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Beyond Technological Failure: Reassessing Qing Military Reform and Operational Defeat in the First Sino-Japanese War, 1894–1895

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ABSTRACT

Qing China's defeat in the First Sino-Japanese War (1894–1895) is often used to illustrate the shortcomings of the Self-Strengthening Movement. Yet the outcome of a war is an unreliable measure of everything achieved by a preceding reform programme. From the 1860s, Qing officials developed arsenals, shipyards, technical education and modern naval forces. This article asks why those capabilities did not secure victory against Meiji Japan. It uses a structured comparison of the campaigns at Pyongyang, the Yalu River and Weihaiwei, informed by established scholarship on Qing military reform, naval development and Japanese strategy. Three explanations are assessed: material and technological limitations, institutional and operational constraints, and Japanese strategic effectiveness. The analysis finds that the explanatory balance differed across the cases. Land-force coordination, the employment of modern fleets and the defence of naval infrastructure posed distinct challenges. The article's contribution is a bounded comparative interpretation, not a claim to new archival discovery. It argues that the reforms generated meaningful but uneven capabilities, while defeat resulted from the interaction of those capabilities with institutional arrangements, campaign conditions and Japanese military action. This interpretation avoids both dismissing Self-Strengthening as meaningless and treating the presence of modern equipment as proof of effective military power.

Keywords: *Qing dynasty; Self-Strengthening Movement; First Sino-Japanese War; military modernisation; Beiyang Fleet; historical methodology; Meiji Japan*

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1. Introduction

The First Sino-Japanese War transformed political relations in East Asia. Fought primarily over competing interests in Korea, the conflict ended with a Japanese victory and the Treaty of Shimonoseki in April 1895. Qing China lost its position as the dominant external power in Korea and faced territorial, diplomatic and financial consequences. The result encouraged criticism of Qing institutions and strengthened arguments for further reform. Yet its significance has sometimes encouraged an overly simple historical narrative: Japan modernised successfully, whereas China merely acquired foreign weapons and therefore failed.

This interpretation is unsatisfactory for two reasons. First, Qing officials had undertaken substantial changes before the war. They founded military industries, built and purchased warships, established specialist schools and attempted to improve the organisation of armed forces. These achievements cannot be dismissed simply because they did not produce victory in 1895. Second, Japan was an active opponent, not a neutral test of Chinese reform. Japanese leaders made strategic choices, mobilised resources and conducted operations that shaped the conflict. An explanation focused

only on Chinese deficiencies cannot adequately account for Japanese success.

The issue is not whether the Qing military system had weaknesses. It plainly did. The issue is how those weaknesses affected particular campaigns and whether they were the principal causes of defeat. A shortage of ammunition, for example, is relevant only if the shortage can be documented and connected to battlefield performance. Regional command arrangements matter when they can be shown to impede cooperation, not merely because regional commands existed. Likewise, possession of a modern battleship establishes a technological capability, but not necessarily a trained and sustainable naval organisation.

This article asks: why did the military capabilities developed during the Self-Strengthening Movement prove insufficient in the First Sino-Japanese War? It examines three distinct operational settings: land warfare at Pyongyang in September 1894, naval combat at the Yalu River later that month, and the defence of the naval base at Weihaiwei in early 1895. These cases are compared using three explanations: incomplete material modernisation, limitations in military organisation and employment, and Japanese strategic and operational advantages.

2. Historical background: reform in an uneven empire

Self-Strengthening emerged from the political and military emergencies of the nineteenth century. Foreign intervention and major rebellions exposed limitations in Qing defence and administration. Officials involved in suppressing internal rebellions acquired experience in raising armies, financing campaigns and managing regional military organisations. Reform initiatives subsequently combined immediate security concerns with a longer-term interest in foreign technology and industrial capacity.

The movement was not a unified national programme directed by one central ministry. Prominent officials, including Zeng Guofan, Li Hongzhang and Zuo Zongtang, pursued projects in different regions and under different political circumstances. The Jiangnan Arsenal, established in Shanghai in 1865, and the Fuzhou Navy Yard, founded in 1866, became prominent centres of military production and technical education. Naval institutions and modern vessels developed alongside these industrial projects. Such enterprises required trained workers, foreign expertise, translations, administrative support and sustained funding. They therefore represented institutional developments, not merely purchases of imported goods.

Nevertheless, reform proceeded unevenly. Some formations benefited from modern equipment and instruction, while others retained older organisational practices. Naval development was divided among regional fleets with differing resources and priorities. Central political authority continued to operate through existing structures even as new technical institutions appeared. These characteristics created possibilities for both innovation and coordination problems. Regional initiative had helped the Qing state survive earlier crises. It cannot automatically be condemned as dysfunctional simply because later international warfare imposed different demands.

The distinction between internal and external war is especially important. Campaigns against rebellion could be sustained through regional recruitment, local knowledge and adaptable command relationships. War against Japan required rapid mobilisation across a maritime theatre, cooperation between army and navy, secure transport routes and the protection of coastal bases. Institutions effective in one context might prove inadequate in another. Liu and Smith (1980) provide the wider setting for understanding the development of late Qing military arrangements, while Rawlinson (1967) traces the longer trajectory of naval reform.

The Qing state thus entered the war with a mixed military inheritance. It had acquired modern weapons and established new technical institutions, but the extent to which these changes had been integrated into reliable national operations varied. That unevenness is a starting condition for analysis, not a complete explanation of the result.

3. Historiography and the problem of originality

Older accounts often portrayed the war as the decisive exposure of a superficial reform movement. On this reading, Qing officials adopted foreign machines while failing to transform the institutions needed to use them. This interpretation captures an important tension between technology and organisation, but it can also become circular: reform is said to have failed because China lost, and China is said to have lost because reform failed.

Fung (1996) offers an important corrective by examining the Qing army rather than assuming that defeat proves the absence of military improvement. His analysis requires historians to ask what reforms actually achieved and to distinguish between military formations. Elman (2004) similarly questions the tendency to interpret the Beiyang Fleet's defeat as a general failure of Chinese science and technology. His article examines how naval warfare became part of a larger narrative about national backwardness. These arguments are central to the present study. They also mean that acknowledging Qing technological achievements is not, by itself, an original contribution.

Rawlinson (1967) supplies an extended history of naval development, including the institutional challenges of training and maintaining a fleet. Paine (2002) places the war within diplomatic perceptions and the changing regional balance of power. Lone (1994) examines Japan's army and society during the conflict, broadening the discussion beyond the deficiencies of the Qing military. Bruce Elleman's later study of the modern

Chinese navy provides another perspective on the development and operational employment of Chinese naval forces (Elleman, 2019). These works do not answer identical questions. Their differences are useful because a satisfactory explanation must connect institutions, operational choices and international strategy without collapsing them into one category.

This article's contribution is consequently limited and specific. It does not announce the discovery that institutions matter, nor does it claim that previous historians neglected Japanese military effectiveness. Instead, it uses a consistent comparative structure to ask whether the same explanations fit three different operational settings. A land battle, a fleet engagement and the defence of a naval base involve different military tasks. If a proposed cause cannot be connected to the demands of a particular task, it should not be treated as a demonstrated explanation.

The article also distinguishes explanatory plausibility from evidentiary sufficiency. Claims about corruption, inadequate shells or incompetent officers may be plausible and widely repeated, but their causal weight cannot be established without examining the underlying documents. This approach does not remove uncertainty. It makes uncertainty visible, which is essential in a critical historiographical study. The resulting interpretation aims to be useful precisely because it resists a single decisive diagnosis.

4. Method and source limitations

The study uses structured, focused comparison of three campaigns within the same war. Case selection is purposive rather than representative. Pyongyang was chosen as a major land engagement, the Yalu River as a naval battle involving modern fleets, and Weihaiwei as a campaign in which a fleet's survival depended on the defence of a harbour and surrounding positions. The shared political setting permits comparison, while the different operational environments help reveal whether explanations change across cases.

Four questions guide each case. What material capabilities did Qing forces possess? What institutions supported those capabilities through command, training, supply and maintenance? How were capabilities employed in the engagement? What did Japanese forces do, and how did wider strategic circumstances affect the outcome? Three rival explanations are assessed: technological insufficiency, institutional or operational weakness, and Japanese strategic effectiveness. These are not mutually exclusive hypotheses. Their purpose is to prevent one factor from being assumed to explain every result.

The evidentiary foundation is principally published historical scholarship, supplemented by verified descriptions of archival collections and one accessible diplomatic dispatch. The Japan Center for Asian Historical Records (JACAR) offers catalogued Japanese documents concerning the war, including references C06061833000 and C08040463000 relating to intelligence and planning before the fighting at Pyongyang, and material associated with the Yalu and Weihaiwei campaigns. Identification of an archival record is not equivalent to reading, translating and corroborating its contents. Consequently, archival descriptions are used here only to identify potentially relevant contemporary perspectives. They are not presented as newly analysed primary-source findings.

This distinction is especially important for military intelligence. An estimate of enemy numbers records what a reporting officer believed or communicated. It does not establish the actual strength of the enemy. Similarly, a victorious commander's report may omit uncertainty or interpret events in ways favourable to the reporting institution. Chinese memorials and correspondence may contain their own forms of justification and selective reporting. Reliable reconstruction requires comparison across provenance, language and purpose.

The source base can be strengthened through identifiable primary-source collections. Mutsu Munemitsu’s Kenkenroku, written by Japan’s wartime foreign minister, provides a first-person diplomatic account of the war and peace negotiations; an English translation edited by Gordon Mark Berger appeared in 1982 (Mutsu, 1982). Japan’s National Diet Library identifies the work and its drafts as important sources for Japanese diplomacy (National Diet Library, n.d.). Mutsu’s narrative is not a neutral account of Chinese or Korean motives and should be read alongside diplomatic correspondence and opposing records. JACAR also catalogues operational reports and combat diaries in its Sino-Japanese War collections (JACAR, n.d.-b).

Li Hongzhang’s memorials and correspondence would offer a crucial Qing counterpart, particularly on fleet administration, command authority, financing and diplomatic decisions. No specific Li document has been directly examined for this revision, so the article does not attribute quotations or detailed factual findings to his writings. Similarly, the reviewer’s reference to a Japanese Foreign Ministry document dated 10 January 1894 should be treated as a research lead until its archival identifier, text and relevance are verified. This approach avoids turning an unverified archival lead into a purported primary-source finding.

The analysis therefore distinguishes three levels of claim. Broadly established events, such as the sequence of major defeats, are described using historical scholarship. Interpretive claims, such as the importance of fleet readiness, are attributed to the historiography and assessed against alternatives. Claims requiring unexamined primary evidence, such as precise financial diversions or ammunition shortages, are treated as unresolved. The article does not use a numerical scoring system to rank causes, since the available evidence would not justify such precision.

5. What Self-Strengthening achieved

An assessment of failure must begin with an account of achievement. Qing reformers recognised that military power increasingly depended on industrial production, specialised technical knowledge and new forms of training. The Jiangnan Arsenal and Fuzhou Navy Yard were institutional responses to those demands. Their importance extended beyond the manufacture of particular weapons or vessels. They created settings in which translation, engineering, instruction and administration became connected to military policy.

Naval reform was especially visible. The Beiyang Fleet included modern vessels, notably the heavily armoured Dingyuan and Zhenyuan. These ships represented considerable expenditure and access to advanced naval technology. Their acquisition makes it inaccurate to describe the Chinese fleet as uniformly obsolete. It also demonstrates that some Qing officials were willing to commit significant resources to maritime defence. Rawlinson (1967) and Elman (2004) show why these developments must be included in any judgement about the movement.

Material capability, however, was only one element of fighting power. A ship's technical characteristics did not determine whether its crew had sufficient practice, whether suitable ammunition was available, whether its machinery could be maintained or whether it could cooperate effectively with other vessels. Likewise, the existence of an arsenal did not establish that supplies could reach a distant army when needed. The challenge was to sustain and employ the capabilities created by reform.

This distinction should not be reduced to the claim that technology was unimportant. Technology shaped what forces could do. Armour, weapons, propulsion and industrial production all affected military possibilities. The point is that material characteristics worked through institutions and decisions. A modern fleet could be tactically disadvantaged, and a well-equipped army could fail to coordinate its formations. Conversely, institutional competence could not eliminate every disadvantage in equipment or geography.

The achievements of Self-Strengthening were also unevenly distributed. Different military organisations developed at different rates, with varying resources and objectives. A modernised unit did not imply a modernised army. Nor did an advanced northern fleet establish the same capabilities in every coastal region. Such variation makes sweeping descriptions of Qing military strength misleading.

The fairest preliminary conclusion is that the movement created meaningful but incomplete military transformation. It developed capabilities that would have been unavailable without reform, while leaving unresolved questions about their integration and sustained wartime use. The war tested those capabilities under conditions more demanding than the mere existence of equipment or institutions could demonstrate.

6. Pyongyang: uneven land forces under operational pressure

The fighting at Pyongyang in September 1894 took place within the struggle for control of Korea. Qing forces occupied defensive positions while Japanese troops advanced against them. The eventual Chinese withdrawal became an important Japanese success and weakened the Qing position on the peninsula. The engagement is often cited as evidence of the shortcomings of China's army, but the causes require more careful separation.

The technological explanation begins with differences in equipment and training among Qing formations. Some units had benefited from earlier reform, while others possessed different organisational backgrounds. This unevenness matters because effective defence required troops to use weapons, communicate orders and respond to changing battlefield conditions. Yet variation alone cannot establish that technological deficiencies determined the result. An account must identify which units were disadvantaged, how that disadvantage appeared during the battle and whether alternative actions were feasible.

The institutional explanation focuses on coordination. Regional military traditions and command relationships could complicate cooperation among formations assembled for a campaign outside their normal areas of operation. Defensive success depended on maintaining positions, moving reserves, sharing information and responding to attacks from different directions. These are plausible points of vulnerability. Nevertheless, the claim that fragmented command caused defeat requires evidence of particular failures rather than an inference from the general structure of the Qing military. Fung (1996) is especially relevant because he resists treating all Chinese land forces as uniformly ineffective.

Leadership and combatant motivation require separate attention. The operational problem was not simply that regional formations possessed different weapons, but that commanders had to communicate orders, establish confidence across unfamiliar units, coordinate withdrawals and maintain discipline under attack. Differences in officers' experience, command authority and assessments of the situation could affect the ability to hold a defensive line. Morale and convictions among soldiers also mattered, although the present published-source comparison cannot establish their relative contribution at Pyongyang. Contemporary Qing dispatches and Japanese intelligence reports would be necessary to distinguish reported desertion, tactical withdrawal and later claims about deficient fighting spirit. Such claims should not be treated as evidence of an inherent national or cultural disposition.

Japanese leadership must be assessed with equal care. Meiji military reorganisation placed greater emphasis on formal staff work, standardised training and coordinated expeditionary operations, but the existence of these arrangements does not by itself prove that every Japanese decision was effective. Lone (1994) provides a basis for examining the army's mobilisation and institutional setting. The appropriate comparative test is whether particular command decisions and troop movements at Pyongyang can be corroborated across contemporary accounts.

Japanese military agency supplies a third part of the explanation. Japanese commanders chose the timing and direction of offensive operations, assembled forces and responded to the defenders. Japanese archival catalogues identify pre-battle intelligence reporting and strategic planning material, showing that the campaign occurred within an active process of information gathering and military preparation. The intelligence itself must be critically assessed. A reported estimate of Chinese troop strength is evidence of Japanese perception, not a verified census of defenders.

Pyongyang therefore provides limited but important support for an institutional interpretation. It highlights the demands of coordinating heterogeneous forces in a defensive operation. At the same time, the evidence does not justify a conclusion that coordination alone explains the result. Japanese offensive action and the wider Korean campaign shaped the circumstances of the battle. The case demonstrates why the operational use of military capabilities deserves separate study from the acquisition of those capabilities.

A stronger archival account would compare Qing orders and after-action correspondence with Japanese operational records, then reconstruct the sequence of decisions that affected the defence. Without that work, the most defensible conclusion is qualified: uneven military development may have reduced the reliability of Qing coordination, while Japanese action contributed directly to the defeat.

7. Yalu River: modern ships and the limits of technological explanation

The naval Battle of the Yalu River on 17 September 1894 is central to debates over Self-Strengthening because it involved modern fleets. The Beiyang Fleet included the heavily armoured Dingyuan and Zhenyuan, vessels that embodied major Qing investment in contemporary naval technology. The Japanese fleet possessed different combinations of speed, weapons and manoeuvring characteristics. Chinese losses were severe, but the battle was not a simple encounter between modern Japanese ships and wholly antiquated Chinese ones.

A technological explanation must therefore be precise. The presence of heavy armour did not make a vessel superior in every dimension. Speed, rate of fire, gun arrangements, ammunition characteristics and the condition of equipment could produce different advantages during combat. The relative value of these characteristics depended on the range and pattern of engagement, the tactical decisions made and the condition of crews and vessels. Historians should avoid turning one characteristic, such as armour, into a general measure of naval effectiveness.

The institutional explanation concerns readiness and coordination. Fleet operations required training, gunnery practice, signalling, maintenance, command and reliable supplies. Weakness in any of these areas could reduce the usefulness of expensive ships. Yet particular claims about shortages or defective ammunition have often circulated in simplified form. The article does not treat such claims as decisive without direct documentary corroboration. It instead asks how different historians weigh evidence concerning material readiness and tactical employment.

Elman (2004) is important because he examines the transformation of a naval defeat into a broader narrative of technological failure. His argument cautions against judging the whole Self-Strengthening project by the outcome of one engagement. Rawlinson (1967) provides a longer account of naval development, while Elleman (2019) situates the Beiyang experience within the history of the modern Chinese navy. Their perspectives encourage analysis of naval institutions and combat without assuming that technical acquisition or tactical shortcomings tell the whole story.

Japanese naval modernisation provides an essential comparison. Meiji Japan did not simply purchase newer vessels: its navy developed training practices, officer education, command arrangements and tactical concepts through sustained engagement with foreign naval expertise. In the Yalu battle, the potential advantages of speed, manoeuvre and concentrated fire depended on crews and commanders applying those capabilities in combat. This comparison shifts attention from ship specifications alone to the interaction between doctrine, training and execution. It would nevertheless be too strong to infer a uniform Japanese doctrinal advantage from the battle outcome without analysing orders, fleet manoeuvres and gunnery records (Lone, 1994; Rawlinson, 1967).

The Japanese naval record is accessible for further study through the Japan Center for Asian Historical Records (JACAR), whose digitised holdings include Meiji-era Navy Ministry documents and operational records of the First Sino-Japanese War (JACAR, n.d.-a). These holdings can be used to test claims about training and operational practice, but the present study does not claim to have translated or systematically analysed individual naval files.

Japanese operational choices also mattered. A battle is a contest between forces acting against one another. The Japanese fleet's movement, concentration of fire and responses to Chinese ships must be included in any explanation. A Chinese disadvantage becomes historically

significant when it can be connected to the opponent's ability to exploit it. The battle should therefore be studied as an interaction between two fleets, not as a static comparison of inventories.

The Yalu engagement supports a distinction between technological development and battlefield effectiveness. The Beiyang Fleet was a genuine achievement of reform, yet its existence did not guarantee successful combat. This is not a contradiction. It is precisely why the outcome cannot serve as a comprehensive measure of the movement's achievements. At the same time, recognising those achievements must not obscure the actual losses or the possibility that weaknesses in readiness and tactical employment contributed to them.

The case thus provides strong grounds for rejecting technological backwardness as a sufficient explanation. It does not, on the evidence reviewed here, establish a definitive ranking of ammunition, training, command and Japanese tactics. That ranking requires closer examination of original reports and specialist debates.

8. Weihaiwei: naval power depends on a defended base

The Weihaiwei campaign in early 1895 exposed a different aspect of Qing military vulnerability. By that stage, the Beiyang Fleet had already suffered substantial losses. The remaining vessels depended on a protected harbour, coastal fortifications and supporting land positions. Japanese operations against the area progressively undermined the security of that defensive system. The campaign ended with the collapse of the remaining principal northern naval force.

The importance of Weihaiwei lies in the relationship between different forms of military capability. A warship's armour and guns were useful only within conditions that allowed it to operate. A naval base provided shelter, repair opportunities and support, while coastal artillery and land troops helped protect the harbour. These elements were interdependent. The loss of key land positions could expose ships to threats that their technical design alone could not overcome.

This does not mean that the defeat proves the absence of institutional integration. It means that the effectiveness of the defence depended on successful coordination across land and maritime functions. The appropriate historical questions concern the disposition of defensive positions, the sequence of Japanese attacks, the decisions of Qing commanders and the resources available for resistance. Any conclusion about command failures must be tied to that sequence rather than inferred from the outcome.

Japanese military action is especially visible in this case. Operations against the surrounding positions changed the circumstances facing the fleet. The Japanese did not simply wait for Qing institutions to fail. They attacked vulnerabilities in the defensive arrangement. A balanced explanation must therefore consider the choices of the attackers alongside the limitations of the defenders.

Weihaiwei differs from the Yalu River in an important respect. At Yalu, historians examine the performance of ships in a fleet engagement. At Weihaiwei, the central problem is the survival of naval power when its supporting base and land defences are threatened. The difference demonstrates why the presence of modern vessels is an inadequate measure of strategic effectiveness. A fleet may be formidable at sea yet vulnerable when deprived of a secure operating environment.

The case also warns against treating every defeat as evidence of one enduring cultural or administrative weakness. Military circumstances changed during the war. Earlier losses affected the resources available later, while Japanese advances altered the strategic options open to Qing commanders. The campaign therefore cannot be understood without chronology. Its outcome was conditioned both by the prior course of the conflict and by decisions taken during the siege and naval operations.

9. Cross-case comparison: what the three defeats can establish

The cases show that different military tasks exposed different vulnerabilities. Pyongyang required land formations to cooperate in a contested defensive operation. The Yalu River required modern warships and crews to operate effectively against an opposing fleet. Weihaiwei required land defences and naval forces to sustain a shared defensive position. A single explanation cannot be assumed to have identical force in all three settings.

The technological explanation is weakest when stated as a general claim that Qing forces lacked modern equipment. Modern weapons and vessels existed, and the reforms had created significant industrial capabilities. Yet specific material disadvantages may still have mattered. The proper task is to identify them at the level of each engagement. At Yalu, differences in ship characteristics and armament are central questions. At Pyongyang, the distribution of weapons among formations is relevant. At Weihaiwei, the condition and protection of supporting infrastructure matter alongside naval equipment.

The institutional explanation has broader reach but risks becoming vague. Training, maintenance, command and logistics were necessary in all three cases, yet necessity does not establish that their shortcomings were decisive. To become a historical explanation, an institutional claim must specify a mechanism: a delayed reinforcement, a failed communication, an unavailable supply, an unsupported position or a decision that could not be implemented. Without such detail, the claim describes the conditions of modern warfare rather than the cause of a particular defeat.

The Japanese strategic explanation is indispensable because the outcomes were produced through conflict. Japanese forces made choices that shaped where, when and how Qing capabilities were tested. The importance of Japanese action differs by case: land operations at Pyongyang, naval tactics at Yalu, and combined pressure on a fortified base at Weihaiwei. This variation reinforces the need for case-specific analysis rather than a fixed hierarchy of causes.

The three explanations also interact. A technical limitation might become decisive only because an opponent chose a particular tactic. A command arrangement might be adequate in routine conditions but fail under rapid operational pressure. A fortified base might remain secure until land positions were lost. These interactions are more historically plausible than a narrative in which one permanent weakness mechanically produced every defeat.

The comparison therefore yields a bounded conclusion. The Self-Strengthening Movement produced military resources whose effectiveness was conditional on institutional support and operational circumstances. It does not establish the exact relative weight of every factor. Nor does it prove that alternative decisions would have reversed the outcome. Such counterfactual claims would require much stronger evidence. The contribution is to clarify which explanations need to be tested and to prevent broad historical judgements from outrunning the evidence.

9.1. Leadership, belief and source interpretation across the cases

The three engagements also expose the limits of a purely organisational account. Leadership was exercised by particular officers, whose authority, judgement and willingness to adapt may have shaped operational outcomes. Combatants' convictions, confidence and perceptions of the enemy could affect cohesion. Yet descriptions of courage or incompetence are especially vulnerable to hindsight and partisan reporting. Future research should distinguish orders and observable actions from retrospective moral judgements. The same standard must apply to Japanese and Qing commanders. Neither effective leadership nor poor morale should be inferred simply from victory or defeat.

10. Korea, strategy and the danger of a China-only narrative

The war cannot be understood solely as an examination of Qing military institutions. Korea was central to the conflict's origins and conduct. Chinese and Japanese political interests intersected with Korean domestic developments, and decisions about intervention took place within a changing regional order. Paine (2002) places the war within these broader diplomatic and strategic relationships. A focus restricted to Qing military deficiencies risks treating Korea merely as a battlefield and overlooking the political context that shaped the decisions of both states.

Japanese reform after 1868 also changed the conditions of regional competition. The Meiji state developed military organisations and pursued strategies that differed from those of Qing China. Lone (1994) shows that the war involved Japanese military mobilisation and society, not just the technical performance of particular units. These developments help explain why the conflict cannot be reduced to a simple inventory of Chinese institutional weaknesses.

The war's chronology is equally important. Pyongyang and the Yalu engagement occurred in September 1894, while Weihaiwei followed in early 1895. Later campaigns were fought after earlier setbacks had changed the strategic situation. The loss of positions and damage to forces reduced the options available to commanders. Explanations should therefore account for accumulated pressure rather than treating each engagement as an isolated experiment under identical conditions.

This wider context does not make Qing institutions irrelevant. It places them within the conditions they actually faced. Reform achievements could be significant while still insufficient against a rival whose military planning and strategic opportunities were changing. Recognising this relationship produces a more historically grounded interpretation than judging either state solely by the final result.

10.1. Port Arthur and the ethics of operational history

The capture of Port Arthur (Lüshunkou) on 21 November 1894 and the killings that followed must be acknowledged in any broader discussion of Japanese operations. The event complicates narratives that equate Japanese military effectiveness with unqualified professional or moral superiority. In a dispatch dated 20 December 1894, United States minister Edwin Dun reported allegations about violence after the capture and reproduced Japanese explanations contesting aspects of those reports (United States Department of State, 1895, document no. 88). The dispatch is valuable not because it resolves every disputed detail or casualty estimate, but because it preserves competing contemporary representations and the diplomatic stakes of the allegations. The present article does not independently determine the number of victims or duration of the killings. A full treatment requires triangulation with eyewitness accounts, Chinese materials and Japanese records.

Port Arthur was not one of the three cases selected for structured comparison. It is included here as a necessary contextual qualification: explaining battlefield performance and evaluating conduct toward civilians are distinct historical tasks. Japanese success in military operations cannot excuse atrocities, while evidence of atrocities does not itself settle the causal question of why Qing forces lost at Pyongyang, Yalu or Weihaiwei.

11. Discussion: how should historians judge reform?

The Self-Strengthening Movement presents a problem of historical evaluation. If reform is judged only by whether Qing China defeated Japan in 1894–1895, the answer is straightforward: it did not. But this measure tells us little about the scale of industrial development, technical education or military change achieved during the preceding decades. It also overlooks the fact that war outcomes depend on opponents and circumstances beyond the reform programme itself.

A more useful assessment distinguishes achievements, limitations and outcomes. Achievements concern what new capabilities and institutions were created. Limitations concern the constraints under which those capabilities operated. Outcomes concern what happened when those capabilities were used in particular conflicts. These categories are connected, but evidence in one category cannot substitute automatically for evidence in another.

The distinction helps avoid two interpretive errors. The first is retrospective inevitability: because China lost, every weakness identified before the war is treated as a cause of defeat. The second is retrospective rehabilitation: because reform achieved meaningful technical progress, the severity of the defeat is explained away as accidental or wholly attributable to Japanese advantages. Neither position is persuasive. The Qing military system suffered consequential weaknesses, but those weaknesses must be demonstrated rather than assumed. Japanese forces also earned their victories through operations that require explanation.

The article's comparative analysis suggests that the most productive historical question is not whether China had modern technology. It is whether particular capabilities were sufficiently supported and appropriately employed for the tasks demanded by the conflict. At Pyongyang, the question concerns coordinated land defence. At Yalu, it concerns fleet combat. At Weihaiwei, it concerns an integrated defensive position. The different answers show why broad judgements about national modernity are too blunt to explain specific military events.

There are implications for the study of late Qing political change. The war intensified criticism of established institutions and contributed to demands for further reform. Yet the institutions created during Self-Strengthening remained part of the historical transformation of the Qing state. Their achievements and shortcomings should be investigated together. Acknowledging that the movement was incomplete is different from asserting that it was meaningless.

The present interpretation is deliberately modest about causal certainty. It offers a structured comparison grounded in specialist scholarship, but it does not claim that the available evidence permits a definitive ranking of all causes. A fuller study would examine Qing memorials, military correspondence, financial accounts and Japanese operational records in their original languages. It would also compare contemporary accounts with later nationalist narratives that may have simplified the war's meaning. These steps would allow historians to determine more precisely when institutional constraints became operational failures.

Such caution is not a weakness of historical analysis. It is a condition of credible explanation. A strong argument should make clear what the evidence supports, what remains disputed and what new material would change the conclusion.

12. Conclusion

Qing China's defeat in the First Sino-Japanese War did not demonstrate that the Self-Strengthening Movement had produced no meaningful military achievements. The movement established important industrial, educational and naval capabilities. Those developments were uneven, but they altered the resources available to the Qing state and formed part of a substantial nineteenth-century transformation.

The comparison of Pyongyang, the Yalu River and Weihaiwei shows why these achievements did not guarantee success. Each campaign imposed different operational demands. Land-force coordination, naval combat effectiveness and the defence of military infrastructure cannot be explained through an identical sequence of causes. Material limitations, institutional arrangements and Japanese operational action interacted differently in each case.

The article therefore rejects both a simple technological failure narrative and an unqualified rehabilitation of Qing reform. It argues instead that the historical significance of Self-Strengthening lies in the capabilities it created and the limits of their wartime employment. Defeat reveals that the system did not achieve its strategic objectives, but it does not identify every cause of failure or erase earlier achievements.

This comparative interpretation is intended as a contribution to historiographical clarification. More comprehensive Chinese and Japanese primary-source research is needed before the relative importance of disputed financial, command and logistical factors can be established. The central conclusion remains: military modernisation must be assessed through its institutions, operational conditions and opponents, not through the final outcome alone.

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