TECHNOLOGY
and the new subalternity

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Histories of the material conditions and everyday consciousness of subaltern groups tend to focus either on the peasant masses in the countryside or on the newly constituted ranks of urban industrial workers. Certainly, this has been the case with studies of colonial India. Only rarely do discussions of subalternity, even in an age of capitalist transformation and technological modernity, address the fate of village artisans and other rural workers located outside the main body of the peasantry or that of the many urban subordinate groups who toiled outside factory gates. Ideas of subaltern experience, exploitation and resistance are commonly expressed in terms of nineteenth-century society rather than in relation to new modes of subalternity, a subalternity to the machine and not just merely to capital and the labour process, that had become increasingly widespread in India and across the colonial world by the mid-twentieth century. Equally, the impact and significance of technological modernity is more often viewed from the perspective of the colonial power or 'modernizing' indigenous elites rather than in terms of how it impacted on the lives, the expectations and the work regimes of the subaltern classes. This essay attempts to provide an overview of the changing relationship between technology and subalternity in India between about 1890, the approximate date from which many of these changes can be dated, and the end of British colonial rule in 1947.

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It is something of a myth to believe that, outside a few industrial enclaves, modern technologies had little impact upon the bulk of Indian society before the mid-twentieth century. One reason for this belief has been the Marxist-nationalist conviction that a major consequence of British rule from the early nineteenth century onwards was to destroy India's village-based crafts and industries, especially the once flourishing textile industry, forcing the displaced artisans to seek a bare subsistence among the peasantry. Another factor, almost diametrically opposite to this, was the prevailing colonial conviction that Indian artisans remained stubbornly resistant to 'improvement' and hence to almost any technological change. However, even though the process of technological change was by no means as rapid or as pervasive in India as in many western European and north American societies, it was still significantly far-reaching by the 1930s and 1940s.

Some of the earliest and most momentous of these new technologies have already attracted the attention of historians – the railways in particular. Impelled by colonial economic priorities, as well as by strategic considerations, and themselves major feats of colonial engineering, the railways greatly affected the way in which many subaltern as well as elite Indians went about their work, acquired a new mobility, or re-conceptualized the world around them.[2] Apart from the employment the railways provided in construction and maintenance, in workshops and depots, Indians from peasant and artisan backgrounds journeyed hundreds of miles by rail from northern and central India to find work in the cotton-mills of Bombay, the jute-mills of Calcutta or the tea estates of Assam. Others travelled by rail to visit festival and pilgrimage sites, or to join the stream of indentured labourers leaving India's major ports to work overseas. Railways changed patterns of rural employment, encouraging the production of cash crops for distant markets, or undercutting the local production of textiles, agricultural implements and household goods by the cheapness and novelty of the wares they introduced.

In times of crisis, railway stations and marshalling yards became scenes of desperation and conflict, as during incipient famine episodes when local populations tried to prevent the export of rice or tried to pilfer grain for their survival from moving wagons. While the use of railways for travel rapidly became commonplace, railway locomotives entered more ambiguously into the popular imagination, in part as a kind of infernal machine that threatened to devour and destroy the people, or which, by their fiery, ungodly presence, disturbed the divinely ordered cosmos. Too easily dismissed as mere superstition, popular suspicion of the machine and the changes it might bring was evident in the 1850s and 1860s when railway construction first began in India. But it is striking how as late as the 1890s and 1900s, during the plague epidemic that swept large parts of western and northern India, the railways (their engines, their darkened sheds and the platforms where travellers were examined for signs of the disease) again surfaced as sites of potential danger.

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[2] Ian J. Kerr, 'Representation and Representations if the Railways of Colonial and Post-Colonial South Asia', *Modern Asian Studies*, 37: 2, 2003, pp. 287-326.

Like the railways, much has been written about the rise of the urban factory and its impact on subaltern employment, on the subaltern sense of time and work discipline, and on the creation of new forms of social organization. But it is arguably less in terms of such grand engineering and industrial technologies and more in terms of what can be called 'everyday technology' that the coming of the modern machine and technological modernity impacted on subaltern lives and livelihoods. Change occurred in different ways. One way was through a process of displacement: subalterns engaged in one 'traditional' activity lost their employment (and hence their means of subsistence) as a result of technological innovation. For instance, palanquin bearers had existed in their thousands in eighteenth- and nineteenth-century India. Palanquins were a common mode of transport both within urban areas and (not least for Europeans) on long-distance upcountry routes. Bearing their passenger's weight on long poles across their shoulders and moving at a steady trot, the work of palanquin bearers was particularly arduous. But as the state of urban (and many rural) roads improved in response to India's vehicular transport revolution and as new mechanized modes of conveyance were introduced, such as the electric tram and motorbus, so palanquins and their bearers steadily disappeared: by the 1920s there were hardly any left in cities like Calcutta where they had once been numerous. Some of those thrown out of work may have turned to other kinds of urban employment, as porters and 'coolies', or they may have shifted laterally, from one means

of un-mechanized transportation to another, by pulling rickshaws.

An example of how one physically demanding, low-tech form of labour might replace another, hand-pulled rickshaws were introduced into India in the early twentieth century from China and Japan. A cheap, convenient mode city transportation, used by the relatively poor, including women and schoolchildren, they were not widely superseded until the 1950s by the increasingly ubiquitous cycle-rickshaw (despite periodic complaints that they reduced human beings to the status of draught animals). Petrol shortages and high transport costs during the Second World War even intensified their use: as late as 1944 Calcutta had 30,000 rickshaw-pullers and even the smaller southern city of Madras 4,000. As in other parts of South and Southeast Asia, the work of the 'rickshaw coolie' was among the most arduous, demeaning and financially unrewarding of all urban occupations, one which only the poorest city-dwellers and work-hungry migrants were willing to undertake.[3] In some cities, like Madras in 1918-19, rickshaw-pullers were among the first urban workers to be unionized and go on strike, though, at a time of growing nationalist unrest, the provincial government suspected that this was more politically inspired than economically motivated. Certainly, in a situation in which few rickshaw-pullers owned their vehicles, it brought little improvement in their conditions.

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[3] Ahmad Muktar, *Report on Rickshaw Pullers*, Delhi: Manager of Publications, 1946; James Francis Warren,

Rickshaw Coolie: A People's History of Singapore (1880-1940), Singapore: Oxford University Press 1986.

Technologically-driven change was no less apparent in the Indian countryside, and of this there are many examples. One, common to many other areas of the world, was the replacement of customary means of manually preparing and processing foodstuffs by new mechanical devices.[4] From the late nineteenth century India saw the rise of power-driven flour- and rice-mills, which steadily supplanted customary forms of domestic labour, work conventionally performed by women. In some ways this mechanization might seem a development to be welcomed, for it relieved women of hours of tedious daily labour and physical drudgery (though defenders of the old order, mostly men, claimed it was healthy work and kept women from idleness). Establishing a rice-mill was also one of the ways in which emerging entrepreneurs from trading, landholding and rich peasant communities expanded their economic activities and augmented their income. Milled rice, white from cleaning and polishing, was more appealing to consumers than rougher, hand-husked grain, and, in the form of broken rice, was often cheaper. But milling could also have an adverse impact on subaltern lives and livelihoods. In a pattern of gendered labour displacement common to other parts of the world, the growth of mechanized rice-milling in India had the effect of removing work from women, in Bengal at least widows for whom there might be no socially acceptable alternative. This deprived them of an already meagre income and transferred employment to a much smaller number of men (and

to even fewer women, who were required to perform the least remunerative and most hazardous chores, such as removing spilled grain and chaff from beneath the revolving machines).

By one estimate, based on a small town in Bengal in the early 1930s, 8,000 women in villages up to twenty miles away lost their employment husking and cleaning rice to the eighteen mills which had been established since 1913 and now employed around 1,350 workers (many of them seasonal).[5] Rice-mills constituted the sixth largest employers of 'industrial' labour in India by the late 1920s: this figure was well behind cotton- and jute-mills but where the textile workforce was heavily concentrated in a few urban locations the rice-mills were widely dispersed and demonstrated the increasingly industrial character of many small towns and villages in rice-producing provinces like Bengal and Madras. In addition, unless parboiled first, machine-husked rice was far less nutritious than hand-prepared grain (in which a portion of the vitamin content of the pericarp was retained), thus increasing the risks of nutrition-deficiency diseases like beriberi. With their largely unprotected and unregulated machinery, rice-mills were a frequent site of injuries and

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[4] As in the case of the mechanized grinding of maize to make flour for tortillas in Latin America in the early twentieth century, a change that, like rice-milling in India, particularly impacted on women's work: Arnold

J. Bauer, *Goods, Power, History: Latin America's Material Culture*, Cambridge: Cambridge University Press, 2001, pp. 190-91.

[5] Hashim Amir Ali, 'The Rice Industry in Lower Birbhum: A Survey', *Visva-Bharati Rural Studies*, no. 3, Shantineketan, 1934.

fatal accidents, as workers' clothes became trapped in drive-belts and rotating machine parts, as they were crushed by falling grain sacks and crumbling walls, or tripped and fell into the vats of boiling water in which the raw paddy was parboiled before milling. The atmosphere inside the mills was thick with dust that got into workers' throats and eyes and their tall chimneys, harbingers of an encroaching industrial landscape, spewed out polluting smoke into the surrounding neighbourhood.[6]

Technological innovation might also change the form of subaltern work regimes without transforming the socio-economic structures in which they were embedded. It might create new modes of employment without freeing the worker from his or her social subordination, from the heavy burden of indebtedness or the uncertainties of seasonal and cyclical unemployment. From the late nineteenth century onwards traditional male Indian tailors (known as *darzis*) took up the use of sewing-machines. These were mostly American- and British-made Singers, thereby providing a local market for one of the most globally successful international firms of the new industrial age. In many cases tailors continued to produce the same kinds of garments as they had in the past (though clothing styles, like food practices, were undoubtedly changing); but where the old *darzi* sat cross-legged on the floor to work those who operated sewing-machines mostly did so on tables or used upright treadle-machines. Some tailors, especially in Punjab, acquired a new mobility, tramping from village to village with their machines in search of work;

others, as in southeast Bengal, followed the seasonal flow of rural migration, making and repairing labourers' clothes.

As well as working individually for European and Indian customers, making men's shirts and jackets, women's blouses and children's clothes, the new tailor also toiled in semi-industrial workshops, sewing together umbrellas, shoes, caps, even sails. Many tailors operated sewing-machines not as independent artisans (any more than the *rickshaw-wallah* owned his machine) but as underlings to master-tailors who claimed the lion's share of the profits or who advanced the capital for the purchase or loan of a sewing-machine. Indebtedness, whether to the local Singer agent, to a master-tailor or a moneylender, remained a heavy financial burden for many such workers. Like photographs, literary sources give some of vivid insights into the nature and effects of the new subalternity. In one of several stories written in the 1930s and 1940s by Mulk Raj Anand that reflect critically on the impact of changing technology on the subaltern classes, a small-town cobbler is persuaded by a well-meaning friend to buy a machine to stitch the shoes he makes, in the belief that this will make his work both easier and more profitable. But in order to buy the machine the cobbler has to borrow heavily from a local trader and to meet the exorbitant interest payments the latter demands he has to work harder and harder to make more and more shoes. In the end, utterly

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[6] B. P. Adarkar, *Report on Labour Conditions in the Rice Mills*, Delhi: Manager of Publications, 1946.

worn out, the effort kills him. The machine (as in many of Anand's stories) becomes an incubus, an added source of exploitation, injury and death. For the worker, there is nothing liberating about the machine.[7]

Women, too, took to using the sewing-machine. Some of these were relatively well-to-do women from middle-class households, making clothes for their families or fashionable garments for themselves, but the sewing-machine assumed a rather different significance for many poorer women. Sewing, embroidery and tailoring (and hence the use of sewing-machines when an organization or patron could afford to provide one), were among the approved and 'improving' forms of labour enjoined on women in refuges, reformatories and social reform associations. Poor women, often widows whose social status or subjection to patriarchal idioms of 'respectability' debarred them from work outside the home, earned a pittance by making clothes for relatives and neighbours or for sale, through male relatives, on the streets and in bazaars. In a pattern that is recognizable from Karl Marx's account in *Das Kapital* of the impact of the sewing-machine in mid-nineteenth-century Britain, women turned their home into what in effect became an extension of the modern factory system. By the 1930s and 1940s sewing-machines were becoming part of factory-based labour, especially in the garment industry, replicating many of the evils of sweatshops in London, Paris and New York.

The bicycle was another increasingly widespread 'everyday technology'. First introduced in substantial numbers in the 1890s, bicycles (almost all of them foreign-made since India produced few complete bicycles before the 1950s) were enthusiastically taken up for recreation purposes and as a cheap mode of transportation by Europeans and by Indian elites. But bicycles also passed fairly rapidly into the domain of subaltern technology. Even before the First World War many subordinate municipal and government workers, as well as low-ranking employees of private companies, were provided with bicycles – messenger and errant boys, postmen and telegram peons, police constables and health workers. The spread of the bicycle into small towns and the countryside was more gradual but no less significant. In place of donkeys, *dhobis* (traditional washermen) used bicycles to ferry laundry to and from their customers, milkmen brought milk into town in pails hanging on the handlebars or attached to the carriers of their bicycles, hawkers visited villages by bicycle to sell ribbons, scissors and knives, and enterprising peasants adopted them to carry coconuts and rice to market. In another of Mulk Raj Anand's short stories, a village barber grows tired of having to serve high-caste customers at their convenience and for little financial return. Acquiring a cheap, second-hand bicycle enables him to leave the village and set up a barber's shop in a nearby town, giving him greater independence and a more rewarding income.

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[7] 'The Cobbler and the Machine', in Mulk Raj Anand, *Selected Short Stories*, New Delhi: Penguin, 2006. See also his novel *Coolie*, first published in 1936.

Although almost all bicycles in India before the 1950s were foreign-made, many were assembled from imported parts or repaired in backstreet workshops: in Punjab a cottage industry grew up making bicycle bells and other accessories. The small workshop, the garage, the repair-shop and foundry, like the flour- or rice-mill, became markers of everyday technological change in Indian cities, towns and villages. A source of often casual rather than stable employment, the workshop or small factory was also a place where new technical skills were acquired (by watching and learning rather than by any literate mode of instruction), especially by members of traditional artisan castes like blacksmiths and carpenters. Conditions in these places were often primitive and dangerous. Photographs of the period show scantily clad and unshod workers, crouching on the ground in traditional workman fashion, surrounded by hammers, chisels and spanners, or standing amidst unguarded lathes, circular saws, drive-belts, and open-mouthed furnaces, around them piles of scrap metal and redundant or part-cannibalized machines.

As with sewing-machines, purchasing a new bicycle was an unlikely option for the urban and rural poor. Many more machines were supplied by employers or acquired through hire-purchase and loan: cycle shops, offering bicycles for daily or even hourly loan, were common in Indian towns and large villages by the 1950s and, like rice-mills, were a typical sign of small-scale entrepreneurship. Like sewing-machines, there was a lively market in second-hand bicycles. In addition, prodigious numbers of bicycles were being stolen on Indian streets by the 1930s and 1940s, sometimes by organized gangs of bicycle thieves. Very few machines of these machines were recovered by the police: most disappeared into the anonymity of city backstreets, the suburbs and the villages, thereby contributing to the wider dissemination and subaltern availability of the modern machine.

As with rice-mills, it is important to recognize the downside to such subaltern engagements with new technology. Just as rice-mills were noisy, dangerous, unhealthy places to work, so were the increasingly congested city streets. The newspapers and police reports of the interwar period carried frequent reports of traffic accidents in which cyclists were the fatal victims of speeding cars and careering lorries, or perhaps of their own reckless behaviour and ignorance of road rules. Bus-drivers and their passengers or truck-drivers, racing to meet near-impossible schedules so as to maximize the owner's profits, and driving poorly maintained, decrepit vehicles, were killed or injured in city streets and on country highways. India's death-toll on the roads was already by the 1930s, relative to the number of motorized vehicles in use, one of the highest in the world. Death and injury were not exceptional. Quotidian life in India's burgeoning and technologically transformed cities exposed the urban poor to what Salman Rushdie has aptly termed 'the tragic jungle of the everyday'.[8]

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[8] Salman Rushdie, *The Ground Beneath Her Feet*, London: Jonathan Cape, 1999, p. 83.

Equally, even if bicycles, like rice-mills and sewing-machines, brought new economic opportunities and a modicum of social empowerment to some, they did not shower their technological blessings on everyone. The use of bicycles, even old and second-hand ones, by low-caste and untouchable villagers, was keenly resented by members of higher castes, who, seeing this as a flagrant defiance of caste convention, and it was often met with physical chastisement or fines. Although girls from Western-educated, middle-class families might ride bicycles in town with relative impunity, there was a general dislike of women doing so, especially after the onset of puberty on the grounds that they risked rupturing their hymen and so adversely affecting their marriage prospects, or because it was thought unseemly for women to enjoy even such a modest degree of physical freedom and social mobility as the bicycle allowed. Denying technology to caste and gender subordinates was one of the ways in which technology reshaped subalternity for the modern age.

The rise of modern technology, including what has been described here as 'everyday technology', did not go unopposed. Some middle-class nationalists were critical both of the technology itself and of its impact on Indian society. From 1905 one of the forms taken by India's struggle for independence was the *swadeshi* movement, which sought to replace imported goods with those made in India, denying employment and profit to the British and giving it to Indians instead. As India's most renowned leader from 1918 onwards, M. K. Gandhi promoted his own form of *swadeshi*, seeking to revive hand-spinning, using the spinning-wheel or *charkha*, and subsequently to revive such traditional village-based crafts and practices as the hand-pounding and -husking of rice. In the 1930s Gandhi was critical of the way in which rice-mills robbed village women of their employment, producing rice that was nutritionally poor, and turning villages into unsightly semi-industrial locations. He and other nationalists, like Prafulla Chandra Ray in Bengal, waxed critical of the growing importation and use of bicycles, cars and gramophones in India, arguing that, for a poor country plagued by underemployment, these were wasteful luxuries as well as unpatriotic foreign goods.

But it is striking that most of this opposition came from middle-class nationalists and not directly from the subaltern masses. There is little evidence of popular resistance to milled rice or to rice-mills. White rice was highly desired and social prestigious and the urban and rural labouring population in general preferred it to the more nutritious and energizing but culturally less attractive millets that had formerly constituted the bulk of their diets. While some of the more affluent sections of the population might favour it on grounds of taste or tradition, attempts to promote a revival of hand-husked rice met with little popular success. Village widows were in no position, socially or politically, to offer practical resistance to their loss of employment. The workers, often employed on a casual or seasonal basis, in the many small and scattered rice-mills, whose premises were seldom subject to inspection under colonial factory legislation, were rarely unionized

and able to protest about poor wages and dangerous working conditions. Even the act designed to give maternal benefits to women workers was rarely enforced due to evasion and opposition by mill-owners. Constrained neither by effective state regulation nor by a paucity of cheap, casual labour, the raw Indian capitalism of the rice-mill, the backstreet foundry, and the urban sweatshop had little need to engage with compensation or protection for workers. When accidents occurred in rice-mills, or on the street, it was commonly the workers, the pedestrians and cyclists themselves who were blamed – for their inappropriate attire, their neglect of traffic or factory rules, or their ignorance about how to behaviour in the vicinity of dangerous machines. A perilous vulnerability to the harmful effects of modern technology was becoming one of the defining characteristics of twentieth-century subaltern experience.

It might, however, be argued that in matters of modern technology the subaltern classes were not entirely powerless, mere victims of processes over which they had scant control and to which they brought only sullen resignation. Some cultural historians might point to the growing popularity of the cinema and later the radio and the extent to which these brought new forms of entertainment, even instruction, to the subaltern classes. I would prefer, though, to touch on a further and less pleasurable or informative type form of subaltern engagement with technology.

It will be clear that, in addition to the machines that subaltern groups encountered in relation to their daily lives and livelihoods, they also experienced technology in the proliferating forms of state power and public authority, in the technologies by which the subordination of the subalterns was maintained or by which they were punished whenever they stepped out of line. The growing street-level armoury of the army and the police was one demonstration of this – the use of riot-control apparatuses such as water-cannon and tear-gas, the recourse to tanks, motor-cycles and patrol cars to try to quell unrest or motor lorries to ferry troops and armed police to the scene of disturbances, and police vans equipped with radios to anticipate and counter street demonstrations. But this coercive or intimidating technology of the street did not go unchallenged. Beginning in the 1890s in cities like Calcutta rioters began to target trams, motorcars and buses, stoning them, stopping them from operating, bringing the traffic to a standstill or setting fire to disabled vehicles. In part this was a part of a wider and more complex phenomenon of urban violence, often identified in the colonial mind with the rowdies, *goondas* and *budmashes* who were ever poised to exploit any breakdown in authority, but it could also be understood as a machine-age version of a moral economy, an attempt by the urban poor to reclaim the streets – their streets – from the impersonal mechanical power of the tram, bus and motorcar. Normally these machines lorded over other street users, spreading noise and pollution, causing accidents and injuries to local inhabitants. Hostility became particularly rife towards the end of the Second World War as the streets of Calcutta saw a large number of injuries and deaths attributed to speeding, recklessly

driven army vehicles that failed to stop when accidents occurred: in the first half of 1946 alone there were nearly 6,000 accidents on the streets of Calcutta, with 134 deaths and well over a thousand serious injuries.[9] Attacking machines was also a means of wreaking a kind of revenge, or at the least humiliation, on the affluent and arrogant Europeans, on the Indian employers and officials whose enclosed, foreign, chauffeur-driven cars symbolized the remoteness and unresponsiveness of those who spurned the poor or exercised such control over their working lives.

To conclude, even in India, a society where it has often been assumed that tradition reigned and many customary forms of manual labour and craftsmanship had either disappeared or stubbornly persisted unchanged into the twentieth century, there was a marked process of technological change taking place in the early twentieth century. Although technological modernity is often understood through the admiring eyes (or perhaps censorious gaze) of the colonial power and indigenous elites, this was a process that greatly affected the subaltern classes as well, often in ways which further extended and intensified their exploitation, increased the hazards of daily work, or which, through the effects of mechanization, denied them even customary forms of labour. Although attention has focussed in India, as elsewhere, on factory-based industrial employment, in reality many subaltern workers were drawn into occupations that gave them even less protection and remuneration than that enjoyed by factory hands, and often left them without the benefits of either unionization or state welfare provision. What for the more affluent middle classes might appear the allure of technological modernity was, for the subalterns, seldom a blessing.

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[9] *Statesman* (Calcutta), 21 July 1946, p. 3.