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Colonialism and Science in China: A Critical Reframing of Modern Scientific Historiography

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ABSTRACT

For a long time, the historiography of modern science and technology in China has primarily centered on national salvation and autonomous construction, emphasizing the formation of a modern scientific system under foreign oppression and highlighting the agency of anti-colonial resistance. However, as global scholarship has increasingly explored the dynamics of colonial science, a colonial perspective—framed by imperial expansion—has gradually emerged, attempting to incorporate foreign-led scientific practices into broader narratives of global science. This study, while fully recognizing the proactive development of science in China, critically introduces the theoretical lens of colonizing science, pointing out that current Western academic discourse remains largely rooted in Euro-American experiences, with East Asia historically marginalized and imbalances persisting between narratives of the colonizers and the colonized. Drawing on both domestic and international scholarship, and using the Institute of Scientific Research of the puppet state of Manchukuo as a core case study, this research examines the institutional operation of colonizing science in the Japanese-occupied Manchurian region and its impact on local knowledge systems. It emphasizes that knowledge production within asymmetrical power structures is not a matter of unilateral imposition, but rather a complex process shaped by coercion, conflict, and limited interaction. By expanding existing trajectories in the history of science, this study seeks to offer a research framework grounded in the lived experiences of developing countries, thereby confronting epistemic injustice and historical erasure embedded in prevailing colonial narratives.

Keywords: *History of modern science in China, Colonial perspective, The Institute of Scientific Research of the Puppet State of Manchukuo, Colonial science in East Asia.*

1. INTRODUCTION

The development of modern science and technology in China has long been interpreted within the framework of national rejuvenation and the modernization process. Since the Self-Strengthening Movement (Yangwu Yundong) of the late 19th century, discourses such as “Chinese learning as essence, Western learning for practical use” (中学为体，西学为用) and “saving the nation through science” (科学救国) have constructed a scientific narrative centered on national autonomy and cultural subjectivity. This narrative emphasizes China’s reactive strategies and internal reconstruction in the face of military, economic, and cultural oppression from Western imperial powers. It highlights the efforts of Chinese intellectuals and reformers to employ science as a tool for national strength and social transformation during times of crisis. This perspective has not only dominated historical scholarship within China but has also served, to some extent, the historiographical need to legitimize “science” as a key component of modern nation-state building.

However, while this dominant historiographical narrative has contributed to the construction of national subjectivity, it has also obscured another equally significant historical reality: the development of scientific activities led or heavily influenced by foreign powers under imperialist aggression and colonial control. In modern China, science was not only a tool for national revitalization, but also a mechanism of governance and a technical rationale embedded within colonial rule. Scientific practices initiated or orchestrated by colonial regimes—often overlooked as “enemy operations” in nationalist historiography—

nonetheless produced institutional structures, knowledge systems, and technological outputs that inevitably shaped the early forms and later trajectories of China's scientific development.

Since the late 20th century, Western academia has increasingly turned its attention to what is termed "colonial science," emphasizing the role of science within broader systems of imperial domination. This shift has challenged earlier narratives centered on science's internal logic and instead situated it within the political and economic frameworks of colonial expansion. Colonial science in French, Dutch, and German overseas territories—particularly in Africa, Southeast Asia, and the Americas—has provided rich empirical material and theoretical insights. Yet, such frameworks largely center on Euro-American empires and devote limited attention to East Asia. In particular, Japan's colonial scientific practices in China remain underexplored. Furthermore, these studies often fail to fully engage with the experiences, perspectives, and responses of the colonized. The discursive power in shaping the history of colonial knowledge production has thus remained predominantly in the hands of imperial powers and their academic successors.

Against this backdrop, this study introduces a colonial perspective to re-examine the developmental trajectory of modern science and technology in China. It argues that the establishment of scientific institutions was not always a product of autonomous national construction, but in some cases, the outcome of external imposition, hybridization, and friction under colonial domination. Using the Institute of Scientific Research under the puppet state of Manchukuo as a core case—alongside comparative references to the Shanghai Institute of Natural Sciences and the Central Laboratory—the research explores how knowledge regimes were entangled with asymmetric power structures. It seeks to address key questions: How were scientific institutions established under colonial conditions? Whose interests did they serve? And how did they shape the trajectory of local scientific development? Through these inquiries, the study aims to deepen the understanding of the pluralistic paths of scientific development in China and to provide a framework for rethinking the political embeddedness and historical contingency of science itself.

2. TRADITIONAL HISTORIOGRAPHY: MAINSTREAM NARRATIVES IN THE HISTORY OF MODERN SCIENCE IN CHINA

The dominant narrative of modern Chinese scientific and technological development has long revolved around themes such as self-transformation, science for national salvation, and national modernization. While this narrative has effectively shaped a discourse centered on national subjectivity, it also emphasizes a linear evolution in which science was transformed from a foreign import into a domesticated institution. This framework has significantly influenced subsequent understandings and evaluations of China's scientific development.

2.1 Periodization and the Event-centered Framework

Most scholars divide the history of modern science in China into several stages, with major historical events serving as key markers. This yields a gradualist model of scientific progression. For instance, Yang Decai proposes a three-stage division: from the Self-Strengthening Movement to the 1911 Revolution, characterized by the initial introduction and partial integration of Western science; from the establishment of the Science Society of China to 1927, marked by the rise of scientific associations and the expansion of science dissemination; and from the founding of the Academia Sinica to 1949, representing the institutionalization of research and a significant enhancement in professionalization.[1]

This periodization highlights China's transition from passive reception to active assimilation of scientific knowledge, with "agency" seen as a core characteristic throughout the modernization process.

Similarly, Dong Guangbi, from the perspective of knowledge systems, outlines a tripartite model of the modernization of traditional Chinese science: introduction, integration, and institutionalization. Western missionaries initially introduced basic science, which was later transformed through engineering applications during the Self-Strengthening Movement, and eventually institutionalized in the context of the New Culture Movement and the Academia Sinica system.[2]

This transformation logic frames the development of science in China as a process of sustained advancement and internal consolidation,

emphasizing the interplay between cultural systems and technical systems. Such historiographical frameworks help construct a temporal index for understanding China's scientific modernization, and they reflect the Chinese academic community's strong emphasis on self-construction. However, they tend to understate the role of external structural pressures and the technological penetration brought by colonial powers, resulting in a relatively limited engagement with the colonial context of scientific development.

2.2 Construction of Scientific Institutions and Localization Efforts

In mainstream narratives of China's modern scientific development, the institutionalization of science is often regarded as a key indicator of modernization and autonomy. Scholars have widely identified the interaction between academic societies, research institutions, and national policy as crucial to assessing the degree of scientific institutionalization. Historian Fan Hongye proposed that two essential features define scientific institutionalization: the emergence of a scientific community and the broad societal recognition of science's functions and values.[3] Following this framework, the Chinese Science Society (Zhongguo Kexue She) has been recognized as a foundational organization for scientific development, while the establishment of the Academia Sinica in 1928 represented a more mature stage in which scientific institutions became embedded within national governance structures.Zhang Jian and others argue that the Chinese Science Society underwent a strategic shift from "science for national salvation" to "science for nation-building," not only enhancing science popularization but also laying the groundwork for state-led scientific planning and institutional architecture.[4]

Similarly, Zuo Yuhe[5] and Qiu Longhu[6] conducted comparative studies of academic institution models in Britain, France, and the Soviet Union. They suggest that, despite its early stage of development, China's academic system had begun to establish a nascent but distinct local framework for scientific research. These studies highlight the institutional autonomy and organic evolution of China's scientific infrastructure as a key dimension of modernization. However, they often understate the structural pressures imposed by external forces, especially in semi-colonial regions such as the northeast and coastal areas. In these contexts, certain scientific institutions were either established under colonial influence or shaped by imperialist agendas, raising important questions about the balance between autonomy and coercion in China's scientific modernization.

2.3 Scientific Communities and the Practice of Knowledge

As both executors and drivers of institutional change, scientists represent a vital subject in the historiography of modern science in China. From early roles as "knowledge transporters" to the emergence of independent research capabilities, the evolution of scientific actors profoundly shaped the trajectory of science dissemination and institutional development.

Scholars such as Lu Yong[7], Zhang Jian[8], and Jiang Daoping[9] have noted that members of the Chinese Science Society initially consisted primarily of overseas students or young scholars. Although these individuals held strong ideals, they lacked original research capacity in the early stages and focused mainly on translation, dissemination, and teaching.

Over time, as institutions such as the Institute of Biology and meteorological observatories were established, a new generation of scientists with autonomous research capabilities began to emerge. Figures like Zhu Kezhen[10], often regarded as the founding father of modern meteorology in China, and Hu Xiansu[11], a pioneer in modern botany, played crucial roles in establishing localized scientific disciplines.

Their work not only reflected localized knowledge production, but also revealed the tensions between individual agency and institutional frameworks. These scientists were simultaneously products of the emerging institutional order and active participants in reshaping that order. Their professional development depended heavily on the extent to which Chinese society accepted and supported scientific endeavors, while they also navigated external pressures, institutional instability, and limited resources.

3. INTERNATIONAL THEORIES: COLONIAL SCIENCE AND ITS LIMITATIONS

Since the late 20th century, international scholarship has increasingly recognized that science

is not merely a neutral and universal body of knowledge, but is often deeply embedded within structures of imperial expansion and colonial governance. Within this context, the concept of "Colonial Science"[1] emerged as a critical lens in the history of science, particularly within Euro-American academic discourse where it has generated a relatively coherent theoretical framework.

However, much of this literature has focused on colonial experiences in Africa, South Asia, and Latin America, offering limited engagement with the complex colonial configurations and knowledge practices in East Asia. Moreover, many of these studies have been authored by scholars from the former colonial powers or their academic descendants, raising issues of epistemological asymmetry and positional bias in the interpretation of historical narratives.

3.1 Theoretical Frameworks for "Colonial Science"

American historian of science Lewis Pyenson is often credited with introducing the concept of colonial science. Through comparative analysis of colonial scientific institutions established by Germany, the Netherlands, and France, Pyenson outlined three dominant models of scientific activity in imperial settings:

- The German model emphasized the dissemination of higher education and pure science overseas. Scientific knowledge functioned primarily as a tool for cultural export and technical influence, with limited direct application to colonial governance (Pyenson, 1985)[12].
- The Dutch model highlighted science driven by private economic interests, where research activities were often embedded in commercial capital and agricultural production (Pyenson, 1989)[13].
- The French model was characterized by a centrally planned bureaucratic system in which scientific personnel circulated between the metropole and the colonies, forming a cyclical structure of "knowledge production–colonial governance–reabsorption" into domestic institutions (Pyenson, 1993)[14].

Pyenson's work underscored the institutional embeddedness and power dynamics of colonial science, providing a foundational framework for understanding the role of scientific activity within imperial expansion. However, his approach also reflects a distinct Eurocentric bias, implicitly assuming that scientific authority resided exclusively in the imperial centers, with colonies reduced to sites of experimentation and data extraction.

3.2 The Invisibility of East Asian Experience and the Theoretical Misalignment

Within the current theoretical frameworks of colonial science, the experiences of East Asia—particularly China and Korea—have been largely marginalized. Most studies have concentrated on colonial contexts such as British India, French North Africa, or Latin America, constructing interpretive models based on a binary opposition between the colonizer and the indigenous subject. However, this dualistic lens fails to adequately explain Japan's role as an “Eastern empire” conducting scientific activities in semi-colonial China, nor does it account for the complexities of scientific institution-building under a semi-colonial and semi-feudal structure, or the variegated responses from local actors.

Postcolonial scholars such as Kapil Raj have attempted to introduce more nuanced concepts like “knowledge interaction” and “reciprocal cooperation” (Raj, 2000)[15], emphasizing the dynamic co-production of knowledge between colonizers and colonized. Yet these discussions often remain grounded in a paradigm of “institutional maturity leading to institutional extension,” overlooking the tensions between colonial domination and local scientific agency. For

1. The term “Colonial Science” lacks a universally accepted definition. Notably, Lewis Pyenson did not explicitly use this term in his first book of the cultural imperialism series, Cultural Imperialism and Exact Sciences: German Expansion Overseas. In that volume, Pyenson focused more broadly on the role of science and technology in imperial projects, framing the discussion under "cultural imperialism" and tracing the distinction between "imperialism" and "colonialism"—emphasizing that a metropole must possess imperial characteristics for such analysis. In his subsequent works, Empire of Reason: Exact Sciences in Indonesia, 1840-1940 and Civilizing Mission: Exact Sciences and French Overseas Expansion, 1830-1940, Pyenson began to employ the term "colonial science" in varied contexts, though still without a precise definition. Compared to the first book, the later volumes reflect a broader application of the term, more aligned with contemporary interpretations. This study, therefore, adopts a practical and commonly accepted understanding of colonial science: science and technology developed by imperialist states in support of territorial expansion and colonial domination.

example, while British India did see the emergence of so-called "vernacular sciences," it remains questionable whether such outcomes truly transcended the epistemic hierarchies and structural constraints of the colonial framework.

French scholar James E. McClellan III, in his study of the French Caribbean colony Saint-Domingue, proposed a more flexible triangular model linking colonialism, science, and the state, arguing that scientific activities often originated from the needs of colonial governance while simultaneously reinforcing the authority of the metropole (McClellan, 2010*)*[16]. While this model offers useful insights for analyzing the scientific practices of anomalous regimes like Manchukuo, it still requires significant adaptation when applied to China's unique historical and political context.

3.3 Critical Responses from Developing Countries: Decolonization and Historical Reframing

Faced with the theoretical limitations and geographical biases of existing colonial science discourse, scholars from developing countries and formerly colonized regions have increasingly recognized the need for critical theoretical responses. This response does not reject the value of Western scholarship per se, but rather highlights its structural biases and the unilateral nature of its historical narratives.

Research in the history of science from these regions should move in several key directions:

- Shifting from being "objects of research" to becoming producers of knowledge, thereby asserting agency in narrating their own scientific development and institutional trajectories.
- Highlighting the oppressive consequences of colonial science, including the exploitation of resources, the appropriation of knowledge, and the imposition of externally dependent institutional models—rather than merely emphasizing the "universality" of science.
- Exposing the strategic and political logic embedded within colonial scientific projects, particularly those intertwined with military, industrial, and administrative agendas.

Against this backdrop, the present research advocates for a framework rooted in the specific experiences of China, drawing upon the perspective of developing countries and formerly colonized regions. It aims to reconstruct the historiography of science and technology in modern China in a way that challenges Western-centric narratives. This endeavor is not merely a supplement to existing colonial science theory but serves as an act of intellectual reclamation—one that asserts epistemic sovereignty and defends both scientific autonomy and historical justice.

4. KNOWLEDGE PENETRATION AND INSTITUTIONAL DEPLOYMENT: A LANDSCAPE OF FOREIGN SCIENTIFIC ACTIVITIES IN CHINA

From the late 19th century to the first half of the 20th century, as imperialist powers deepened their influence in China, various foreign nations established scientific institutions across Chinese territory. These institutions reveal how external knowledge systems were institutionally embedded within China and how local scientific actors sought to navigate paths of survival and development amid oppression and confrontation.

4.1 Observational Institutions Established by Western Powers: Knowledge Collection and Symbols of Authority

The Qingdao Observatory and the Xujiahui Observatory stand as representative examples of Western-established scientific institutions in China. Their functions extended far beyond basic research in astronomy, geography, or meteorology. The primary objective behind Germany's establishment of the Qingdao Observatory was to support naval deployments and commercial navigation through geophysical data collection and analysis.[17]

As key nodes in the production of scientific knowledge, these observatories generated data that not only advanced natural sciences but also directly served the strategic objectives of imperial expansion—including navigational precision, weather forecasting, and survey engineering.The Xujiahui Observatory, established by French Jesuits, represented a different mode of knowledge transfer—one that combined religious, cultural, and scientific outreach.While the scientific practices and standards adhered closely to European norms, the institutional status of the observatory remained ambiguous—neither a full colonial administrative body nor a truly indigenous Chinese organization. This "semi-official, semi-cultural" institutional

configuration allowed Western scientific knowledge to continue permeating local contexts, even during periods of political instability.

Wu Yan points out that the relationship between European science and local knowledge in this context amounted to a "semi-voluntary, semi-coerced" form of cooperation. This collaboration was not grounded in equality or mutual benefit but was rather a reactive adaptation under colonial pressure. Although China acquired certain technical competencies through such encounters, its role in the overall production of scientific knowledge remained subordinate.[18]

4.2 Japan's Colonial Scientific Institutions: Strategic Integration and Regional Penetration

Unlike Western colonial powers, Japan's scientific presence in China reflected a more deliberate and integrated colonial strategy. The construction of its scientific institutions was closely tied to broader geopolitical objectives, including the colonial administration of the Japanese-occupied Manchurian region and the total war effort against China.

One of the earliest examples was the Central Laboratory of the South Manchuria Railway Company, which began as a resource survey unit and gradually expanded into a comprehensive research institution involved in industrial design, chemical development, and agricultural experiments. This institution embodied a tightly linked structure of "colonialism–development–technology–warfare." As noted by Liang Bo and Chen Fan, the Central Laboratory demonstrated the essence of "technological imperialism," with its scientific output directly serving Japan's military machine and colonial governance apparatus.[19]

Another prominent example was the Institute of Natural Sciences in Shanghai, which on the surface promoted Sino-Japanese academic cooperation and cultural exchange, but in reality functioned as part of Japan's "soft domination" strategy. Although the institute initially included Chinese representatives and claimed to respect the opinions of the Chinese intellectual elite, the actual governance structure increasingly marginalized Chinese participation. Scholar Yamane Yukio points out that the co-drafted institutional charter was largely ignored in practice, and Japanese researchers eventually assumed full control over the institute's operations.[20]

Nevertheless, the Shanghai Institute provided limited research opportunities for some Chinese scholars. As noted by Liang Bo and Zhai Wenbao, despite functioning within a wartime colonial structure, the institute played a transitional role in sustaining academic exchange between Chinese and foreign scientists, and offered a modest platform for postwar scientific reconstruction in China.[21]

4.3 Reconstructing Institutional Forms and Epistemic Spaces

The establishment of scientific institutions by foreign powers in China was not merely an extension of colonial administrative systems—it also served to reshape China's epistemic landscape and institutional configurations. This reconstruction was deeply embedded in the broader project of colonial domination, with scientific infrastructure acting as both a symbolic and functional mechanism of control.

- Institutional transplantation and adaptation: Most of these institutions were modeled after scientific organizations in the colonizing countries. For instance, some Japanese-run institutions mirrored the structure of the RIKEN (Institute of Physical and Chemical Research), introducing a rigid hierarchy within scientific operations that marginalized local actors.
- Strategic disciplinary orientation: Research agendas were predominantly focused on disciplines that directly served colonial economic interests—such as geography, mineralogy, agriculture, and meteorology—while foundational sciences and the humanities were systematically downplayed or excluded.
- Hierarchical composition of personnel: Foreign scientists occupied dominant positions in these institutions, while Chinese researchers were often relegated to subordinate roles as assistants or translators. The absence of research leadership and academic autonomy among Chinese scholars further entrenched asymmetrical power relations.

These institutional arrangements were not neutral academic choices. Rather, they were deliberate configurations shaped by the political logic of colonial governance. As such, they exemplify the structural entanglement between science and imperial power, where knowledge

production was harnessed as a tool of domination, exclusion, and selective development.

5. CASE STUDY: THE INSTITUTIONAL LOGIC OF COLONIAL SCIENCE IN THE INSTITUTE OF SCIENTIFIC RESEARCH, PUPPET STATE OF MANCHUKUO

The Institute of Scientific Research in the puppet state of Manchukuo was one of the most representative and systematically organized colonial scientific institutions established by Imperial Japan in China. From its foundation to its organizational structure and research operations, the Institute embodied the institutional logic of Japanese militarist science under a broader imperialist agenda. While it formally adopted many characteristics of a "modern scientific research institution," its essential nature was inseparable from the colonial system of aggression and expansion.

Established in March 1935 in Changchun, the Institute was founded at a critical intersection of historical trajectories: on the one hand, it coincided with Japan's intensified militarism and the emergence of a technocratic national science system; on the other, it marked the transition of Manchukuo (a puppet regime created by Imperial Japan) from a provisional colonial administration to a more systematic apparatus for resource extraction and institutional development. The creation of the Institute was not only a response to the need for scientific data collection and natural resource surveys within the Japanese-occupied Manchurian region, but also an instrument for exporting Japanese scientific institutions into occupied territories.

5.1 Organizational Structure and Research Agenda: Institutionalizing Colonizing Science

From its inception, the Institute of Scientific Research of the Puppet State of Manchukuo was imbued with a strong colonial character. Its institutional design and mission were heavily influenced by Japan's domestic science and technology framework. According to Kawamura Yutaka, the organizational structure of the Institute drew partial inspiration from models such as the Kaiser Wilhelm Society in Germany and the Soviet Academy of Sciences.[22]

The Institute's research agenda was determined by the Interdisciplinary Science Coordination Committee, whose members were largely composed of bureaucrats from both Imperial Japan and the puppet Manchukuo authorities. Research activities at the Institute were centered on the exploitation of resources in the Japanese-occupied Manchurian region. These projects were tightly aligned with Japan's colonial policy. Specifically, from the very outset, the Institute launched systematic surveys of mineral, forest, and soil resources in the region, aimed at supplying raw materials to Japanese industries.

5.2 Scientific Personnel and the Dual Structural Environment

The scientific staff of the Institute of Scientific Research of the Puppet State of Manchukuo primarily came from two sources. One group consisted of scholars dispatched from mainland Japan, most of whom possessed formal academic training and maintained close scholarly ties with Japanese universities and research institutions. The other group was composed of employees from the South Manchuria Railway Company and technical personnel working in various departments of the puppet state of Manchukuo.

For these researchers, Manchukuo did not represent a conventional "scientific platform," but rather a hybridized space situated between colonial technocracy and professional academia. These individuals functioned both as enforcers of institutional directives and as producers of scientific knowledge. Their activities formed a mediating mechanism through which colonizing science was implemented in the Japanese-occupied Manchurian region.

5.3 Scientific Personnel and the Dual Structural Environment

Although the Institute of Scientific Research of the puppet state of Manchukuo was nominally established as a scientific research institution, its mission and activities often extended far beyond the conventional boundaries of academic inquiry. In practice, the following distortions were evident:

- Several research projects directly served military demands, colonial governance, or the exploitation of local resources, rather than advancing scientific knowledge.
- The Interdisciplinary Science Coordination Committee, intended as a scientific

advisory body, effectively became a mechanism of administrative control. Research directions and agendas were dominated by officials of the puppet regime, severely restricting scientific autonomy.

- Some scientific achievements were locally applied, but the resources developed or the products generated were largely transported to Japan, reinforcing extractive colonial relations.

This institutional distortion echoes the discrepancies observed in other Japanese-operated scientific bodies, such as the gap between the idealized charter of the Shanghai Institute of Natural Sciences and its real-world function. Such cases reveal that, while colonial science institutions often mimicked the formal structures of legitimate research bodies, their scientific integrity, public orientation, and service functions were systematically subordinated to the broader logic of colonial domination.

6. CONCLUSION

A review of the dominant approaches in Chinese science and technology historiography reveals that while the emphasis on "scientific autonomy" remains crucial, existing scholarship often overlooks how foreign-led scientific institutions intervened in China's knowledge systems and served broader colonial agendas. In contrast, international research on colonial science has provided valuable new theoretical frameworks, particularly through studies of German, French, and Dutch models. However, these theories are largely constructed from the perspective of Western colonial powers and fail to account for the complex sociopolitical realities of East Asia—especially China's semi-colonial and semi-feudal conditions.

By focusing on the Institute of Scientific Research under the puppet state of Manchukuo, this study examined how scientific activities were strategically designed and institutionalized as part of Japan's broader colonial machinery in Northeast China. Through an analysis of institutional design, research agendas, and knowledge production, this case enriches comparative studies of colonial science and foregrounds the political role science played under colonial structures. More importantly, the study adopts the perspective of the oppressed, arguing that colonizing science was not merely a one-way transmission of knowledge, but rather a manifestation of imperial control within the epistemic domain.

To this end, the research introduces an analytical framework of "system–practice disjunction," uncovering internal contradictions in the operation of colonial scientific institutions—especially the tension between scientific discourse and power hierarchies. It also attempts to interweave the dynamics of scientific institutionalization with broader national strategies, colonial policies, and academic networks, in order to establish a more multidimensional methodology for science historiography in developing countries. This approach not only challenges Eurocentric assumptions embedded in colonial science theories but also injects new layers of complexity and contextual depth into the study of China's path toward scientific modernization.

Looking ahead, future research on the history of science in China must continue to advance a systematic critique of colonizing science while working toward a theoretical framework grounded in the lived experiences of developing nations. In this emerging paradigm, China must be recognized not only as a passive recipient of scientific knowledge but also as an active contributor and shaper of global science historiography. Such a reorientation is essential not only for academic integrity, but also for reclaiming national historical memory and reaffirming cultural and epistemological sovereignty.

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