shanghai: Crucible of Modern China* (Hong Kong: Oxford University Press, 1987). See pp. 5-19, for the early period. More detailed histories of Shanghai in Chinese are Xiong Yuezhi 熊月之 et al., *Shanghai tongshi* 上海通史, 15 vols. (Shanghai: Shanghai renmin chubanshe, 1999) and Tang Zhijun 汤志钧 et al., *Jindai Shanghai dashiji* 近代上海大事記 (Shanghai: Shanghai cishu chubanshe, 1989). For the British conquest and settlement of Shanghai, see Johnson, *Shanghai*, 176-266, Wei, *Shanghai*, 20-45, and Xiong Yuezhi, *Jindai Shanghai dashiji*, 3:1-18. A rich source of information about Shanghai's history is the detailed historical atlas of the city and the region around it in Zhou Zhenhe 周振鹤, *Shanghai lishi dituji* 上海歷史地圖集 (Shanghai: Shanghai renmin chubanshe, 1999).
24. Zheng uses the older name Chunshen 春申 for the Huangpu 黃浦 River that flows through Shanghai.
25. Zheng uses the old place name Gusu 姑蘇 for Suzhou. Before the rise of Shanghai, Suzhou was the most prosperous and cultured city in the region.
26. Zheng is alluding to a poem from the *Songs of Chu*, which describes the underwater palace of the deity, Lord of the Yellow River. See "Jiuge" 九歌 and "Hebo" 河伯, in Hong Xingzu 洪興祖, ed., *Chuci buzhu* 楚辭補注, 2 vols. (Hong Kong: Xianggang Zhonghua shuju, 1963), 1:2.20a.
27. I.e., from Fusang 扶桑, the tree over which the sun rises according to Chinese mythology.
28. The flowers mentioned here (*ruohua* 若華) fall from the Sunrise Tree.
29. Here I am not following Long Xianxu's suggestion in his note that the term *linu* 隸奴 refers to Westerners.
30. Zheng's original has the word "chicken" where I translate "bird," for he is alluding to a famous story of how the chickens and dogs of a man who achieved immortality licked elixir he left behind and ascended to heaven with him and his family.
31. Zheng Zhitong, *Qulu shiji jianzhu*, 4.172.

32. Huang Zunxian, "Xianggang ganhuai" 香港感懷 (poems three and five of ten), in *Renjinglu shicao jianzhu* 人境廬詩草箋注, comm. by Qian Zhonglian 錢仲聯, vol. 1 (Shanghai: Shanghai guji chubanshe, 1981), 1.67, 1.69.
33. Huang Zunxian, "Xianggang ganhuai" (poem six of ten), 1.70, Part of Huang's series of poems about Hong Kong is translated in HZX, 226-228. Zheng was hardly the first Chinese intellectual of his age to day-dream about carrying his exploration of the West a bit farther than what the Foreign Matters movement had envisioned, for when Wang Tao 王韜 (1828-1897), James Legge's (1815-1897) collaborator in the translation of the Chinese Classics and one of the founders of modern Chinese journalism, traveled to Great Britain with Legge in 1867, he flirted briefly with a bonnie Scottish lassie, leaving an account of his experience in his *Manyou suilu* 漫游隨錄 (Jottings from carefree travel). See Wang Tao, "Sanyou Sujing" 三游蘇京, in *Manyou suilu* (Changsha: Yuelu shushe, 1985), 140-141. See also the discussion of the original literary features of Wang's account in Mei Xinlin 梅新林 and Yu Zhanghua 俞樟华, *Zhongguo youji wenxueshi* 中國遊記文學史 (Shanghai: Xuelin chubanshe, 2004), 364.
34. Literally, "the flower of their essence withers." Zheng Zhitong, *Qulu shiji jianzhu*, 4.172.
35. The term *tuibu* used here refers to the calculations of the motions of heavenly bodies through the sky.
36. Ruan Yuan, "Xiyang" 西洋, in *Chouren zhuan* 疇人傳, 45.3, in *Xuxiu siku quanshu* 續修四庫全書, vol. 516 (Shanghai: Shanghai guji chubanshe, 1995).
37. See Lin Qingyuan 林慶元, *Lin Zexu pingzhuan* 林則徐評傳 (Nanjing: Nanjing daxue chubanshe, 2000), 245-255 and Yang Guozhen 楊國楨, *Lin Zexu zhuan* 林則徐傳 (Beijing: Renmin wenxue chubanshe, 1995), 217.
38. Peter Crush, *Woosung Road: The Story of China's First Railway* (Hong Kong: The Railway Tavern, 1999), 4. For the role of Stephenson in the promotion of India's first railway line, the East Indian Railway, see Aruna Awasthi, *History and Development of Railways in India* (New Delhi: Deep & Deep Publications, 1994), 18-20 and 38. Stephenson's activities were inspired by the contemporary railway mania in England.
39. The most complete Western-language study of this railway is found in Crush, *Woosung Road*. See also the account in Yang Yonggang 楊勇剛, *Zhongguo jindai tielu shi* 中国近代鐵路史 (Shanghai: Shanghai shudian, 1997), 11-12. See also pp. 6-10 and 15-18 for a general discussion of the railway debate during this period.

40. Crush, *Woosung Road*, 52-58.
41. Crush, *Woosung Road*, 95-103.
42. For Liu's terms in office and exact titles, see Gugong bowuyuan Ming Qing dang'an bu 故宫博物院明清檔案部, *Qingji Zhongwai shiling nianbiao* 清季中外使领年表 (Beijing: Zhonghua shuju, 1985), 3 and 9. Liu's surviving works are contained in Liu Xihong, *Liu Guanglu* (*Xihong*) *yigao* 劉光祿(錫鴻)遺稿, in *Jindai Zhongguo shiliao congkan sanbian* 近代中國史料叢刊三編, no. 446 (Taipei: Wenhai chubanshe, 1988). Documents pertaining to his period of service in Germany are collected together in Liu Xihong, *Zhude shiguan dang'an chao* 駐德使館檔案鈔, 2 vols. (Taipei: Xuesheng shuju, 1966). The only monograph on Liu so far is Zhang Yuquan 張宇權, *Sixiang yu shidai di luocha: Wanqing waijiaoguan Liu Xihong yanjiu* 思想與時代的落差: 晚清外交官劉錫鴻研究 (Tianjin: Tianjin guji chubanshe, 2004). There is a useful review of this study in Pan Guangzhe 潘光哲, "Shuping" 書評, *Hanxue yanjiu* 漢學研究 23.1 (2005): 509-513.
43. See the introductory essay in Liu Xihong, "Guo Songtao de siduitou" 郭嵩燾的死對頭, in *Yingyao siji* 英軺私記 (Changsha: Yuelu shushe, 1986), 22-26, and J. D. Frodsham, *The First Chinese Embassy to the West: The Journals of Kuo Sung-t'ao, Liu Hsi-hung and Chang Te-yi* (Oxford: Clarendon Press, 1974), xlvii and lx. See also the devastating portrait of Liu presented by Halliday Macartney (1833-1906), the British secretary for the Chinese mission, in the fragment of his diary preserved in Demetrius Boulger, *The Life of Sir Halliday Macartney K.C.M.G., Commander of Li Hung Chang's Trained Force in the Taeping Rebellion, Founder of the First Chinese Arsenal, for Thirty Years Councillor and Secretary to the Chinese Legation in London* (London and New York: John Lane, 1908), 267. Guo Songtao had originally promoted Liu's career, but the two soon fell out particularly after a bitter court debate on Westernization in which they took opposite sides. See the introductory section of Liu, *Yingyao siji*, 12-16.
44. See the entry in his diary, Liu Xihong, "Guan dianxue yougan" 觀電學有感, in *Yingyao siji*, 65.127-129.
45. The most detailed study in a Western language of Thomas Wade's (1818-1895) activities in China is James C. Cooley, Jr., *T. F. Wade in China: Pioneer in Global Diplomacy (1842-1882)* (Leiden: E. J. Brill, 1981). Wade's proper title was Minister Wade.
46. Guo Songtao and Liu Xihong had traveled from Beijing to Tianjin by canal and then taken a steamer to Shanghai, from where they took another steamship to England.
47. Liu Xihong's visit took place on the tenth of the tenth month (November

25), ten days before the Wusongkou-Shanghai railway reopened. The English name of the "academy" was the Chinese Polytechnic Institution and Reading Room. It had been established in 1874 by the translators John Fryer (Chinese name Fu Lanya 傅蘭雅, 1839-1928), and Xu Shou 徐壽, 1818-1884). Many of the volumes of its former library are now in the collection of the Shanghai Library. See the discussion in Benjamin A. Elman, *On Their Own Terms: Science in China 1550-1900* (Cambridge, MA: Harvard University Press, 2005), 308-310. Elman also mentions Liu Xihong's visit, especially his disregard for practical technological knowledge, which he considered beneath Chinese scholars. Feng Junguang 馮焌光 (*juren* 1852, d. 1877), a scholar from Nanhai 南海 in Guangdong province and the Circuit Intendant of Suzhou, Songjiang 松江, and Taicang 太倉 (Susongtai 蘇松太) Circuit administered from Shanghai, was one of the most vociferous opponents of the railroad. This may seem ironic, because before serving as Circuit Intendant, he administered the Jiangnan Arsenal for thirteen years starting in 1864. However, his objections were not likely to have been technological but rather more a result of his defense of Chinese sovereignty. See his biography in Wu Xin 吳馨 and Yao Wennan 姚文柟, *Shanghai xian xuzhi* 上海縣續志 , vol. 2, 826-827 (1918; repr., Taipei: Chengwen chubanshe, 1970), "Minghuan" 名宦, 15.3b-4a, and the sections about his association with the Jiangnan Arsenal in Thomas L. Kennedy, *The Arms of Kiangnan: Modernization in the Chinese Ordnance Industry, 1860-1895* (Boulder, CO: Westview Press, 1978), 81-85, which stresses his advocacy of steamship building and technological development. Feng passed away not long after his meeting with Liu Xihong while attempting to take his father's body back from Xinjiang, where he had died in exile.

48. One traditionalist argument against railways is that they damage the *fengshui* of the land they pass over.
49. Liu Xihong, "Shilun tielu" 始論鐵路, in *Yingyao siji*, 48-49. See also the translations from this passage in Frodsham, *The First Chinese Embassy in the West*, 110-113.
50. A representative of the firm Jardine-Matheson had a long talk with Guo Songtao in a small place called Zizhulin 紫竹林, where Liu and he spent the night. Guo gives us no information about the contents of the conversation, but quite likely, the man was discussing the fate of Jardine-Matheson's railroad. See Guo Songtao, *Guo Songtao riji* 郭嵩燾日記 (Changsha: Hunan renmin chubanshe, 1980), Guangxu 2, thirtieth day of the ninth month (November 15, 1876), 3.63.

51. See Liu's comments about the way railroads would cause unemployment in China in Liu Xihong, "Shijian huolunche" 始見火輪車, in *Yingyao siji*, 63. This passage, which describes Liu's first experience of riding in a train at Port Suez, Egypt, also contains his stock response to Westerners who badgered him about the issue of railroads in China from then on: "This is a matter of internal policy. No one can interfere in the internal affairs of sovereign states, which is a principle recognized by your international law." This response was suggested to Liu by a Chinese translator who had worked for Thomas Wade!
52. The term Hanxue is now largely employed in China to translate the Western word "Sinology," but it originally meant the rational and critical examination of classical texts through the use of scientific inductive reasoning for the purpose of recovering their original meaning, a practice that became widespread in the Qing Dynasty. Most of those scholars who engaged in Han Learning considered the Han Dynasty commentaries on the Classics to be the most reliable, since their authors lived nearer to the age of Confucius, and, hence, they called their scholarly approach "Han Learning." See also Liu Xihong's comments about such fields of modern science as the study of heat, electricity, gases, light, chemistry, and astronomy, which he called "minor trickery" (*zaji zhi xiao* 雜技之小), and which he declared are not to be compared to the "teachings of the Sages" in Liu Xihong, "Guan dianxue yougan," 128 .
53. For a short biography of Li Shufan, see Long Xianxu, *Zheng Ziyin jiaoyou kao* 鄭子尹交游考 (Beijing: Zhongguo wenshi chubanshe, 2004), 17-18. Li would have worked for the Salt Supervisor (Yanzheng 鹽政), a high official who supervised the government monopoly in salt in the six provinces of Henan, Jiangsu, Jiangxi, Anhui, Hubei, and Hunan.
54. The Daoist immortal Liezi is said to have been able to ride on the wind. See *Liezi zhuzi suoyin* 列子逐字索引 (Hong Kong: Shangwu yinshuguan, 1996), "Huangdi" 黃帝, 2/7/9. Liezi is also referred to in the *Zhuangzi*, which may be the source of this passage. See the discussion below.
55. From line nine to this line, Li Shufan is alluding to a famous poem by Su Shi. See the discussion below in the main text.
56. Allusion to a popular quatrain by Li Bai. See the discussion below.
57. Literally, "I still dislike [the fact that] safe and dangerous differ in worry or happiness."
58. Literally, "Not to mention that the rising and falling [of the current] differ from autumn to winter." Before the dredging of the river channel

and the construction of dams in the twentieth century, the depth of the Yangzi River in the gorges differed considerably from season to season, always exposing the traveler to new hazards.

59. Three years elapsed from the time the railway's construction began (1874) until it was torn up by the Qing government. The term *zhuanxiang* 轉餉 literally means "transport grain." I am assuming that the expression *yizhe* 易轍 (literally, "change the track") refers to the demolition of the railway. Unfortunately, my translation of this difficult couplet is conjectural, and I am indebted to suggestions made by Prof. Hu Xiaoming 胡曉明 and Zhong Jin 鍾錦 of East China Normal University for arriving at this version.
60. Literally, "The cart traveling behind has lost the lesson, which is not heroic." See the discussion below. Li Shufan, "Huolunche" 火輪車, in *Jiaoyuan shichao* 椒園詩鈔, 5.24b-25a, in *Lishi jiaji* 黎氏家集, ed. Li Shuchang, vols. 7-8 (Tokyo: Riben shishu, 1888-1891). This same edition of Li Shufan's poetry has recently been reproduced in *Qingdai shiwenji huibian* 清代詩文集彙編, vol. 709 (Shanghai: Shanghai guji chubanshe, 2010). Another interesting example of Li's fascination with the West is his poem about the visit of the former U.S. President Ulysses S. Grant (1822-1885) to Shanghai in 1879 in Li Shufan, "Run sanyue ershijiu ri Taixi geguo guanshang wei Meilijian qian zongtong Gelantuo zhangdeng Hudu she shuilong zhi hui; shiye yu yi wang guan, yin ji yi lü" 閏三月二十九日, 泰西各國官商為美利堅前總統格蘭脫張鐙滬瀆, 設水龍之會; 是夜余亦往觀, 因紀一律, in *Jiaoyuan shichao*, 6.2a. This work is dated May 9, 1879 on the Western calendar.
61. The shortcomings that derive from the breathtaking speed of modern transport are discussed much more fully in the series of poems about steamship travel from Hubei to Shanghai by Zheng Zhitong that we read above and particularly in some of Huang Zunxian's later works. See the translation and discussion of Huang's experimental series "Modern Parting" 今別離, in HZX, 186-191 and 269-272.
62. *Concordance to Chuang Tzu* (Cambridge, MA: Harvard University Press, 1956), "Xiaoyaoyou" 逍遙遊, 2/1/19.
63. The second way allusion functions here has an obvious resemblance to the technique of *fan'an* 翻案 (turning over or overthrowing an allusion) and the Song poet Huang Tingjian's 黃庭堅 (1045-1105) highly influential technique of "changing the bones" (*huangu* 換骨), both of which "up-date" earlier texts. See the discussion in ZZ, 293 and 353.
64. Su actually wrote a set of two poems about the rapids, the first, which is treated here, to Daoqian, and the second to another friend, who had shot the rapids earlier but had already left the place. See Su Shi, *Shizhu Su*

shi 施注蘇詩 (Taipei: Guangwen shuju, 1964), 15.15-17, 15.241-242. Two English translations of the first work are found in Burton Watson, *Su Tung-p'o*: *Selections from a Sung Dynasty Poet* (New York: Columbia University Press, 1965), 65-67 and Michael A. Fuller, *The Road to East Slope: The Development of Su Shi's Poetic Voice* (Stanford: Stanford University Press, 1990), 242-244.

65. Fuller, *The Road to East Slope*, 244. One could say that, in line with the Chan mistrust of discursive language and thought, Daoqian is also denying the meaning of Su Shi's exposition of Buddhist philosophy.
66. In the second line Su Shi is himself using an allusion to a passage from the *Zhuangzi*. See *Concordance to Chuang Tzu*, "Qiushui" 秋水, 42/17/1.
67. Refer to Huang Zunxian's elevation of human beings (presumably in relation to Heaven) in his poem on the Hong Kong Museum (1870) translated and discussed in HZX, 101 and 227, especially his line to the effect that "The power of the human race is quite beyond all belief" (*renli xin xiongzai* 人力信雄哉, literally, "human power is truly heroic"). Before the nineteenth century Chinese poets sometimes wrote that skillfully executed works of art "snatched away heaven's skill" (*duo tiangong* 奪天功), but, to the best of my knowledge, they never suggested that human technology rendered heaven without skill or power.
68. See Hanabusa Hideki 花房英樹, *Ri Haku kashi sakuin* 李白歌詩索引 (Kyoto: Kyōto Daigaku Jinbun Kagaku Kenkyūjo, 1957), 746,01. The White Emperor's Fort was located just east of the administrative center of Fengjie 奉節 District in eastern Sichuan. Jiangling 江陵 is the administrative center of Jiangling District in modern Hubei.
69. Perhaps there are other poems or essays opposing the Qing government's decision, but so far I have found none.
70. Literally, "penetrated to the Xixiang insect," a kind of insect that was supposedly very sensitive to sound and later became a symbol of divine inspiration.
71. I.e., the emperors of France (Napoleon III), England, Germany, Austria, Italy, and Russia.
72. Allusion to a story in the *Zhuangzi* about two kingdoms that fought with each other constantly, one on the left antenna of a snail and the other on the right antenna. See *Concordance to Chuang Tzu*, "Zapian" 雜篇, "Zeyang" 則陽, 70/25/27.
73. Huang Zunxian, *Renjinglu shicao jianzhu*, 2:565-572, and the modern commentary in Li Xiaosong 李小松, *Huang Zunxian shixuan* 黃遵憲詩選 (Taipei: Yuanliu, 1988), 161.

74. For a discussion of Liang Qichao's views on the need for foreign terms in poetry, see HZX, 68-69.
75. See my short discussion of this in ZZ, 7-8 and the more detailed study in Yang Mengya 楊萌芽, "Cong 1917 nian Tang Song shi zhi zheng kan Nanshe yu Wanqing Minchu Songshipai de guanxi" 從 1917 年唐宋詩之爭看南社與晚清民初宋詩派的關係, *Lanzhou xuekan* 蘭州學刊 162.3 (2007): 136-142.
76. Huang's increasingly pessimistic view of the future is discussed in HZX, 211-214.
77. See, for example, my discussion of the experimental series "Modern Parting," mentioned in n. 61.