

Science and technology

In *Science, War and Imperialism*, Jagdish N. Sinha recalls that British rule focused overwhelmingly on India as a colonial possession useful for Britain. Government institutions of higher learning in India were largely practical in nature – concerned with stimulating agriculture, curing disease, or extracting natural resources. The colonial regime deliberately avoided introducing the modernist ethos, according to which practical results would stem from the prosecution of pure science. Over the first part of the century, Indians advocated for modernity – science education and industrialization – in the face of substantial anti-modernist sentiment by revolutionaries like Mohandas Gandhi. The Second World War tipped the balance in favor of science as, indeed, the war accelerated independence.

Lewis Pyenson



Sinha, Jagdish N. 2008. *Science, War and Imperialism: India in the Second World War*. Leiden: Brill, 278 pages, ISBN 9789004166455 (paperback).

WHY WAS MODERN SCIENCE SO LATE in coming to South Asia? Professor Sinha argues in favor of the decisive hand of the British Raj, which, whenever science came up, moved the conversation to technology. Part of this impulse should be attributed to the sensibility of the ruling classes in Britain. Into the twentieth century, Great Britain was struggling with the question of setting up institutions for promoting industrial development. It had nothing comparable to the prestigious and effective technological schools of France and especially Germany, which were, broadly speaking, accessible to students of all social classes and national origins. Until the decisive intervention of Labour well into the twentieth century, science in Britain was a calling for the scions of aristocratic or wealthy families.

Industrialization

In emphasizing the role of the government, Professor Sinha contrasts India to Australia and Canada (p. 167). Yet it can be argued that science was anemic in Australia (until the 1940s Australia lacked research-doctoral programs, for example, cf p. 186), and that science in Canada prospered at private institutions (McGill, Laval, and Dalhousie universities) and regionally-funded institutions (University of Toronto). From the point of view of the advancement of learning in India, a Rubber Production Board and a Directorate General of Shipbuilding and Ship Repairs (both established in 1942) count for little (p. 171); for a fraction of the investment in these nuts-and-bolts operations, India could have had one of the world's premier institutes of mathematics or genetics. The very title of the Council of Scientific and Industrial Research, created in 1942 to allocate governmental funding, reveals the practical orientation of thinking at the time.

Above: Wind turbines above Bada Bagh Cenotaph, Rajasthan State, India. CC attribution Share Alike courtesy of Patrick Barry/flickr.

The programs for promoting industrial training in India during the Second World War were part of a plan to preserve the British Raj by improving the Indian economy, on the one hand, and to prevent the United States from industrializing India “after the war in an effort to create for itself a market there” (p. 141, referring to the opinion of British Minister of Labour Ernest Bevin), on the other hand. The question concerning nearly everyone was not truth-seeking – what modernity understood as science – but rather industrialization, the implementation of technology. Wherever one looks during the war, there is a confusing pastiche of science and technology. This view extended to A. V. Hill, the 1922 Nobel laureate in physiology, who, after visiting India, penned a report advocating a new emphasis on technical applications there (pp. 156-7). Professor Sinha emphasizes how industrial capitalism overwhelmed traditional Indian economic rhythms and manufactures (pp. 161-3, 182), while at the same time observing the attraction of the Soviet Union and its state-directed industrialization to Jawaharlal Nehru and his advisors. An emphasis on theory in science, whether in physics or biology, could have mitigated the impact of rapacious industrial development; indeed one could imagine significant points of rapport between ‘Western’ theory and ‘Eastern’ philosophy, as the connection was proposed during the 1960s in the United States. Professor Sinha is clear that such a synthesis failed to materialize. European technology overran India, dealing “a fatal blow to the indigenous knowledge and skill and a crippling knock to the indigenous creativity (p. 196).”

A central archive

I wonder how Indian scholars and scientists viewed the matter. *Science, War and Imperialism* prepares the ground for a parallel study, focusing on the non-governmental side of Indian society. It is true that Indian industrialists endowed scientific institutions early in the century. Did the prosecution of science in the private sphere depend on them alone?

In Britain, endowments for science came from the landed gentry as well as from industrial families. I should like to know more about the worldview of Indian aristocrats, people who could well have funded a large private observatory or a cyclotron. It would also be good to learn about the development of research degrees at universities under the British Raj. These points can be recovered from private correspondence and writings, a portion of it no doubt in South Asian languages. Professor Sinha is well-situated for carrying out such a study to complement his fine treatment of the governmental side of science under British rule.

It is time to collect the unpublished papers of twentieth-century South Asian scientists in a central archive. One model is the “Archive for the History of Quantum Physics,” directed by Thomas S. Kuhn in the 1960s. The efforts of Kuhn and his colleagues sensitized scientists to the historical importance of their personal correspondence. The project resulted in the preservation of many thousands of letters providing vital insights into the formulation of quantum mechanics. The project also directly contributed to new standards for historical scholarship, notably in the pages of the periodical *Historical Studies in the Physical Sciences*. It would be wonderful to read intimate and frank thoughts from South Asians about the means and ends of science. By extension, such an archive would help resolve the extent to which science is universal and whether science is bent this way and that by the accident of creed, costume, and cuisine. My guess is that the resulting picture would obviate a great deal of the loose and silly writing of late about the distinctive appropriation of European science by civilizations beyond Europe. It would lend support to Joseph Needham’s affirmation of a universal frame, in the Modern Age, for perceiving the natural world.

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