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Juvenile Science and the Japanese Nation: *Shōnen'en* and the Cultivation of Scientific Subjects

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Juveniles were the foremost target of attempts to transform the Japanese people into imperial subjects during the late nineteenth century, with prominent intellectuals marshalling the influence of mass media in support of this goal. This essay examines the case of *Shōnen'en* (1888–1895), Japan's first major juvenile magazine, exploring its use of science in shaping the identity of the modern imperial subject. With the turn to morals-driven education in the mid-Meiji period, the government sidelined science instruction in schools, considering it a Western import detrimental to developing loyalty to the emperor. However, at this time, *Shōnen'en*'s editor placed great emphasis on science, believing it to be not only compatible with, but also an important means of nurturing juvenile subjecthood. Drawing on an image of science that had taken shape during the eighteenth century, when scientific discovery came to be seen as an endeavor requiring both intellectual and physical prowess, *Shōnen'en* (Youth's garden) offered Japanese adolescents an imaginary landscape in which they could envisage themselves as heroic and truth-seeking imperial officers. This examination of a magazine published before Japan's modern international wars broadens our understanding of the role of science in mid-Meiji Japan by demonstrating how an influential publication used science to shape the identity of the modern imperial subject, and shows that these efforts predated the establishment of Japan's formal empire.

Keywords: juvenile magazines, Meiji period, Yamagata Teisaburō, *Shōnen'en*, popular science, science popularization, masculinity, Sino-Japanese War, imperialism

Introduction

The project of transforming the Japanese people into imperial subjects during the late nineteenth century was state-directed, but it was also one in which magazine and newspaper editors played an influential role. It is no coincidence that juvenile magazines flourished from the late 1880s, as this was a time when the Ministry of Education was intensifying efforts to use the educational system to cultivate loyal young subjects. Working in a symbiotic relationship with the state, magazine proprietors increasingly directed their

attention to youth. The first major juvenile magazine to appear on the scene was *Shōnen'en* 少年園 (Youth's garden) in 1888. Its emergence prompted a deluge of similar publications, and over the subsequent decade several other juvenile magazines were launched. Among these were long-lived successes, such as the children's magazine *Shōnen sekai* 少年世界 (1895–1933), noted for playing an important role in shaping modern Japanese childhood.¹

Shōnen'en was published by the former science educator and translator Yamagata Teisaburō 山県悌三郎 (1858–1940), who aligned his magazine with the tenets of the Imperial Rescript on Education (*kyōiku chokugo* 教育勅語). Although the Rescript was promulgated in 1890, two years after *Shōnen'en* was launched, the intentions of the government had been known for some time. The Rescript reconciled differing visions of education that had been promoted by influential actors within the government. It assimilated a notion, based on traditional Confucian principles, of Japan as a family headed by the emperor, with a more German-influenced perspective of education as serving the needs of the state, not the individual. Aligning itself with the government's aims, *Shōnen'en* carried in every issue a statement of the magazine's intention to provide moral, intellectual, and physical training, a reflection of the tripartite vision of education that underpinned the Japanese education system. Keenly aware of the considerable influence exerted by materials read outside the classroom, Yamagata did not want to leave this space unattended lest pernicious influences undermine the government's efforts. While the Ministry of Education directed its attention to commissioning and publishing textbooks, Yamagata focused his energies on the extracurricular realm.

Despite being sympathetic to the state's ambitions, *Shōnen'en* eventually fell foul of government censors and was shut down in 1895, an indication of how precarious publishing was under the Meiji regime's strict publication laws.² Nevertheless, it left a longstanding influence on juvenile publishing. The number of juvenile magazines grew after Japan's victory in the Sino-Japanese War, and mushroomed after the Russo-Japanese War. Like *Shōnen'en*, the focus of these magazines on masculine heroes and adventure made them appealing to male youngsters. However, *Shōnen'en* differed from its successors in a number of respects, most notably in its emphasis on science. Yamagata believed that science should play a central role in shaping the identity of elite imperial subjects. The role of science in creating loyal subjects had not always been self-evident. During the 1870s, proponents of morals-driven education, such as Motoda Nagazane 元田永孚 (1818–1891), argued that science was inimical to the aim of instilling loyalty to the emperor. Not only would science

* I would like to thank the editor and the two anonymous reviewers for their thoughtful feedback; Peter Cave and Harald Solomon for the opportunity to present earlier drafts of this paper at workshops in Manchester and Berlin, respectively, where discussions helped me clarify my arguments; and Hanna Diamond for her many insightful comments and suggestions.

1 There were earlier children's periodicals, such as *Eisai shinshi* 英才新誌 (New journal for the talented, 1877–1898). However, these primarily existed to provide a forum for youngsters to showcase their writings, meaning that their authors and readers were one and the same. *Shōnen'en* marked a departure in that it was written by adults for children. See Tsuzukihashi 1972.

2 Details about the article that ultimately resulted in the magazine's closure are unclear, but *Shōnen'en* sometimes ruffled feathers through its unflattering coverage of figures close to the government. For example, it was once censured for criticizing the lavishness of a party held by the businessman Shibusawa Eiichi 渋沢栄一, a close associate of some government figures. Tsuzukihashi 1972, p. 54. As discussed below, the Meiji government perhaps allowed the magazine to continue publication during the Sino-Japanese War having sensed its value in disseminating state-sanctioned information.

take up valuable class time, it demoted “benevolence, justice, loyalty, and filial piety to a secondary position.”³ Clearly, Yamagata did not share this view. In fact, he saw science as a means of promoting the very type of imperial subject that the state wanted to cultivate. Yamagata therefore made science a significant part of *Shōnen'en*'s identity, calling on some of the leading lights of Japanese science to contribute articles to his magazine.⁴

In promoting science in *Shōnen'en*, Yamagata drew on British examples, and on the Victorian magazine *The Boy's Own Paper* (1879–1967) in particular. Invoking an image of science that had taken shape during the eighteenth century, when scientific discovery became synonymous with exploration and adventure, these British magazines often associated science with masculine outdoor activities, and sought to portray it as an endeavor requiring not only intellectual but also physical prowess. A mutually-reinforcing relationship between militarism and science developed. Many men of science borrowed martial imagery when describing their discoveries by foregrounding activities that required “risk-taking and physical toughness,” while imperial officers sought to legitimize their activities by associating them with science.⁵ Juvenile magazines such as *The Boy's Own Paper* portrayed the prospecting activities of British officers in empire as crucial in building up the scientific collections of public and private museums, and presented them as aspirational models to young readers. By portraying the exploits of officers as selfless, heroic, and truth-seeking, juvenile magazines held them up as paragons of stoicism, bravery, and self-control. These were qualities that distinguished them from those they ruled, and therefore legitimized their position.

Yamagata wanted to cultivate similar manly attributes among his young readers, whom he envisaged as Japan's future imperial elite. However, he knew that it was impossible for his readers to actually engage in the same sort of dangerous heroic pursuits as these British imperial officers. *Shōnen'en* therefore provided adolescent readers with an imagined landscape that they could enter simply by opening the pages of the magazine, and wherein they could engage vicariously in character-building scientific pursuits. Initially, these pursuits focused on interactions with nature, with hunting and mountaineering as two recurrent topics. However, with the outbreak of the Sino-Japanese War in 1894, the tenor of the magazine changed dramatically and the battlefield in Korea supplanted *Shōnen'en* as a site for imagined adventure in the magazine's last year of publication.

This essay starts by exploring how the Middle School Ordinance (*Chūgakkō rei* 中学校令) of 1886 gave rise to an elite youth culture comprising ambitious male students who saw themselves at the vanguard of a new Japan, and who distinguished themselves by their penchant for using print media to share their literary creations and promote their ideas. Yamagata targeted this audience because he envisaged them as the archetype of the imperial

3 Duke 2009, p. 260.

4 In *The Self-Made Man in Meiji Japanese Thought*, Earl Kinmonth discusses *Shōnen'en*, focusing on how the magazine promoted personal advancement among youths by providing advice on preparing for middle school examinations and on financial support. Kinmonth also notes that *Shōnen'en* cautioned youngsters about “bad habits” that might thwart their ambitions, such as smoking, drinking, and involvement in political activities. However, Kinmonth makes no reference to its scientific content. See Kinmonth 1981, pp. 120–31.

5 Terrell 2011, p. 85. Officers stationed in empire often contributed scientific articles to British juvenile magazines. These carried such titles as “African Exploration,” “Man-eating Tigers,” and “The Moose Hunt.” See Mangan and McKenzie 2010, p. 147. For more on the link between physical fitness and intellectual endeavor in the elite British tradition, see Warwick 2003.

subject. To Yamagata, this ideal imperial subject was physically skillful and intellectually astute, morally upright and scientifically literate. And he was male. This essay demonstrates how Yamagata encouraged his readers to engage in outdoor, hypermasculine, scientific pursuits as a means of acquiring the dispositions required of Japan's future leaders.⁶ It is important, however, to point out that Yamagata did not consider science useful simply as a character-building enterprise. He passionately believed that Japan's future prosperity depended on the nation cultivating scientists and technologists. He therefore appropriated the *risshin shusse* 立身出世 ideology of personal advancement to encourage youngsters to pursue science as a vocation, and repeatedly pointed to examples of Westerners who had found fame and prosperity through their scientific pursuits.⁷ This essay concludes by demonstrating how *Shōnen'en* sought to encourage youthful enthusiasm for Japan's military campaign during the Sino-Japanese War. It encouraged readers to become vicarious participants in the war by imagining themselves as military strategists active on the frontline. The magazine carried reports vetted by the military, which were full of detail on the latest technologies used in the war effort. By pitching the war as a battle of technology, *Shōnen'en* sought to reinforce the importance of technology to Japan's international standing.

Because of their important role in socializing children into imperial subjecthood, late-Meiji and Taishō juvenile magazines have received considerable attention from historians. These magazines, which carried narratives that were often set in the Pacific, clearly advocated territorial expansion and the acquisition of empire. It is this jingoistic literary material that has received the most attention from historians.⁸ Thanks to the work of Hiromi Mizuno, we now have a greater understanding of how science was used to engender juvenile nationalist sentiment through the mobilization of "wonder."⁹ However, this work focuses on magazines published during the period of 1920–1945. Such scholarship may leave the impression that the subject-cultivating work of these magazines was a phenomenon that started in earnest only once Japan became involved in wars overseas. This essay demonstrates, however, that magazines were already active in stoking a sense of imperial mission before the establishment of Japan's formal empire and, importantly, that science played a key role in this process.

6 The term "science" is used here as a catchall to describe what we today might refer to as science and technology. Today, these terms have a degree of precision that they did not have in nineteenth-century Japan. As historians of science point out, what counts as science has always depended on historical and social context (See, for example, Dear 2007). During the Meiji period, Japan's leaders deliberately conflated science and technology by assessing their value exclusively through the prism of prosperity and national security (Samuels 1994). Science and technology were as much cultural symbols as they were bodies of study or sets of practices. And, as was the case with other cultural symbols and practices deemed to be "Western," they became sites for contestation and manipulation by public elites in their attempts to shape the character of modern Japan.

7 The four-character slogan *risshin shusse* signified "raising one's status in society." This ambition was promoted widely in the Meiji period, especially by the government, through textbooks and school songs. See Maeda 1965.

8 See, for example, Griffiths 2007, Carter 2009, and Karlin 2014. Scholarship exploring how other literary content promoted chauvinistic attitudes among Japanese youth includes Chua 2016.

9 Mizuno 2008.



Figure 1. The landscape of the Youth's Garden, modeled on the Song Chinese landscape, the "Eight Views of Xiaoxiang."

***Shōnen'en* and the Elite Meiji Male**

"Come youth, come and see. The Youth's Garden opens today," beckoned the leading article of *Shōnen'en's* inaugural issue. "The garden is enormous, about half the size of Tokyo," it continued. "There is a bridge just as one enters the garden, with mountains straight ahead."¹⁰ These were just the first brushes of an elaborate landscape that included a "grove of literature" and a "sea of learning," and which would gradually develop into an expansive scene modeled on the eleventh-century Chinese ink painting, "Eight Views of Xiaoxiang" (figure 1). Yamagata was fond of spatial metaphors; his earlier *Rika senkyō* 理科仙郷 (1886), a translation of Arabella Buckley's children's science primer *The Fairy-Land of Science*, was also conceived as an outdoor space for learning and adventure. In fact, this fairyland was incorporated into the eponymous Youth's Garden; it was an area covered in luxuriant trees (a "forest of letters") that could be found just "beyond Mount Yamagata." The garden, it was noted, was covered in *oshiegusa* 教之草 or "moral lessons." The use of the character *kusa* 草 (grass) in this term evoked a garden literally resplendent with virtue. By opening its pages, readers crossed a threshold to enter a realm of enlightenment in which they would engage in wholesome and edifying pursuits.

The Youth's Garden was portrayed as an outdoor space to underscore its extracurricular character, and to allow its readers to imagine it as a boundless space of discovery. The small but growing number of science popularizers, such as Yamagata, reinforced the extracurricular character of their works by situating themselves in the natural outdoors. They placed emphasis on interaction with and immersion in nature. Authors perhaps thought that this was the most effective way of arousing interest in science, but by situating learning

¹⁰ *Shōnen'en* 1:1 (1888), p. 17.

outside the classroom these writers also avoided trespassing on the government's territory of formal education. For example, Nakagawa Shimei 中川四明 (1850–1917), another early science popularizer and author of *Rika shunjū* 理科春秋 (Spring and autumn science, 1890), made a point of stressing that his aim was to supplement what students learned in class.¹¹

Although science popularizers such as Yamagata and Nakagawa stressed the extracurricular character of their books, they clearly worked in a symbiotic relationship with the formal education system. In 1886, the government issued the Middle School Ordinance, which led to the establishment of ordinary middle schools in each prefecture and five nationally-funded higher middle schools to prepare the elite for university. Yamagata explicitly identified the demographic codified by this ordinance as *Shōnen'en*'s target audience, noting,

It is a wonderful thing that facilities have now been provided for education at all levels, from primary education to university level, but although students above middle school level have much extracurricular reading material to choose from, this is not the case for those below (and including middle schools). The publication of *Shōnen'en* is intended to redress this deficiency.¹²

Shōnen'en's target audience was therefore youth between the ages of twelve and nineteen. However, the implied reader came from an even smaller demographic.¹³ At the time of *Shōnen'en*'s launch, only a miniscule number of youngsters—fewer than eleven thousand—benefited from a middle school education. While primary education was intended to be universal (albeit only in theory at this time), middle schools were designed to be elitist. Education Minister Mori Arinori 森有礼 (1847–1889) described middle school graduates as “society's upper crust” (*shakai jōryū* 社会上流), adding that they were destined to “direct the thoughts of the masses” (*shakai tasū no shisō o sayū suru* 社会多数の思想を左右する).¹⁴

Shōnen'en appeared in tandem with a new form of youth culture that arose with the emergence of middle schools in Japan. This new generation of ambitious middle school students, to whom the term *seinen* 青年 was often applied, were confident of their role in shaping the future of Japan. Attendance at middle school often meant separation from family and relocation to an urban area, so students often found themselves in a new milieu rubbing shoulders with new people and ideas. *Seinen* created school-based societies and launched amateur magazines, using print media to share their literary creations and discuss

11 Nakagawa 1890. Nakagawa was also a contributor to *Shōnen'en*.

12 *Shōnen'en* 1:1 (1888), p. 3.

13 “Implied reader” is a term coined by Booth (1961) to describe the ideal reader that the author imagines when crafting a text. It does not reflect *Shōnen'en*'s actual readership. By *Shōnen'en*'s second year of publication, Yamagata claimed to be attracting over 20,000 readers, which was considerably more than the middle school population of 11,620 in 1889. The magazine may owe some of its success to its affordable price of just 5 *sen*, and its wide distribution network, which included bookstores in Tokyo, Osaka, Kyoto, Nagoya and further afield. Undoubtedly another factor was its eclectic mix of news, opinion pieces, translations of foreign articles, short stories, and its articles on science, which attracted a diverse readership. Those sending correspondence to the magazine included elementary school children. Moreover, *Shōnen'en* carried advertisements for women's magazines, as well as for books on educational theory for teachers, and services for mining industrialists, suggesting that Yamagata expected that his magazine would be read by parents, teachers, and other professionals.

14 Roden 1980, p. 40.



Figure 2. Cover of *Shōnen'en* carrying an illustration of a boy and girl reading a book together under a tree.

their ideas about the future of Japan. Those who contributed to such magazines included the future novelists Natsume Kin'nosuke 夏目金之助 (Sōseki 漱石) (1867–1916) and Iwaya Sazanami 巖谷小波 (1870–1933). Although *seinen* now simply refers to “youth,” the term then implied a youth who was educated, refined, and concerned with personal advancement. Unlike their predecessors, *seinen* tended not to be interested in the type of political agitation that typified the Freedom and People's Rights Movement (*jiyū minken undō* 自由民権運動) and instead directed their energies to personal advancement.¹⁵

Shōnen'en's audience was also predominantly male. In 1892, the first year for which figures are given, girls accounted for a mere 3 percent of middle school students.¹⁶ Girls were as marginal a presence in *Shōnen'en* as they were in middle school education.¹⁷ Although *Shōnen'en* sometimes carried essay competitions for girls and featured guides to girls' schools in its column on schools, very little content was targeted at them. These were mere gestures, important to *Shōnen'en* because the education of girls provided evidence of Japan's credentials as a civilized country. A girl was also included in the illustration that appeared on the cover of every issue of the magazine. It comprised a drawing of a boy and a girl reading a book together under a tree (figure 2). However, the girl's pose—she engages

15 Unlike *Shōnen'en*, magazines created by *seinen* typically included only compositions by students. On the emergence of *seinen* as a new social category in the mid-Meiji period, see Kimura 1998.

16 Monbushō 1954, p. 1047

17 At the time of *Shōnen'en*'s publication, the term *shōnen* had not yet taken on its gendered character, and referred broadly to youth. It was not for another decade—after the appearance of *shōjo* 少女 magazines specifically for girls—that *shōnen* came to signify boys. Kanayama 2014, p. 65.

from the periphery, her reading subject to the boy's whims—betrays her subordinate position in the pages of the magazine. Yamagata was no proponent of equality; he criticized women who complained about the lack of equality as “dim-witted,” and “seduced by the West.”¹⁸ Apart from the occasional letter to the editor from a girl, which appeared in the correspondence section, females exercised no agency in the magazine, which was written exclusively by males.¹⁹

The ideal imperial subject portrayed by *Shōnen'en* was one constructed in Yamagata's own image. A surviving photograph of Yamagata taken when he was aged fourteen makes apparent the social milieu into which he was born. The photograph, taken on his entrance to an English school in Kyoto, shows him in a Western-style suit holding an English book.²⁰ Born into a high-ranking samurai family of Minakuchi domain 水口藩 (modern-day Shiga Prefecture), Yamagata benefited from the proliferation of opportunities for Western studies in the early Meiji period. Alongside him in the photograph is the future chemistry professor at Tokyo Imperial University Ikeda Kikunae 池田菊苗 (1864–1936), an indication of the social circles in which Yamagata was embedded from an early age. After studying English and Western arithmetic in Kyoto, Yamagata entered the Tokyo School of English, before serving as a middle school teacher in Saitama and Miyagi and then gaining promotion to head of the Ehime Normal School. While in this position, he was recruited by Nishimura Shigeki 西村茂樹 (1828–1902) to join the Ministry of Education textbook publishing department where he translated British and American works on education, history and science.²¹

This attention to the West did not mean a sidelining of the Chinese cultural and intellectual heritage of his class. Yamagata studied Chinese under the eminent Confucian scholar Ema Tenkō 江馬天江 (1825–1901) and his books all carried his personal insignia, which comprised the samurai iconography of a pen and sword.²² The sword pointed toward a chivalrous martial past, while the pen represented literacy in Chinese.²³ Chinese was used to assert *Shōnen'en's* masculine character. Sinitic styles, considered the preserve of the highly educated male, were often employed in the magazine and Yamagata used every opportunity to demonstrate his mastery of Chinese. His earlier *Rika senkyō*, for example, was praised by a contemporary for its “elegant,” “richly layered” prose, liberally peppered with Chinese literary allusions.²⁴ Yamagata displayed his literary dexterity in Chinese in *Shōnen'en* from the very first issue, drawing heavily on the T'ang poem “Jiangnan Spring” in crafting the magazine's mission statement.²⁵ This statement's sonorous style, described as having a “masculine rhythm,” demanded to be read aloud, a practice that harked back to the *ondoku*

18 Tsuzukihashi 1972, p. 50.

19 On the restrictions to women's participation in the public sphere, see Anderson 2010 and Sasamoto-Collins 2017.

20 This photograph can be found in Kojima 1937, p. 181.

21 Yamagata 1987.

22 Kojima 1937, p. 174.

23 On the resuscitation of samurai iconography during the Meiji period to define Japanese masculinity, see Mason 2011 and Benesch 2014.

24 Kojima 1937, p. 174.

25 Tsuzukihashi 1972, p. 22.

音読 tradition of communal oral recitation, the primary means by which the Chinese classics were encountered in the male scholastic environment.²⁶

Considering his background, Yamagata's support for the imperial project is unsurprising. As James L. Huffman notes, the "leading lights" of Meiji publishing were almost without fail "state-oriented emperor-loving nationalists."²⁷ In accordance with the spirit of the Imperial Rescript on Education, Yamagata aimed to cultivate a reverence of the imperial system among Japan's youth. Yamagata deliberately chose to launch the magazine on 3 November so that it fell on *tenchōsetsu* 天長節, the national holiday to celebrate the emperor's birthday. In this way, the magazine's anniversary would necessarily be a celebration of the imperium. In its first issue, the magazine initiated a custom, continued throughout its existence, of carrying songs to celebrate the occasion. The first was composed by Isawa Shūji 伊澤修二 (1851–1917), the principal of the Tokyo School of Music 東京音楽学校 (Tōkyō Ongaku Gakkō), who exhorted pupils across the country to sing the *Tenchōsetsu* song in unison:²⁸

It's the morning of 3 November
The Hinomaru glitters in the morning sun
The nation's flag at every door, bright, bright, bright
The nation's flag at every door, bright, bright, bright

It's the noon of 3 November
On land, on sea, valiantly
The gun salute goes boom, boom, boom
The gun salute goes boom, boom, boom

Children! Let's all gather together
And sing this song at school
Singing, drumming, hey, hey, hey
Singing, drumming, hey, hey, hey

What are we celebrating today?
A prince was born
Let's celebrate this day, hooray, hooray, hooray
The emperor's birthday, hooray, hooray, hooray

***Shōnen'en* and Scientific Masculinity**

Shōnen'en is today remembered as a literary magazine because of the pedigree of its contributors, which included such future household names as the novelists Mori Ōgai 森鷗外 (1862–1922) and Ozaki Kōyō 尾崎紅葉 (1868–1903). However, its scientific material is of

26 Tsuzukihashi 1972, p. 24.

27 Huffman 1997, p. 9.

28 *Shōnen'en* 1:1 (1888), p.13. On efforts by the government to promote loyalty to the emperor in the school system through song during the Meiji period, see Yamamoto and Konno 1987, Duke 2009, Tsukahara 2013, and van der Does-Ishikawa 2013. On the continued use of song to promote nationalism among juveniles during the Taishō and Shōwa periods, see Cave 2016.

such quantity and quality that it should be considered no less a scientific magazine than a literary one. *Shōnen'en* reflects Yamagata's longstanding enthusiasm for science. His first major publication as a science popularizer was the highly successful 1886 work, *Rika senkyō*. Yamagata claimed that this challenging ten-volume work sold over twenty-eight thousand copies in its first year.²⁹ In 1887 he published *Danjo tōta ron* 男女淘汰論 (On sexual selection), a work synthesizing translations of excerpts from Charles Darwin's *The Descent of Man* (1871), and Ernst Haeckel's *The History of Creation* (1868), and followed this up with an expanded translation of Haeckel's work under the title *Shinka yōron* 進化要論 (The essentials of evolution) the subsequent year.

Through his publishing activities, Yamagata could call on a vast network of highly regarded writers to contribute to his magazine. Among *Shōnen'en*'s scientific contributors was Yamagata's childhood friend, the Imperial University professor Ikeda Kikunae. Others included Sekiya Kiyokage 関谷清影 (1855–1896), one of Japan's first modern geologists, and the American-trained systematic biologist Yatabe Ryōkichi 谷田部良吉 (1851–1899), whose opus, *Iconographia Florae Japonicae*, provided a foundational text for modern Japanese botanical research. These are but a few of the dozens of scientists who wrote for the magazine on topics ranging from explanations of the causes of natural phenomena such as earthquakes, typhoons, and solar eclipses, to the science of sound, the flora of Japanese hot springs, and the trajectory of planets. Civilian technologies, such as telegraphs and cameras, also featured, and with the start of the Sino-Japanese War in 1894, military technology came to be a prominent feature of *Shōnen'en*'s coverage.

Yamagata and his associates wanted youngsters to draw an association between adventure, science, and prosperity. He impressed on his readers that it was by conquering nature that they would attain scientific knowledge, and that by winning “battles of knowledge” they would secure Japan's prosperity.³⁰ *Shōnen'en* thus promoted physically-based pursuits of science. One such pursuit advocated by *Shōnen'en* was mountaineering, an endeavor whose aim is to triumph over nature in its most literal sense. It was also an activity that was highly newsworthy in the late nineteenth century. The peaks of the European Alps had finally been conquered, but many of the highest mountains across the globe remained tantalizingly out of reach.³¹ Yamagata and his scientist contributors were keen to promote mountaineering among young Japanese readers, not least because the ability to conquer the highest altitudes was considered an innate ability limited to only the most “civilized” countries.³² If Japan was to be considered on a par with its European counterparts, its men also needed to demonstrate this by attaining the highest zones.

One contributor particularly enamored by this topic was the German-educated botanist and Imperial University professor Miyoshi Manabu 三好學 (1861–1939).³³ In his articles on alpinism, Miyoshi discussed the feats of mountaineers who scaled the world's highest mountains and the glory they achieved, but he was also keen to stress the scientific

29 Cited in Kojima 1937, p. 174.

30 *Shōnen'en* 6:66 (1889), p. 1.

31 On the rise of alpinism in the nineteenth century, see Hansen 2013 and Isserman 2008.

32 Reidy 2015.

33 Some of Miyoshi's contributions were transcripts of oral presentations at the Tokyo Anglo-Japanese College (Eiwa Gakuin 英和学院), but his endorsement of their appearance in *Shōnen'en* is evidenced by the fact that he also contributed articles on mountaineering directly to the magazine.

discoveries available to those who engaged in this pursuit. “The observation of nature,” he emphasized, was the true purpose of mountaineering. He wrote at length of the Swiss scientist-mountaineer Horace-Bénédict de Saussure (1740–1799), emphasizing the many scientific discoveries revealed by his research in the mountains and highlighting the role of the mountain as a laboratory for scientists such as Joseph Dalton Hooker, John Tyndall, Alexander von Humboldt, and Asa Gray.³⁴ Miyoshi exhorted youngsters to emulate these scientists. Japan was a land of mountains, he reminded them. Listing Japan’s peaks by name, and giving their locations and altitudes, he encouraged readers to use the new maps produced by the government to locate and climb them.

The activity Miyoshi promoted was not the relatively risk-free social activity it later came to be.³⁵ He made much of the many perils of mountaineering, such as avalanches and the death and injury that may result from falls. Central to Miyoshi’s mountaineering “science” was the idea that it required physical toughness alongside intellectual acumen. Miyoshi’s scholarly infatuation with mountaineering stemmed from his belief that it provided a passport to an exclusive club of scientists. He described the meteorological, botanical, and psychological discoveries available only to those who engaged in this pursuit. Mountaineers would, for example, notice a deepening in the color of the sky, brighter and more numerous stars would be visible, they would experience a quickening of the pulse and an increase in the breathing rate, and they would see for themselves the effects of lower air pressure on the boiling point of water.³⁶

Despite these vivid descriptions, it is unlikely that Miyoshi engaged in mountaineering himself. All of his so-called observations about natural phenomena at altitude are culled from others’ sources, especially those of de Saussure. This is in keeping with the Youth Garden’s character as an imaginary landscape. The fanciful nature of the activity Miyoshi promoted can also be seen in his description of the instruments necessary to engage in mountaineering. According to Miyoshi, to be a successful mountaineer-scientist, a mid-Meiji youngster would need not only “a tent, pen and notebook,” but also exorbitantly priced equipment such as a “barometer, watch, magnet, thermometer, telescope and binoculars.”³⁷ And, not to be outdone by their scientist role models, they would also need to hire sherpas (*yatoi* 雇い) to assist them with carrying their equipment and guiding them along the most accessible route. Clearly Miyoshi was not expecting many, if any, of his young readers to actually engage in this pursuit, at least not in the way he described.

Mountaineering was an attractive subject for *Shōnen'en* because of its association with the pursuit of yet undiscovered vistas and the conquest of virgin territory. The relationship between mountaineering and ambitions for territorial expansion come into view when we look at the figure who sought to cleave these two projects together. Among the first to

34 Joseph Dalton Hooker (1817–1911) was a British botanist well known to his contemporaries for his expedition to the Himalayas to collect botanical specimens. The physicist John Tyndall (1820–1893) studied the motion of glaciers in the Alps. The Prussian naturalist, Alexander von Humboldt, reached the summit of Chimborazo in the Andes, then believed to be the highest mountain in the world, in 1802. Asa Gray (1810–1888), a professor of botany at Harvard University, collected specimens for his research on mountains in the American west. On the links between mountaineering, masculinity, and science, see Reidy 2015.

35 On the rise of mountaineering as a social activity in the late Meiji period, see Wigen 2005.

36 Miyoshi wrote on mountaineering in *Shōnen'en*, vol. 4, no.40 (1890) pp. 11–13; vol. 5, no. 54 (1891), pp. 2–7; no. 55, pp. 7–10, and no. 56, pp. 2–6.

37 *Shōnen'en* 5:56 (1889), p. 3.



心初の獵銃
 ぬかつびが狙てくまり餘 早く早にレゾ

Figure 3. “The first hunting experience.” Meiji youngsters were encouraged to engage in hunting with rifles and dogs.

promote mountaineering in Japan was the geographer Shiga Shigetaka 志賀重昂 (1863–1927), whose outlook was shaped by a ten-month naval journey to the South Seas, after which he published the bestselling *Nan'yō jiji* 南洋時事 (Current conditions of the south seas, 1887). A staunch advocate of imperial expansion, he published this work in the hope of encouraging Japanese territorial acquisition of islands in the South Seas. He followed up *Nan'yō jiji* with *Nihon fūkeiron* 日本風景論 (On Japanese landscape) in 1894, a book that, as Kären Wigen puts it, was “salted with injunctions” to readers to climb Japanese mountains, offering itself as a manual for those who wanted to do so.³⁸ Shiga’s desire to cultivate a “mountaineering spirit” (*tozan no kifū* 登山の気風) was borne of a worldview refined in the South Seas. The natural surroundings—be they domestic or international—were filled with resources. Engaging with nature meant conquering it, exploiting it, and using its resources to further Japan’s geopolitical aspirations.

Another physically demanding scientific endeavor promoted by *Shōnen'en* was hunting. Like mountaineering, hunting lay at the nexus of manliness and science, and it drew an even more explicit association with imperial endeavor. As John M. MacKenzie notes, during the nineteenth century hunting became an ingrained part of British imperial culture, which a “largely masculine elite attempted to reserve for itself,” and which it transformed into “a ritual of prestige and dominance.”³⁹ Trophy hunting was considered “good imperial work,”

38 Wigen 2005, p. 11. Shigetaka trailed *Nihon fūkeiron* in *Shōnen'en* by publishing excerpts in the magazine.

39 Mackenzie 1997, p. 22.

not least because it was associated with the virtues of “endurance, aggression, courage, self-control and sacrifice,” and for this reason it was promoted at many British public schools and universities.⁴⁰ The perceived character-building qualities of hunting made it a mainstay of Victorian juvenile publications, and in time *Shōnen'en* began to promote hunting enthusiastically as a suitable pastime for Meiji adolescents.

Here again, it is unlikely that any of *Shōnen'en*'s proponents of hunting had much, if any, experience of the activity. Yamagata and his associates were from a generation where masculinity was primarily enacted through cerebral rather than physical pursuits. Hence we see Yamagata tying himself in knots trying to argue that hunting had long been a custom in Japan, where it had been a ritual of refinement. Though there is some truth in this assertion, the reality is that it never spread beyond a very small elite.⁴¹ Along with the exorbitant fees for a hunting license, what made hunting such a niche pursuit was that it required not just a rifle but also a four-legged companion (figure 3). *Shōnen'en* appropriated the notion of the dog as a hunting companion from the British tradition wherein “manly” breeds acted as shibboleths of the British imperial officer class. That such dogs were considered essential for hunting underscores the extent to which it was intended to be a vicarious pursuit.⁴²

In discussions of hunting, *Shōnen'en* consistently reinforced its link with science. It impressed upon readers that hunting not only required deep knowledge of the natural world, but also that it was a means of producing such knowledge. *Shōnen'en* reminded readers that it was the discoveries of the naturalist and the hunters that filled the museums and gardens of Europe's metropolises where they would be subject to the collective scientific enterprise.⁴³ In *Shōnen'en*, hunting was used as an opportunity to discuss various animals, their behaviors, and the concept of species. For example, articles on hunting educated readers about various species of birds, including wild geese, egrets, poison-feather birds, water wagtails, and winter wren. Readers were told about their flying styles, habitat, and feeding patterns.

To whet readers' appetites further for outdoor exploration, the biography section of the magazine was replete with the stories of adventurers, such as David Livingstone and Henry Morton Stanley.⁴⁴ Parroting the British narrative, the magazine argued that the spirit of adventure epitomized by these explorers lay behind the success of the British Empire: “Britons had become rich by fearlessly journeying from the poles to the tropics and claiming for themselves the riches of the lands they encountered.”⁴⁵ It was not a leap to see what lessons the British sense of adventure held for Japan. Japan, too, once had a desire for adventure,

40 Mangan and McKenzie 2010, p. 17.

41 Even after the Wildlife Hunting Law (*Chōjū ryō kisoku* 鳥獸獵規則) of 1873, hunting remained very much a niche activity as the yearly taxes levied on its practice made it prohibitively expensive. Annual permits for hunting for occupational purposes (*shokuryō* 職獵) cost one yen, whereas those for recreational hunting (*yūryō* 遊獵) cost ten yen. In 1877, for example, only 166 licences were issued. Most were to members of the imperial family, nobility, and former samurai; only nineteen were commoners. See Setoguchi 2010.

42 Skabelund 2011.

43 Contributions from officers stationed in empire increased the British Museum's wildlife collection “from zero in 1870 to 60,000 in 1890.” Mangan and McKenzie 2010, p. 4.

44 General Fukushima Yasumasa 福島安正 (1852–1919), who journeyed for fourteen months from Berlin to Vladivostok in 1892–1893, later gave *Shōnen'en* a contemporary Japanese hero to profile in its pages. His exploits provided much fodder for writers and readers, whose contributions ran the gamut from biographical profiles, songs, illustrations, and moralistic lectures.

45 *Shōnen'en* 3:29 (1890), pp. 16–21.

readers were told, but this had been “quashed by the Tokugawa Shogunate’s ban on foreign travel,” an experience that had left the lives of the Japanese impoverished like that of “an insect trapped in a well.”⁴⁶ But this was all now to change in the new era. *Shōnen’en* told readers that Japan’s future prosperity relied on their generation reviving this spirit of adventure:

Look! To the West is the goldmine of an undeveloped China. To the south are islands rich in natural resources, and to the east lies the vast expanses of the American west: go there quickly and claim these lands! By claiming them we will enrich our country.⁴⁷

The salient difference between the readers of British and Japanese juvenile magazines was that the British audiences had access to the tangible artifacts of empire through botanical and zoological gardens where imperial spoils could be assembled, classified, and displayed.⁴⁸ Readers of British juvenile magazines also knew that they were reading the exploits, undoubtedly embellished though they were, of actual officers stationed in empire. However, at a time when Japan’s imperial ambitions were as yet unrealized, *Shōnen’en* provided Japanese youth with a landscape where they could imagine themselves engaging in these adventurous hypermasculine pursuits.

Science as a Means of Personal Advancement

Yamagata did not seriously entertain the idea that he would inspire most of his young readers to don mountaineering equipment or purchase a recreational hunting license, but he hoped that the interest piqued by their vicarious endeavors would make them seriously consider science as a vocation. To contribute meaningfully to Japan’s prosperity, young readers would at some point need to apply to the real world what they learned from the pages of *Shōnen’en*. Yamagata’s zeal for science stemmed from his belief that it not only helped cultivate a self-image of brave truth-seekers among his elite middle school audience, it also underpinned the civilian technologies that would motor Japan’s progress.

Reporting on the World’s Columbian Exposition held in Chicago in 1893, *Shōnen’en* told readers that the exhibition provided evidence that the world had now entered “an age of science.” The author of the report from Chicago spoke of his awe in seeing the latest developments in machinery, which had been applied across all fields from aquaculture to mining and transportation. Science, he argued, was the ultimate basis for civilization: all of the trappings of civilized society, be they “steamships, locomotives, telegraphs, or telephones” relied on science.⁴⁹ It was now imperative that youngsters devote themselves to scientific endeavor, he argued. He noted that although Japan’s exhibits had been praised, they were seen merely as “arts and crafts,” and warned that if Japan did not seek to apply science to its industries, the country would remain a “relic.” “Building our national strength,” the author stressed, “requires the application of science.”⁵⁰

46 *Shōnen’en* 3:29 (1890), pp. 16–21.

47 *Shōnen’en* 3:29 (1890), pp. 16–21.

48 In time, Ueno Zoo would come to play such a role for Japan, becoming a “display case” for animals captured by Japanese troops during both the Sino-Japanese and Russo-Japanese wars. Miller 2013, p. 48.

49 *Shōnen’en* 11:122 (1893), pp. 1–3.

50 *Shōnen’en* 11:122 (1893), pp. 1–3.

Yamagata knew that convincing young readers to pursue science depended on his ability to align it with their personal ambitions. Appeals to youngsters to engage in science for the benefit of the nation alone would be ineffective because, despite the government's efforts, the "nation" remained far removed from their immediate concerns. *Risshin shusse* (success and advancement), the mantra of the age, had great appeal among adolescents (and was thus a frequent topic in *Shōnen'en*), who were more concerned about bringing honor to their families through success in the public sphere. However, Yamagata wanted his readers to conceive of the nation as their family, and to see science as the path to the success they so craved.

The late 1880s were a politically exciting time. Within months of *Shōnen'en*'s launch, the Imperial Constitution, the Imperial Household Law, and the Election Law were all promulgated, and there was much anticipation about the opening of the Imperial Diet, scheduled for 1890. The world of politics therefore attracted significant attention in the public sphere. For impressionable youngsters, politics was *the* field for achieving success in life and making a name for oneself.⁵¹ Science, on the other hand, suffered from its reputation as a path for those lacking in ambition.⁵² Yamagata's challenge, therefore, was to steer youngsters away from law, the study of which was a passport into politics and the government bureaucracy. Yamagata warned youngsters that politics would soon lose its luster. Politics was for their fathers and older brothers.⁵³ Moreover, he cautioned, any glory achieved in the field of politics or law would be temporary because it affected only the "surface" of society, whereas science would produce longstanding and tangible benefits for Japan. Yamagata warned that despite Japan's strides in politics, it had merely bought its material civilization and industrial knowledge from the West, a situation that was unsustainable in the long term. Japan needed science if it were to become truly independent: "If Germany had no Krupp artillery or six-sided gunpowder cases, do you think it would have the strong military it has today?" he asked, entirely confident of the answer. "If Britain had no Watt or Stephenson, do you think London would enjoy its current prosperity?"⁵⁴

Britain provided ready examples of scientists and engineers who had gained the success and glory so sought after by Japanese youngsters, and thus proved to be popular subjects for biographical profiles in the magazine. It was reported with delighted incredulity that science and engineering were bona fide paths to success and glory in Britain. In introducing Henry Bessemer (1813–1898), the magazine pointed out that his invention of a new steel-making process was considered a "meritorious deed" (*kunkō* 勲功) because it introduced enormous cost savings and was adopted widely in key technologies, such as steam engines and artillery. For this grand achievement, he had been "made an aristocrat." In Britain, the magazine

51 Shimizu 2013.

52 Yamagata noted that "many youngsters mistakenly believe that science is a land of leisure, where second-rate people engage in flânerie." *Shōnen'en* 1:7 (1889), p. 1. For discussion on the low levels of recruitment to science during mid-Meiji and Taishō periods, see Bartholomew 1989.

53 Earl Kinmonth notes that particularly "worrisome" to *Shōnen'en* was the possibility that youngsters "would become involved in politics as *sōshi* 壮士 ("stalwart youth," "bullies")" like their predecessors in the Freedom and People's Rights Movement. The magazine, he adds, "attacked the *sōshi* repeatedly, and told youth that politics was not for them." Kinmonth 1981, p. 129.

54 *Shōnen'en* 1:7 (1889), p. 3.

noted, “If one delivers great benefit to the nation,” it matters not “whether one is a poet, a writer, a blacksmith or a carpenter,” one can elevate oneself to the highest rungs of society.⁵⁵

The honors with which scientists, engineers, and industrialists were garlanded in the West made it easy for *Shōnen'en* to hold them up as role models to promote its desired values and dispositions. Subjects of biographical profiles included scientists such as Galileo and Newton, but those who had endured poverty and hardship during their youth before going on to achieve success received the most fulsome treatment, as they most fully epitomized the *risshin shusse* ideal. For example, the magazine serialized James Watt’s biography over two issues, while George Stephenson’s extended to six. The success of “poor and powerless scholars” was useful for promoting the virtue of perseverance, the lack of which Yamagata claimed was “the greatest defect of the Japanese.”⁵⁶ The feats of engineers, stressed *Shōnen'en*, showed the importance of immersing oneself in nature. Nature, readers were told, held the secrets to the century’s greatest technological feats. In *Shōnen'en*’s account, Watt was inspired by the images of crustaceans in natural history books when he designed the shape of the Monkland Canal; Isambard Brunel’s idea for his tunnel under the Thames came from examining the behavior of shipworms; and Samuel Brown’s suspension bridge was based on his observation of spider’s cobwebs.⁵⁷

The magazine also provided a valuable platform to advocate for disciplines, many of which had very little recognition, even among an elite middle-school audience. When *Shōnen'en*’s first issue was published in 1888, Tokyo University (which was renamed the Imperial University in 1886) had only been in existence for eleven years. Although its science departments had a longer history dating back to the *bakumatsu* period, many subjects taught there had only just been introduced to the modern university environment and few outside its walls were aware of their existence. Science practitioners therefore had to act as champions of their disciplines. *Shōnen'en*, whose readership comprised potential recruits, was an obvious podium. Among those who used *Shōnen'en* as a vehicle to proselytize their discipline was Ashino Keizaburō 蘆野敬三郎 (1866–1941), an astronomer who contributed over fifteen articles on his specialism. In *Shōnen'en* he argued that astronomy should rank as the most important of the sciences. Astronomers, he suggested, were “the only ones who could provide sound theories about such fundamental issues as the origins of life.”⁵⁸ But youngsters’ lack of interest in the subject had left him fearful for Japan’s future. He encouraged his audience to choose mathematics as a specialism. Unless they did so, he warned, the country would forever be a passive consumer of facts ascertained elsewhere, rather than participants in extending the boundaries of knowledge.

55 *Shōnen'en* 4:37 (1890), pp. 18–20.

56 *Shōnen'en* 2:13 (1889), pp. 1–3.

57 *Shōnen'en* 2:13 (1889), pp. 21–24. The scientists profiled were invariably male, but their stories were also useful in promoting appropriate virtues among girls. In “Garuhuan denki hakken no hanashi” ガルフアニ電気発見の話 (The story of the discovery of galvanism) (1:12, pp. 20–23) readers were told that the Italian physician and physicist Luigi Galvani (1737–1798), known for his investigations on electricity in animal tissue, was successful in opening up new areas in the study of electricity thanks to his wife. The article spoke of Mrs. Galvani’s intelligence and her love and respect for her husband, but particularly stressed her exemplary household management skills. Her husband, it explained, was able to work diligently because she supported him in whatever he needed so that he could spend night and day in his laboratory.

58 *Shōnen'en* 3:32 (1890), p. 5.

The extent to which scientists' entreaties to young readers were effective is difficult to ascertain. However, there soon arrived an event that afforded *Shōnen'en*—or perhaps the government—a welcome opportunity to convince youngsters of the power of science: the Sino-Japanese War of 1894–1895. This conflict was particularly effective for extolling the power of science—this time under the guise of military technology—because it aroused the sentiment of Japanese people in just the way that its instigators had intended.⁵⁹ It created a more bounded relationship between the individual and the nation. War heroes would become paragons of the *risshin shusse* ideal, achieving their glory through contributions to the nation. These contributions would in turn elevate Japan's international standing—and, by extension, the status of the Japanese people—through its newfound prestige as a colonial power.

The Sino-Japanese War and the Demise of *Shōnen'en*

Shōnen'en ceased publication on 18 April 1895, one day after the signing of the Treaty of Shimonoseki, which concluded the Sino-Japanese War and granted Japan its first colonial territories. In a sense, *Shōnen'en's* demise was perfectly timed. With the establishment of Japan's formal empire, there was no longer a need for the type of imaginary landscapes that the Youth's Garden provided. However, what actually precipitated the decline of the Youth's Garden as a site for vicarious adventure was the outbreak of the Sino-Japanese War in July 1894. So compelling were the reports from the warfront that the battlefield in Korea supplanted the Youth's Garden as the main site for imagined heroic pursuits.

The Sino-Japanese War had a transformative effect on childhood imagination in Japan. As Sabine Frühstück has pointed out, the war precipitated an upsurge in war games among children.⁶⁰ As every pupil was now theoretically a future soldier in Japan's conscript army, teachers and military instructors aimed to stoke enthusiasm for the war by having schoolchildren engage in choreographed war exercises. As ever, *Shōnen'en* sought to reinforce these school-based activities in the extra-curricular realm.

Military-related content featured little in *Shōnen'en* for the first five years of its existence, but with tensions brewing in Korea, there was a change in focus which was as complete as it was sudden. From the summer of 1894, *Shōnen'en* became a veritable military encyclopedia carrying articles with an astonishing amount of detail on the war effort. The first such article was in the 3 July 1894 issue, which focused on the Qing's preparedness for the war. This article detailed the Chinese army's structure and size and explained where troops were deployed, the type of training they had received, and the armaments they had at their disposal. This was followed by a torrent of war-related articles. Young readers could become not just acquainted but deeply knowledgeable about the military situation in Korea by reading articles such as "Shinkoku no hōhei" 清国の砲兵 (Qing artillery), "Shinkoku no hohei" 清国の歩兵 (Qing infantry), "Suirai no hanashi" 水雷の話 (Torpedoes), and "Kaigun heiki no shinpo" 海軍兵器の進歩 (Advances in naval artillery). They carried detailed information on the location of Qing fleets, the number of ships in each location, their tonnage, and military capacities. *Shōnen'en* wanted young readers to feel invested in the war effort. Youngsters were told that, with a war now on, all Japanese were to unite with "no

⁵⁹ Paine 2005.

⁶⁰ Frühstück 2017, p. 30.



Figure 4. Map entitled “Kaikō bōgyo ryakuzu” 海港防御略図 (Seaport defense plan) illustrating coastal defense strategies that could be employed if the Japanese coastline came under attack.

division between rich or poor or old or young.”⁶¹ To make young readers feel thoroughly embedded in the war effort, *Shōnen'en* published transcripts of speeches by various war commanders.⁶² It also carried articles explaining strategies used on the battlefield. These were sometimes accompanied by maps (figure 4) that allowed youngsters to imagine themselves as military commanders on the frontline.⁶³ These articles, which provide perhaps the most up-to-date information on the war anywhere in the public sphere, mushroomed in

61 *Shōnen'en* 12:140 (1894), p. 1.

62 Articles came from the very top of the command structure. One article, for example, was by Vice Admiral Kimotsuki Kaneyuki 肝付兼行 (1853–1922), and provided a breakdown of Japan’s naval capacity detailing the length, speed, power, and weaponry on each ship in Japan’s naval fleet. *Shōnen'en* 13:148 (1894), pp. 6–18.

63 *Shōnen'en* 13:149 (1895), p.4.



Figure 5. A photograph of Japanese sailors on the Kotaka torpedo boat, which was published in *Shōnen'en* 13:147 (1894).

length and detail, eventually monopolizing the content of *Shōnen'en*.⁶⁴ Coverage of the war dominated the content in *Shōnen'en* to such an extent that the announcement of its feature article on military technology was moved to its cover, above the magazine's nameplate.

Despite *Shōnen'en*'s impressive circulation figures, most of the population was receiving information on the war not from *Shōnen'en*, but from other mass media formats. Notable among such formats were woodblock prints, which were churned out in huge numbers during the war. These woodblock prints provided a publicly accessible record of the rise of anti-Chinese sentiment. They encouraged the dehumanization of the enemy by portraying them wounded, dead, and dying, or in cowardly flight from the onslaught of well drilled and disciplined Japanese troops.⁶⁵ The vivid descriptions of these prints made them a highly sought-after source for information on the conflict.

Not so for *Shōnen'en*. In fact *Shōnen'en* admonished those who created and sold such prints. It did not criticize them for their jingoism or for the way they dehumanized the Chinese. Rather, *Shōnen'en* accused these prints of peddling "inaccurate" and "outdated" representations of Japan's battleships. According to *Shōnen'en*, such prints were produced by charlatans who, having no knowledge of the latest technologies, based their drawings on "glimpses of steamships that pass through the Tonegawa," rather than the cutting-edge

64 The amount of detail provided in these articles, which were almost all unattributed, suggests direct government involvement or contribution. Prior to the Sino-Japanese War, legislation was enacted to prohibit the publication of information on the movement of troops, ships, military armaments, or on military strategy without the express permission of both the army and navy ministries. See Inoue 2012, p. 39.

65 Okamoto 1983.

battleships that were bringing honor to Japan.⁶⁶ The focus of the magazine's criticism is telling. *Shōnen'en* was unhappy that the prints undermined the narrative of the war that the magazine had been building, particularly once events had turned in Japan's favor: that the Sino-Japanese War was a battle of technology, and that it was one Japan was winning because of its openness to science and technology, contrasted with the enemy's closed-mindedness.⁶⁷

For this reason, *Shōnen'en* eschewed prints and instead focused on a new medium that would provide objective evidence of Japan's technological superiority: the photograph.⁶⁸ The photograph was a cutting-edge technology that had not yet become established in the periodical press, and became a means for *Shōnen'en* to demonstrate that it was the most authoritative source for information on the war. *Shōnen'en* publicized the fact that it carried "clear photographs" from the war front, and used these to reinforce its narrative of Japan's technological supremacy. The subjects of photographs included some of the most treasured possessions of the Japanese army and navy. For example, the *Kotaka* 小鷹, which at the time of its launch was the largest torpedo boat in the world, was one subject (figure 5), as was the Imperial Navy light cruiser *Tatsuta* 龍田. Photographs were sometimes presented as large foldout posters that one can imagine being used decoratively or circulated independently as objects of visual consumption.

One can sense some tension in the portrayals of China in *Shōnen'en* during the war. Yamagata's affinity for Chinese learning and his view that mastery of Chinese learning was as important as acquiring Western knowledge remained unshaken even at the height of the Sino-Japanese War. He deplored as "silly youth," those who turned their back on Chinese learning "due to excessive animosity toward Chinese." "Chinese learning is the basis of our nation's learning and should thus be studied by all learned persons," he asserted. "The importance of Chinese learning remains irrespective of China's current position."⁶⁹ Yet the magazine was not immune from the pejorative descriptions of the Chinese found in more mainstream publications. *Shōnen'en* described the Qing troops as cowards with "thin fingers and long nails," who were "disorganized and lacking in spirit," and who flee "leaving their best weapons in the streets" when subject to Japanese attack.⁷⁰ This inconsistent messaging probably resulted from the government being the source (if not the author) of much of the military coverage in *Shōnen'en* during the war.⁷¹ Indeed, it is likely that *Shōnen'en* lasted as long as it did because the government sensed its value as a propaganda outlet during the war.

66 *Shōnen'en* 12:140 (1894), p. 28.

67 At the outset of the war *Shōnen'en*'s coverage betrayed a wariness of the Qing's military might. The Qing's fleet of ships in the northern seas were said to be "formidable" and "equipped with the latest artillery from the West." Many of their crew, *Shōnen'en* warned, had visited Britain and were now "carrying out drills fastidiously." See *Shōnen'en* 11:138 (1894), pp. 5–9. However, once news of Japanese naval successes rolled in, appraisals of the Qing's war technology were abruptly revised. The Qing's ships, in turned out, were outdated and unfit for modern battles. Its ships, it was now asserted, were in fact not really battleships, but more akin to convoy. See *Shōnen'en* 12:139 (1894), p. 10.

68 Photographs became a feature of newspaper coverage after the turn of the century. Although photographs were rare in the periodical press, they were produced and were relatively popular during the Sino-Japanese War. One example was a collection of photographs, *Nishin sensō jikki* 日清戦争実記, published by Hakubunkan. On photography during the Sino-Japanese War, see Inoue 2012.

69 *Shōnen'en* 11:144 (1894), pp. 30–31.

70 *Shōnen'en* 12:140 (1894), p. 26.

71 See Paine 2005.

What does, however, clearly distinguish *Shōnen'en*'s wartime coverage from that of other outlets was its almost obsessive focus on technology. Its emphasis on accurate representation of Japan's military technology through photographs and detailed data was in keeping with its self-image as a publication for future elites.

It is not possible to predict whether *Shōnen'en*'s coverage would have continued in this militaristic vein after the war, but we do know that the mania for military themes was a feature of many juvenile magazines that succeed *Shōnen'en*. However, these magazines, of which *Bōken sekai* 冒険世界 (Adventure world) was the most popular, tended to focus significantly less on technology, preferring to push a more overtly jingoistic narrative through serialized pro-war adventure stories. In *Shōnen'en*'s case, its focus on war was not a departure, but rather the conclusion of efforts to align Japanese youngsters' ambitions as imperial subjects with the pursuit of science and technology.

Conclusion

The science writer and translator, Yamagata Teisaburō, amply understood that science could be mobilized to advance the government's aim of creating loyal imperial subjects. It was to this end through *Shōnen'en* he fashioned an imaginary landscape in which youngsters could engage in scientific endeavor. Careful not to trespass on the government's territory of formal education, Yamagata focused on the extracurricular realm. His aim was not only to promote study outside the classroom, but also to make the area outside the classroom an object of study. Youngsters were encouraged to immerse themselves in nature, learning its secrets and, in so doing, developing key dispositions such as stoicism, bravery, and self-control, which were expected of Japan's future elite.

Magazines are in the business of selling aspiration, and so it should not be surprising that the activities *Shōnen'en* promoted were unlikely to be copied by its readers. What is notable, however, is the extent to which the aspirational models in *Shōnen'en* borrowed from the British idea that the heroic adventures of imperial officers were integral to the scientific enterprise. Notably, these British models were not intended to supplant traditional Japanese markers of masculinity. Indeed, there was some defensiveness on Yamagata's part about the extent to which his chosen model was a foreign one. He was keen to draw parallels between the culture of the British imperial officer class and that of the samurai, even where such links were tenuous, to show that the traits he valued so highly were part of the Japanese tradition. It is for this reason that he was also keen to remind his young male readers that Chinese learning remained the bedrock of their intellectual tradition. By combining Japanese, Chinese, and Western traditions, Yamagata mirrored the ethos of the Imperial Rescript on Education. The appeal of the British imperial officer model was the ease with which it could be integrated into existing Japanese ideas about masculinity and the mania for personal advancement. Some years ago, the science historian Steven Shapin memorably asked why is it that science "travel[s] with what seems to be unique efficiency."⁷² The case of *Shōnen'en* perhaps provides some clues. For Yamagata, the link that the British elite drew between physical fitness and intellectual endeavor suggested that science was not simply about "fact-gathering and technique" as its detractors implied. Rather, the pursuit of a heroic science spoke to priorities of youth, who saw it as a vehicle for personal advancement,

72 Shapin 1998, p. 7.

and educators such as Yamagata, for whom it was an effective means of cultivating the dispositions desired in the ideal imperial subject.

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