

Jawaharlal Nehru Pioneering India's Scientific Progress

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Abstract

Science develops in response to a society's demands and socioeconomic and political systems and is dependent on government funding and policy-making assistance. The Indian National Congress (INC) established a "National Planning Committee" in 1939, inviting experts from India to join. In 1943, prominent Indian scientists, including M.N. Saha, J.C. Ghosh, and S.S. Bhatnagar, demanded that post-war scientific research be organised with serious consideration. The National Planning Committee was formed in 1937 under the direction of Jawaharlal Nehru, and twenty-nine expert subcommittees were established to handle various aspects of the country's rebuilding.

The Indian National Congress manifesto declared that science has always influenced human behavior and will continue to do so in the future. Scientists like P.C. Ray, C.V. Raman, Saha, S.N. Bose, Bhatnagar, and Homi J. Bhaba made efforts to establish a professional scientific community in India and register their presence in the global scientific arena. The Council of Scientific and Industrial Research (CSIR) was established to advance industry-focused research at Bhatnagar's request.

India's first physical laboratory was established in 1947, and the Tata Institute for Fundamental Research (TIFR) was founded in 1942. Bhatnagar and Bhaba preferred to establish centers of excellence in cutting-edge scientific research, particularly in universities or research facilities. On the occasion of the Indian Science Congress' silver jubilee, Nehru reversed the previous

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division between science and society by declaring that "the future belongs to science and to those who make friends with science and seek its help for the advancement of humanity."

In 1944, the Royal Society's Biological Secretary, Hill, travelled to India to provide guidance and an update on the condition of scientific research. He made economic issues a top priority, covering topics such as natural resources, food, health, and population. Defence research and development efforts were made to make India self-sufficient in its defence requirements.

India's Planning Commission developed a sophisticated procedure for creating plan schemes for its five-year plans, which involved state governments and central ministries organizing working groups with experts from diverse sectors. The first five-year plan focused on building new facilities to support industrial and scientific research, with 22 national laboratories founded between 1948 and 1958. The Atomic Energy Commission supported research in nuclear physics and areas related to the development and production of atomic energy for commercial and industrial uses.

India was the first nation to establish a Ministry of Scientific Research and Natural Resources in 1951 to plan and oversee scientific research for the advancement of the nation. Prime Minister Nehru emphasized the role of science and technology in development, and the Indian Parliament adopted a Scientific Policy Resolution in 1958. This resolution outlined strategies and tactics for advancing the nation's economic growth, including creating artificial intelligence through science and technology.

The second five-year plan highlighted initiative, as variables other than social, economic, and political values influenced the level of involvement and support for research. However, there were disadvantages to the evolutionary scientific research system, and collaboration between industry and institutions must be prioritized more. Nehru's commitment and that of scientists like Bhaba led to the introduction of a scientific policy resolution in Parliament, demonstrating the government's desire to promote research and technology for the greater good.

Keywords: National Planning Committee, Council of Scientific and Industrial Research (CSIR), Atomic Energy Commission, Collaborative Research, Scientific Community

Introduction

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Congress (INC) established a "National Planning Committee" in 1939, inviting experts from India to join. In 1943, prominent Indian scientists, including M.N. Saha, J.C. Ghosh, and S.S. Bhatnagar, demanded that post-war scientific research be organized with serious consideration. The National Planning Committee was formed in 1937 under the direction of Jawaharlal Nehru, and twenty-nine expert subcommittees were established to handle various aspects of the country's rebuilding.

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The second five-year plan highlighted initiative, as variables other than social, economic, and political values influenced the level of involvement and support for research. However, there were disadvantages to the evolutionary scientific research system, and collaboration between industry and institutions must be prioritized more. Nehru's commitment and scientists like Bhabha led to the introduction of a scientific policy resolution in Parliament, demonstrating the government's desire to promote research and technology for the greater good.

Nehru's approach to the advancement of science and technology raised scientists' awareness of social issues and fostered social responsibility and passion within the scientific community.

Related Literature

Exploring the historical context and the scientific progress during Jawaharlal Nehru's era involves examining various facets.

1. "Jawaharlal Nehru: A Biography" by Sarvepalli Gopal: This biography delves into Nehru's life, including his contributions to India's scientific advancements and his vision for a modern India.
2. "The Discovery of India" by Jawaharlal Nehru: In Nehru's own words, this book provides a comprehensive view of India's history, culture, and scientific progress from ancient times to the colonial period.
3. "Jawaharlal Nehru and the Making of Modern India" by Mridula Mukherjee: This book analyzes Nehru's leadership and his role in shaping India's scientific policies, industrialization, and education system.
4. "India After Gandhi: The History of the World's Largest Democracy" by Ramachandra Guha: While not solely focused on Nehru, this book covers India's history post-independence, including its scientific and technological developments, offering context to Nehru's contributions.
5. "The Legacy of Nehru: A Memorial Tribute" edited by G. Parthasarathi: This collection of essays discusses Nehru's legacy in various fields, including science and technology.

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6."Science and Modern India: An Institutional History, c.1784-1947" by David Arnold: Although it covers the pre-independence period, this book provides insights into the historical development of science in India, setting the stage for Nehru's era.

Remember, while these books can provide valuable insights into Nehru's contributions to India's scientific progress, cross-referencing various sources and perspectives often gives a more comprehensive understanding of historical events and figures.

Objectives of the study:

Understanding the Interplay of Science and Society: Analyze how scientific development in India has been shaped by societal demands, political systems, and governmental support. Highlight the reciprocal relationship between scientific advancements and societal needs.

Exploration of Governmental Influence on Scientific Growth: Investigate the impact of governmental policies, especially those initiated by figures like Jawaharlal Nehru, on the trajectory of scientific research and development in India. Discuss the significance of bodies like the National Planning Committee and the Ministry of Scientific Research and Natural Resources.

Role of Key Figures in Shaping Scientific Landscape: Highlight the contributions and visions of eminent scientists like M.N. Saha, J.C. Ghosh, S.S. Bhatnagar, C.V. Raman, S.N. Bose, and Homi J. Bhaba in establishing a robust scientific community in India and positioning it on the global scientific stage.

Institutional Development and Science Education: Discuss the establishment of key scientific institutions like the Council of Scientific and Industrial Research (CSIR), Tata Institute for Fundamental Research (TIFR), and the proliferation of national laboratories. Assess the impact of these institutions on fostering scientific research and education.

Government Policy on Scientific Growth: Analyze the evolution of government policies concerning scientific research, such as the Scientific Policy Resolution of 1958. Evaluate the strategies laid out in these policies and their influence on economic growth and technological innovation.

Challenges and Opportunities in Collaborations: Discuss the challenges faced in fostering collaboration between the scientific community and industries for mutual growth. Evaluate the

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importance of strengthening this relationship for sustainable scientific and economic development.

Social Responsibility in Science: Examine Nehru's approach to linking scientific progress with social responsibility. Assess how this approach impacted scientific endeavors and the broader societal outlook towards science and technology.

These objectives could serve as a framework to delve deeper into the intricate relationship between science, government, society, and the influential figures driving India's scientific growth during the mid-20th century.

Significance of the study:

The significance of this article lies in multiple dimensions:

Historical Context of Science and Governance: It provides a detailed historical narrative of how science in India evolved in tandem with governance structures, highlighting the critical role of the Indian National Congress, particularly Jawaharlal Nehru's influence, in fostering scientific development post-independence.

Pioneering Scientific Institutions: It showcases the establishment of pivotal scientific institutions like the Council of Scientific and Industrial Research (CSIR), Tata Institute for Fundamental Research (TIFR), and the first physical laboratory in India. These institutions laid the groundwork for scientific research and education in the country.

Nehru's Vision and Impact: Nehru's vision for science and technology emerges as a driving force in shaping national policies and institutions. His emphasis on science's role in societal advancement and his efforts to bridge the gap between science and society significantly impacted India's scientific landscape.

Governmental Initiatives and Policies: The article outlines the concerted efforts of the Indian government, especially through the Planning Commission and subsequent five-year plans, in allocating resources and establishing national laboratories, highlighting the intersection of government policy and scientific progress.

Integration of Science and Social Responsibility: It emphasizes the shift in perspectives brought about by Nehru, stressing the importance of science not only in technological advancement but also in addressing social issues. This integration of science with social responsibility became a hallmark of scientific progress in India.

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Collaboration and Challenges: The article acknowledges the need for enhanced collaboration between industry and scientific institutions, signaling the challenges faced in aligning research priorities with industrial needs, paving the way for future discussions on collaboration strategies.

Overall, the article illustrates how science, society, and governance intersected in post-independence India, offering insights into the development of scientific institutions, policies, and the evolving role of science in societal progress.

Science develops in response to the demands of a given society as well as the socioeconomic and political systems in place. It is not an autonomous process. Modern civilizations are still in the process of institutionalizing science and technology, and this process is largely dependent on the kind of funding and policy-making assistance the government provides. Any government can achieve all-around or sustainable development primarily through the distribution of resources, investments in key areas, and implementation of certain research and development (R&D) outcomes for economic development.

The three primary players in the planning of scientific research are legislators, administrators, and scientists. They determine the direction that development should go. The Indian National Congress (INC) established a "National Planning Committee" in 1939 and invited experts from India to join. In 1943, prominent Indian scientists, including M.N. Saha, J.C. Ghosh, and S.S. Bhatnagar, demanded that post-war scientific research in India be organised with serious consideration. A definitive strategy on science and technology should be developed, they demanded, and they were keen to study the latest advancements in science and technology (including lessons learned from the Second World War). Perhaps the earliest attempt to make Indians "plan-conscious" was Visvesvaraya's *Reconstructing India* (1920). *Planned Economy for India*, written by him in 1934 G. D. Birla, a well-known businessman and Gandhian, begged for planning in the same year. However, it was Saha who persuaded the political elite at home of its importance. He convinced Congress President Subhas Chandra Bose to form the National Planning Committee (NPC) in 1937. Under the direction of the aspirant politician Jawaharlal Nehru, this came to pass at the close of 1938. Twenty-nine expert subcommittees were established to handle various aspects of the country's rebuilding, such as afforestation, agriculture, industries, population, labor, irrigation, energy, communication, and housing. The planning process's scope and usefulness astounded Nehru. He wrote: It was impossible to

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isolate anything or make success in one area without also making progress in another since one thing led to another. The more we considered this planning business, the wider its scope became, to the point that it appeared to cover nearly all activities.

The manifesto of the Indian National Congress was issued in 1945, which declared that science has always influenced human behavior and will continue to do so to a much greater extent in the future. It is essential for national security as well as for the advancement of industry, agriculture, and culture. Therefore, organizing and promoting scientific research on the largest possible scale is crucial for the state, as it is a fundamental activity." S.S. Bhatnagar served as the board chairman when the Board of Scientific and Industrial Research was founded in 1939. Before independence, there existed a propensity in the Indian scientific community to advance research along national lines for the pride of the country, with the idea being that economic self-sufficiency would pave the way for freedom. Scientists like P.C. Ray, C.V. Raman, Saha, S.N. Bose, Bhatnagar, and Homi J. Bhaba undoubtedly made an effort to establish a professional scientific community in India as well as to register their presence in the global scientific arena. The Council of Scientific and Industrial Research (CSIR) was established to advance industry-focused research at Bhatnagar's request. With Tata's assistance, Bhaba founded the Tata Institute for Fundamental Research (TIFR), which was at the forefront of scientific research in India. Saha and Bhaba identified the two main issues affecting India's future development as the attainment of "self-reliance" and the sources of electricity generation. 1947 saw the establishment of India's first physical laboratory. TIFR facilitated the arrival of the atomic energy establishment in Trombay. India was among the first nations to acknowledge the significance of nuclear energy for the advancement of socioeconomic conditions. Under the direction of Bhaba, the nuclear physicist and head of the Indian government's Department of Scientific Research, the government of India established an atomic energy commission with the goal of developing nuclear energy for peaceful uses. The end outcome was the construction of Trombay, Asia's first nuclear reactor. While many Indian scientists and technicians worked to find solutions, their approaches varied. Ray recognized the cure in Charkha and Swadeshi. Visvesvaraya urged the use of Indian money and enterprise to accelerate industrialization. Saha pushed for the application of the "scientific method" to all facets of national life. The preference of Bhatnagar and Bhaba was to establish centers of excellence in cutting-edge scientific research, particularly in universities or research facilities.

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Under the auspices of the CSIR, Bhatnagar was to establish a network of laboratories in 1942. Bhabha contributed more to independent India, and was a pioneer in nuclear technology. He perceived energy from the regulated release of fission, but Saha perceived power from India's vast rivers. On the occasion of the Indian Science Congress' silver jubilee, Nehru, who was known for his support of science and his expeditious industrialization of the nation, reversed the previous division between science and society by declaring that "the future belongs to science and to those who make friends with science and seek its help for the advancement of humanity." In order to provide guidance and provide an update on the condition of scientific research, Hill, the Royal Society's Biological Secretary, traveled to India early in 1944. In addition to writing to almost fifty other Indian experts, Hill enjoyed a close personal relationship with Bhatnagar. Having no political beliefs when he arrived in India, Hill immediately made economic issues a top priority. Ten topics he covered included natural resources, food, health, and population. He saw population, health, nutrition, and agriculture as "a complex of biological ones [referring to population, health, and agriculture all acting and reacting with each other]" as the core issues facing India, rather than ones that were fundamentally physical, chemical, or technological. Population control was given the utmost importance in his report. Krishna Menon, the nation's first autonomous minister of defense, led defence research and development. In order to eventually make India self-sufficient in its defense requirements, a number of efforts were made to boost the country's potential for producing defense equipment. IITs, IISc, TIFR, and research institutes under CSIR are the four types of institutions that emerged after independence. These were all research-focused schools, training 'young men of the finest intellectual caliber in the community' to approach and evaluate issues 'with a freshness of view and inventiveness' that is not readily found everywhere. They may be referred to as the original class of institutions that conducted research with a mission. In contrast, Bhabha stated that a sizable number of colleges were to serve as hubs for "pure and large-range research." They comprise the second category. Research on defense equipment development was the third category. Through direct government intervention, these institutions were funded. With independence, India's Planning Commission developed a sophisticated procedure for creating plan schemes for its five-year plans. The Planning Commission always asks state governments and several central ministries to organize working groups with experts from diverse sectors to develop plans and projects for the next plan, around two years before

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the current one expires. Throughout the initial five-year plan CSIR received the most money possible for scientific research. Under the direction of CSIR, 22 national laboratories were founded between 1948 and 1958. 1950 is known as the "year of the CSIR laboratories." Since the country gained its independence, more focus has been placed on building new facilities to support industrial and scientific research. The First Five-Year Plan's creation of a nationwide network of national laboratories and research institutes in various locations was the most important development in this field. These include the Central Drug Research Institute in Lucknow, the Central Road Research Institution in Delhi, the Central Building Research Institution in Roorkee, the Central Leather Research Institution in Madras, the Central Electro-Chemical Research Institution in Karaikudi, and the National Physical Laboratory in New Delhi, Poona, Jamshedpur, the Fuel Research Institution in Jealgora, and the Central Food Technological Research Institution in Mysore. In addition to these labs and research facilities, the CSIR also helped to advance basic and applied research in a number of other institutions and universities by, among other things, organizing conferences and symposiums, surveying specific resources periodically, advising industry on particular issues, and so forth. The Atomic Energy Commission (India) supported research in nuclear physics and areas related to the development and production of atomic energy for commercial and industrial uses. These initiatives were developed in the laboratories of the commission in addition to those of other universities and research facilities. The commission's primary goal is to bring in experts in these domains for large-scale implementation as well as study. In order to plan and oversee scientific research for the advancement of the nation, India was the first nation in the world to establish a Ministry of Scientific Research and Natural Resources in 1951. The establishment of the ministry allowed scientists to learn about government policy while also allowing Parliament to stay informed about the nation's scientific endeavours. Participating actively in parliamentary debates, Nehru emphasized time and again the role that science and technology play in development. The Indian Parliament's adoption of a Scientific Policy Resolution in 1958, however, was the most significant development of the time. Nehru had a keen interest in the advancement of science while serving as prime minister of India. He emphasized the strategic use of natural resources, scientific discoveries, and resources for the nation's industrialization. So, in 1952, planning got underway. Upon the resolution's introduction to Parliament, Nehru stated, "In order to improve the standard of living more quickly, we must

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industrialize India as much as possible." 12. To achieve this, he highlighted initiatives like the construction of new laboratories, the installation of equipment required for the laboratories' operation, the addition of facilities for the advancement of industrial and scientific research in already-existing institutions, resource exploration and surveying, the introduction of standardization in the cottage industry, and the advancement of cottage industry techniques. First, the resolution outlined several strategies and tactics that science and technology could use to advance the nation's economic growth. This would include creating artificial intelligence through science and technology. Regarding problems pertaining to the advancement of science and technology, the opposition and the ruling party in parliament were at odds. As a stimulant for social and cultural advancement, H.N. Mukherjee, the leader of the Communist Party in the legislature, offered replacements in response to the Science Policy Resolution (SPR) regarding the scarcity of natural resources. Moreover, science broadened human thought and gave people new instruments, both of which had an impact on the fundamental principles of existence. It also created a climate that was conducive to scientific research domestically. Thirdly, scientists were granted esteemed status when the Indian government decided to involve them in the creation of policy.

"I welcome this science policy resolution even though I would have been happier if this kind of resolution had been formulated by the government earlier. It is a precisely worded, suggestive and important document, and we are happy that now there is a definite statement by government in regard to the harnessing of science to the task of reconstruction of life and society in this country". 13

Initiating the debate on the SPR, another member of parliament, V.P. Nayar, who belongs to the United Front of Leftists, congratulated the government on passing this resolution. However, he thought it came a bit late, as he believed that the government should have released a policy similar to this one in 1948 when it released the Industrial Policy Resolution. "If India is to advance, it must advance in science and technology and therefore use the latest techniques of agricultural production," Nehru stated during the Second Five-Year Plan's formulation. Because without a strong agricultural foundation, the nation cannot have a truly solid industrial economy." 14. The second five-year plan highlights initiative. This change has had a significant impact on the nature of research and how it is organized, as variables other than The ultimate social, economic, and political values influence the level of involvement and support for

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research, and scientific and technological advancements have entered the picture. However, there are certain disadvantages to the evolutionary scientific research system. Collaboration between industry and institutions has to be prioritized more. Perhaps the most crucial is applying fresh discoveries to our community. Nehru's commitment and scientists like Bhaba's worry led to the introduction of a scientific policy resolution in Parliament. The government's desire to promote research and technology in order to gain from the use of scientific knowledge for the greater good was made clear by the research policy resolution. Science and technology advanced significantly as a result of the governmental leadership's proactive engagement and scientific ambition. By drawing attention to social issues, Nehru's approach to the advancement of science and technology raised scientists' awareness of social issues. The close relationship between the political leadership and scientists who shared similar goals, aims, and interests fostered social responsibility and passion within the scientific community. Nehru publicly defended the scientists in a number of places because of his deep conviction in both their work and his own theory. Nehru made the following statement during the 37th Indian Science Congress session:

Findings:

The findings derived from this article are multi-faceted and encompass various aspects of the evolution of science in India, highlighting significant milestones, key figures, policy initiatives, and the interplay between science, society, and governance:

Governmental Influence on Scientific Development: The establishment of the National Planning Committee under the Indian National Congress and the subsequent formation of expert subcommittees reflected the government's early recognition of the role of science in national development. This manifested in the establishment of key scientific institutions and initiatives like the CSIR, Tata Institute for Fundamental Research, and the Ministry of Scientific Research and Natural Resources.

Role of Eminent Scientists in Shaping the Scientific Landscape: Eminent scientists such as M.N. Saha, J.C. Ghosh, S.S. Bhatnagar, P.C. Ray, C.V. Raman, S.N. Bose, and Homi J. Bhaba played pivotal roles in advocating for a professional scientific community in India. Their efforts aimed to position India within the global scientific community, fostering centers of excellence and advocating for cutting-edge research in universities and research facilities.

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Government Policies and Five-Year Plans: The article highlights the meticulous planning undertaken by India's Planning Commission through its five-year plans. These plans focused on building infrastructure, establishing national laboratories, and supporting research in various scientific domains, notably nuclear physics and atomic energy development.

Shift in Societal Perception of Science: Jawaharlal Nehru's visionary approach, emphasizing the role of science and technology in societal development, helped bridge the gap between science and society. His emphasis on the integration of science with social responsibility fostered a new perspective among scientists, raising awareness of social issues and instigating a sense of passion within the scientific community.

Challenges and Opportunities in Scientific Development: Despite significant progress, challenges in the collaborative efforts between industry and scientific institutions were recognized. The need for prioritizing collaborations and refining the evolutionary scientific research system became apparent, highlighting potential areas for improvement in future policies and initiatives.

Overall, the findings underscore the intricate relationship between government policies, scientific advancements, influential figures, and societal perceptions, shedding light on the multifaceted nature of scientific development within the Indian context during the mid-20th century.

Summary:

The article chronicles the symbiotic relationship between science and society in India, illustrating how scientific development evolved in response to societal demands, government initiatives, and the concerted efforts of influential scientists. Beginning with the establishment of the National Planning Committee by the Indian National Congress in the late 1930s, the narrative unfolds through the contributions of prominent scientists like M.N. Saha, J.C. Ghosh, S.S. Bhatnagar, P.C. Ray, C.V. Raman, S.N. Bose, and Homi J. Bhaba.

Key milestones include the formation of institutions like the Council of Scientific and Industrial Research (CSIR), Tata Institute for Fundamental Research (TIFR), and India's first physical laboratory. Jawaharlal Nehru's visionary stance unified science and society, emphasizing science's pivotal role in human progress. Governmental support through the Planning Commission's five-year plans facilitated the establishment of 22 national laboratories, while

initiatives by the Atomic Energy Commission propelled research in nuclear physics and atomic energy.

Nehru's unwavering commitment to scientific advancement led to the creation of the Ministry of Scientific Research and Natural Resources and the adoption of a Scientific Policy Resolution in 1958. This resolution outlined strategies for economic growth, including advancements in artificial intelligence through science and technology. While the second five-year plan reflected varying influences, collaboration between industry and institutions emerged as a crucial area for improvement.

Conclusion:

This article has highlighted Nehruvian science as a challenge in postcolonial science in general as well as in the history of Indian science specifically. There are undoubtedly aspects of that history that are unique to India (and to Nehru personally), and India undoubtedly left the empire in a more fortunate and powerful position than the majority of former colonies. India and NS, on the other hand, bring up bigger issues in the postcolonial history of science. These include how important it is to regain a sense of local ownership over science after being colonized, the intellectual and institutional fight to free science in non-West countries from the historical influence of the West, the role of science in bringing about socioeconomic change, and the moral authority and political clout of science. The question of how to create a science that is both local and universal may still be the central component of the postcolonial predicament, and it is also at the center of much of the discussion about what science and scientific history mean to and for non-Western people today. One way to try and determine how that conundrum was caused and how efforts were made to address it both materially and intellectually is through Nehruvian science.

References

1. Visvesvaraya, "Planned Economy for India" (published in 1934 by Bangalore Press): This work provides insights into Visvesvaraya's ideas on planned economies and their implications for India's development.
- 2.D. Birla, "Indian Prosperity: A Plea for Planning" (speech delivered in 1934, later published by Leader-Press, Allahabad, 1950) - This speech is available in archives related to economic

planning, commerce, or Indian history. It could offer valuable insights into Birla's thoughts on Indian prosperity and the need for planning.

3.T. Shah, "Report: National Planning Committee" (published in 1949, Bombay: Vora & Co.) This report outlines a thorough ten-year plan that the NPC has suggested for India's future government. Accessing this report might provide a deeper understanding of the economic plans suggested during that period.

4.Jawaharlal Nehru, "The Discovery of India" (published in 1946, Signet Press, Calcutta) This book by Nehru offers a broad historical perspective on India, covering cultural, historical, and scientific aspects.

5.Gopal (ed.), "Selected Works of Jawaharlal Nehru" (Volume 8, published in 1976, Orient Longman) This collection might contain specific excerpts or writings by Nehru related to India's scientific progress, economic planning, or other relevant aspects.

6. Deepak Kumar: "Reconstructing India: Disunity in the Science and Technology for Development Discourse, 1900–1947" (Osiris, 2nd Series, Vol. 15, Nature and Empire: Science and the Colonial Enterprise, 2000) - This scholarly work might provide insights into the discourse on science, technology, and development during the specified period.

V. Hill, "The Ethical Dilemma of Science and Other Essays" (Published in 1960, New York, Rockefeller Institute Press) - This collection might contain the Messel Lecture delivered before the Society of Chemical Industry in 1944. It could discuss ethical aspects of science.