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# The Politics of Time in Colonial Bombay: Labor Patterns and Protest in Cotton Mills

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## Abstract

This article examines the modes of time and work discipline that emerged through factory industry in colonial Bombay. Based on a wide range of archival sources, it shows that mechanized production did not invariably suggest a transition from task-based, irregular to clock-measured, rationally organized work patterns. Operating simultaneously within temporal orders constructed by the global economy, agriculture, family and community, cotton mills combined new disciplinary practices with a flexible approach to labor. Gender, marital status, religion, skill and position in the manufacturing chain influenced the pace and duration of work as well as subjective experiences of time at the factory. By maintaining the diversity and flexibility of time organization, mill owners could adjust production to fluctuations in market demand. At the same time, the strategy facilitated and obscured exploitation. As the industry grew, workers developed a language of resistance that emphasized the value of regular and standard work patterns defined with reference to clock hours and calendar days. In the factories of colonial Bombay, clocks were not just symbols of discipline and subjugation, but also instruments of resistance and negotiation.

How did common people negotiate and refashion new patterns of time and work discipline in the nineteenth century? The weight of historical inquiry on this subject has fallen heavily on Western Europe. In recent years, though, there has been a surge of interest in exploring temporal values and practices of the non-elite in the Middle East, South and East Asia and Africa.[1] Through a detailed analysis of time in Bombay's cotton spinning mills, the present article contributes to this literature. Evidence from Bombay undermines the idea of a ubiquitous transition from irregular to steady, clock-measured labor through large-scale capitalist manufacturing. Inspection reports, committee briefs, telegrams, newspapers, letters and diaries show that mill owners in Bombay combined novel disciplinary schemes with elastic, irregular labor routines to maintain flexibility in production. Far from preaching punctuality and time thrift, they enforced an ignorance of clock hours and resisted regulatory intervention. Through petitions, street demonstrations and strikes, factory workers sought to replace this ambivalent time structure with a clearly-defined, uniform and steady routine.

There are three major implications of this work. First, it shows that the standardization of temporal practices in the wider world was not merely a product of top-down political reforms. In the industrial setting of Bombay, it was the rural workers and "watch-less" people who pushed for clock-timed and uniform labor practices. Second, the article offers a way to re-establish the link between the social transformation of time and urban industrial labor in colonial Bombay. This link has been largely overlooked in the current scholarship which emphasizes the political and ideological rivalry between imperialist rulers, nationalist reformers and conservative groups.[2] The study shows that the debate about clock hours was grounded not just in tensions between the colonizer and colonized, but also in the conflict between local groups with differing interests—such as Parsi mill owners and Hindu and Muslim workers. Lastly, the article addresses factory time as a diverse and ambiguous entity embedded within rhythms of the family, community and religion, agriculture and the global

economy. It highlights the intersections between factory schedules and religious calendars, reproductive and domestic tasks, seasonal cycles and price fluctuations. An understanding of the wider context of industrial time brings to the surface the diversity of time experiences among factory operatives whose labor patterns were determined not only by the needs of capital but also by gender, age, ethnicity, experience and skill.

Having emerged in the 1850s, the cotton spinning and weaving industry in Bombay grew to be one of the largest employers in the formal sector and remained active until the late twentieth century. A variety of interested parties including colonial administrators, metropolitan law makers, British traders, industrialists, social reformers, and newspaper editors focused on the cotton mills as a key site for debates about the roles and responsibilities of the government, workers, and private entrepreneurs in India. The center stage did come with certain disadvantages. Classic accounts of factory workers often portrayed them in isolation from a wider urban and global context, while some contemporaries and historians employed evidence from this setting to support essentialist and totalizing assumptions about Indian society and culture. By stressing the so called preindustrial behavior of workers and/or employers, they helped shape a tradition of exceptionalism that continues to hold a strong sway in the field. Despite remarkable interventions from Rajnarayan Chandavarkar twenty-five years ago, historical evidence from cotton mills is still not expected to provide material for 'thinking more generally about industrialization and its social consequences'.[3] To overcome particularistic approaches, this article brings the Bombay case into dialogue with a wider literature on time and industrial labor. It treats patterns of time-use in cotton mills not as a symptom of atypical or incomplete industrialization but as a strategic and widely-adopted response to the structural constraints of a colonial economy. Furthermore, it demonstrates the ways in which our understanding of social time in the late-nineteenth century globe may be revised and/or enriched through evidence from this urban industrial setting.

In the decades following 1843 when Britain abolished the ban upon the export of textile machinery, the number of steam-powered factories rapidly increased across the colonized and semi-colonized world. These chiefly concentrated on the processing of local raw materials for shipment to destinations of advanced industrial production. Set up by merchants with access to global and local sources of credit, new factories shared a set of structural circumstances that produced similar effects on how their owners approached discipline. Textile machinery required to process natural fibers, for instance spinning mules, ring frames, and carding devices in cotton mills, were almost invariably sourced from Western Europe although used with adjustments to local conditions. The investment represented a considerable risk for mill owners as they operated within unregulated factor markets as well as a *laissez-faire* economy that lacked the protection and subsidies required for the successful development of local industry. In the face of sharp price fluctuations that undermined the viability of long-term business plans, they opted for labor-intensive and flexible production. Factory workers, on the other hand, were largely un-unionized and retained connection with the rural sphere. Labor legislation was either non-existent or too weak to provide effective protection against exploitation. Significantly, the political context allowed for ambiguity in temporal arrangements. Due to disagreements between local and central authorities and/or popular resistance to standardization, mechanical clocks were in disagreement over time zones and systems of measurement. Such circumstances generated flexible patterns of time-use as explored through the Bombay case.

An important feature that set the cotton-spinning industry apart from many of its counterparts was the overwhelming numerical superiority of its male workers. The Bombay cotton mills employed men for almost all mechanized operations and women only for specific tasks and in limited numbers. Moreover, contrary to the jute sector in Bengal and major silk-growing regions in the Middle East, European capital played only an indirect role in the

expansion of factories in Bombay. The cotton-spinning industry emerged as a local enterprise dominated by Parsi families with considerable experience in the Indian Ocean trade. These merchants were both allies and antagonists of the colonial regime since they simultaneously benefited from and were undermined by the free market economy. Finally, the mill population in Bombay was not greatly diverse in communal affiliation. Except in well-established lines of work such as weaving where Muslims were employed, factory hands were drawn largely from the ranks of Marathi-speaking Hindu castes. This minimized the risk of a potential conflict about annual religious holidays. In what follows, I argue that the temporal framework of factory production reflected not only structural conditions but also such specific characteristics of the workforce and entrepreneurs.

The article is organized in two sections. The first section explores labor patterns in Bombay's cotton factories, and the ways in which these reflected both local circumstances of capitalist production and emerging values and notions of time. The second section looks at the range of temporal experiences within mechanized cotton manufacturing, i.e., differences between female and male, skilled and unskilled, piece-rate and hourly-paid workers' time. The main points are summarized in the conclusion.

**Clocks and Labor Discipline in the Bombay Mills**

On the morning of October 10, 1890, three government inspectors visited the Hindustan Mills in Byculla to investigate the working conditions and record witness statements. During their brief tour of the factory, they entered a room where they saw a female piecer working near the spinning mules. Performing a task that was generally reserved for men, this woman seemed an ideal candidate for interviewing. The inspectors then took her to an office together with three other male workers and a translator. The female piecer, Thaki, was well-experienced

both in terms of her years of employment in the mills and her past roles which involved spinning. From the outset, however, she struggled to convince her interviewers that she had a satisfactory grasp of time. She seemed older, for instance, than her reported chronological age. When she revealed that she had a grown-up daughter, the inspectors returned to the topic of age and pressed her for a convincing answer. Thaki added another ten years to her age but the men noted, "she may be older." The conversation moved on to the topic of holidays. Thaki reported that she had two full Sunday holidays, and on the other two she came to work, but only to clean the machinery.[4] Later, during the questioning of a male witness, the inspectors noted: "This man says that the mill only closes two Sundays in the month, and on those days, they have to come for cleaning. What the woman stated before was not the fact. She must have misunderstood."[5] As per official records, such "misunderstandings" were widespread among mill workers. The present section analyzes the reasons for this apparent ambiguity in matters of temporal organization, as well as the tension it generated between workers, mill owners and officials in Bombay.

In 1896, Bombay had seventy-one large cotton mills with 2,186,323 spindles and 21,335 looms, employing on average 78,455 hands daily.[6] The 1891 census estimated the city's population at 821,764, meaning that nearly ten per cent of Bombay's residents worked in the cotton mills.[7] The rapid expansion of this native industry prompted, in the second half of the century, a series of official investigations into its operations. Under the combined pressures of rival English trades, Indian labor unions and social reformers in Britain and India, the local government appointed three committees in 1875, 1881 and 1890 to document the grounds for factory legislation. These bodies collected evidence from the proclaimed experts of the industry, including doctors and engineers, as well as from workers, supervisors and mill owners. The local and metropolitan newspapers published transcripts of some of the proceedings. The 1890 committee was unique in that it was chaired for the first time by a

labor representative, Narayan M. Lokhande. His appointment was a response from the state to accusations of bias in reports produced by previous committees. These were indeed packed with mill owners whose perspectives had muffled the voices of other actors in favor of legislation. A skillful champion of the cause, Lokhande handpicked several witnesses and modified the procedures to be followed in their examination. His interventions initiated a relatively less obstructed dialogue between Bombay's workers and the colonial state.

A wide range of issues thus surfaced, some well pronounced and some subtly raised. Irrespective of the subject at hand, the meetings were deeply colored by a skepticism on the part of the committee toward local knowledge and awareness of time. In one meeting, for instance, the members spoke with a winder employed in the New Great Eastern Mill, described as a "bright and intelligent Maratha woman." While praising her intellect, inspectors described the woman as lacking a sense of time:

> She works by piecework and gets eight to nine rupees a month. In the shorter days eight rupees and in longer days, rupees nine to eight. She goes early in the morning and leaves in the evening. (*Note*.—this witness has no idea as to the time). [8]

Curiously, clock time featured strongly in the remainder of her testimony. If the committee members revealed their frustration with her treatment of time and insisted on determining the precise hours, as they often did, the worker may have modified her answers. Alternatively, supplemental information from the manager may have been used to polish her statement:

> She would like to have the time of work reduced. Instead of going at 6.30, she would like to go at 7 and leave at 5.30. Then in that case one hour's recess is not necessary, only half an hour would be sufficient.[9]

Although with varying agendas and political convictions, committee members were unified in their attempt to register workers' experience of the factory in the precise terms of the clock and calendar. The following questions from the 1890 report give an idea of the dominating theme of inquiries: "How many times on average do you go out to smoke? How long are you away each day from the machine? When do you get your month's pay? When do you want it? How often do you visit your home? When were you last home, and how long were you then away from the mill?"[10] The strong emphasis on the organization of work time must be understood, first, within the framework of class relations in the metropole. Thanks to vigorous campaigning from trade unions in a range of industries, investigations into female and child labor in Britain had revealed excessively long working hours and led to factory acts regulating them.[11] An important idea behind factory commissions in Bombay was to compare the experiences of Indian and English textile workers to determine whether the former needed to be incorporated within a similar regulatory framework. In their conversations with Indian workers, however, the committee members were transplanting a specific vocabulary of time to a context where it could obscure understanding. For instance, asking cotton spinners how many times on average they went out to smoke revealed little in a setting where long spells of incessant labor were followed by inactivity for several days or weeks. Similarly, the manifest irregularity of work patterns that were most visible in women's departments did not mean that women worked any less or were exempt from factory discipline, as will be discussed later.

The centrality of clock time in official inquiries was also connected to practical and ideological aspects of British rule in India. As these factory inspections were occurring, the British administration was working to establish a single basis for time reckoning across the subcontinent.[12] The diversity of temporal practices stood in the way of a coordinated market and, moreover, provided a fertile ground for ambiguity and dissent. Bombay, a stronghold of nationalist ideologies and lobbying in British India, was crucial to imperial ventures to

discipline local temporal cultures.[13] Specifically, the government made several attempts to do away with the local solar time, with only partial success. Before the 1880s, all Bombay clocks operated in real solar time, as did those in some European cities. The time kept in Bombay differed slightly from that in Poona, and even more from that in Karachi or Madras.[14] The rapid spread of telegraph and railway services in the 1860s brought about the need to coordinate time tables in local stations. Following the pattern observed globally, the area covered between Bombay, Lahore, Calcutta and Madras adopted a common railway and telegraph time around 1870. The standard time, or railway time as it came to be known, was set in Madras, where the government observatory was located. In the following decade, Bombay operated officially within two concurrent times, and rather successfully so. According to Jim Masselos, "the differences were noted in railway timetables and travel guides and observed by travelers apparently without much difficulty."[15]

In 1881, however, the matter acquired a political content. Displeased with the city's observation of multiple timetables, the Tory Governor James Fergusson declared all government offices were to adopt railway time and invited the public to do the same. Bombay residents were completely surprised by the announcement, many believing the change was a pointless imposition on their daily lives. A sentiment was circulated that the Governor's hasty reform attempt had to do with him having twice missed trains operating on railway time.[16] Following strong dissent, the government was forced to restore local time in 1883. The matter rested for another twenty years until colonial authorities once again tried to push for temporal standardization. In 1904, the Indian government announced that all public offices in the Presidency would switch to Indian standard time, which was at this point nine minutes in advance of Madras time. Reactions to this adjustment were even stronger and more organized. Despite mass protests and subsequent petitions from various local groups, the colonial state did not pull back from its goal to "bring India in line with the rest of the world."[17] The change

was officially implemented. In protest, Bombay's inhabitants continued to use their local time outside of public offices, up until the mid-twentieth century.[18]

Historians have identified the long years of boycott against standard time as a "moment of self-affirmation," in which people sought "the retention of what was critical to self-identity."[19] Indeed, defending civil time had become a channel for expressing feelings of self-preservation against external (colonial) threats to local autonomy. Pherozeshah Mehta, a prominent figure in early Indian nationalism, was therefore one of the most vocal opponents of switching to standard time.[20] Nationalists used a variety of arguments to defend Bombay's local time. The proposed change, they argued, disrupted the connection of time to space. It challenged the authority of religious calendars and communal wakes. From a practical point of view, it interfered with accustomed daily routines based on the hours of daylight and darkness. However, resistance did not always come from concerns associated with the preservation of cultural identity, and it was not framed by nationalist politics everywhere. I argue that in Bombay factories, the politics of time were grounded in the flexible business strategies and everyday experiences of precarious and irregular employment.

In defiance of the colonial thrust towards standardization, many aspects of time measurement and organization remained uncertain and contentious in Bombay mills. How was one supposed to tell time inside and outside of a factory? It appears that some mills put up sheets on their walls, listing the hours of sunrise and sunset. The rules about time were also exhibited in the verandah.[21] However, time-measuring instruments were not commonly available, and more importantly, very few among the mill population were literate.[22] In the early years, bells and whistles were used to mark the time to start work: "in the ordinary months of the season the bell is sounded at four o'clock, and the men begin to assemble."[23] As the industry expanded, however, this practice caused disturbance among the middle classes whose residential areas had come uncomfortably close to the mill districts.[24] The 1890

committee found that to prevent noise pollution, the Bombay municipality had outlawed factory whistles. This measure reportedly caused a great deal of hardship especially to those operatives traveling from longer distances. “There being no public clocks in the quarter of the town occupied by the operatives,” the final report stated, “thousands of men, women and children were left in the dark, not knowing when a factory was about to start work.” Labor representatives argued that the banning of whistles denied workers their valuable time of rest: “To avoid being late, they often find themselves arriving at the mill long before it begins work. Those operatives who are too early may, we are informed, be found lying about the approaches to the mill sleeping.”[25]

The image of Indian workers sleeping at factory gates recurred in official documents as part of a campaign for further legislation. Evidently, even if the issue of gathering in time for work could be resolved, not all factory time could be organized to the sound of a whistle. For, in the period between the opening and closing of the factory gates, the machinery worked continuously. To enable this uninterrupted rhythm, workers took small breaks at different times, with a co-worker tending their machine while they were away. The total rest time for each operative usually did not exceed 45 minutes, often divided into three 15-minute breaks. Most workers ate in the work room as the machinery was in motion, and went out to the verandah for smoking, drinking water, and other purposes. It seems that timekeepers assumed the responsibility of monitoring these intervals.[26] Confusingly, women in the reeling departments left the factory up to four times a day to feed their infants. Some women were given tickets to show at entry and exit, to rule out delay, especially in busy periods. How did these operatives know when to return to work? Did they use the tempo of the activity, that is, walking to the shade of the nearest tree, nursing their infant and then walking back, as a measure of duration?

Although some of the uncertainty with respect to time organization derived from practical difficulties, some of it was deliberate. The duration and pace of various tasks within the mill were subject to constant modification due to flexible production targets. Indian labor historians have previously shown that the cotton industry was subject to sharp fluctuations in the prices of outputs and raw materials. To cope with sudden variations in demand, mill owners minimized their fixed investment and manipulated manufacturing techniques and materials frequently.[27] This meant that labor requirements of individual mills changed abruptly and dramatically, sometimes during the same shift, as did the intensity of work. For instance, "when a mill switched a proportion of its spindles to higher counts, it could render a corresponding proportion of its preparatory machines idle, while requiring fewer doffers, gaiters and even siders since the machines were run at slower speeds."[28] These random changes left hundreds of men idle in the space of a day, who could be engaged by another mill or found "drinking water, washing, smoking and looking about."[29] Some 45 years later, close to 25 percent of the workforce could be found "sitting outside the mill," indicating that very little change had occurred in managerial strategies.[30]

The unreliable nature of mill work enhanced the importance of jobbers, experienced mill hands who fired or hired labor in accordance with demand. Acquaintance with these figures through the neighborhood or community/regional networks could increase one's chances of being hired. However, it did not eliminate uncertainty and arbitrariness since there was no formal mechanism to protect workers from market fluctuations. A mill owner could dismiss his hands without warning and compensation, whereas most workers had to find a substitute and give prior notice to take a period of leave. The arbitrary determinations of employers to this effect were remarked by several witnesses during committee interviews.[31] Importantly, the system of paying wages in arrears contributed to mill workers' financial vulnerability. Evidence shows that nearly all female and most male employees were paid by

the piece, but wages were withheld from one to three months.[32] Seemingly to ensure commitment to the factory, the practice served as insurance on the part of the mill owner against swift changes in market demand. The 1890 committee found that the employers saved five or six percent per annum on the wages that they withheld, whereas "the operatives lose from fifty to 100 per cent" to money lenders and grain merchants who imposed high interest rates.[33] Many workers thus lived in perpetual debt; a sudden dismissal in a slack period meant that their financial position deteriorated swiftly. Some applied to the courts to retrieve their due wages, though without much success. A 35-year-old male worker, Atmaji, explained to the committee that "the operatives are really afraid to go to court, because the mill owners employ *vakeel*s, and oppose them with great persistence."[34]

Can it be shown that elastic and unpredictable labor patterns marked an early stage in the development of this industry, which in due course would become more regular in its rhythms? The scholarship in the late 1960s and 1970s answered this question in the affirmative. In his well-known article on time, work discipline and industrial capitalism, E. P. Thompson argued that work displayed irregular patterns before the advent of large-scale, mechanized industries.[35] In sharecropping and fishing communities, producers attended to various chores based on a perceived order of urgency. Work was attuned to natural and social rhythms: the sea tides, harvest cycles, the needs of farm animals and domestic rituals provided a measure for the time and pace of the activity performed. Periods of intense labor were followed by long episodes of idleness. A demarcation between "work" and "life" did not exist for the former was intermingled with everything else. This occupational definition of time gradually lost its importance with the spread of waged labor and the Puritan work ethic.[36] Thompson has shown that employers in early textile mills introduced time sheets, timekeepers, informers and fines to instill the workforce with a sense of time thrift. Close supervision through clocks brought a clear understanding that a worker's time was their

employer's currency. "Mature industrial societies," such as England, rationalized production around regular clock-measured hours. In the meantime, task orientation continued to be maintained by women in the domestic sphere, in occupations where people still worked independently, and in settings such as Bombay, where the workforce lacked a proper commitment to the "industrial-way-of-life."[37] In other words, such labor remained confined to environments in which capitalist relations of production were not fully absorbed.

Economic and social historians now agree that Thompson's thesis, while compelling with respect to certain localities and concentrations of industrial activity, requires extensive qualification and readjustment. His analysis rests on sweeping generalizations with respect to how work was organized in capitalist economies and their precedents. In fact, the transition from task-oriented to clock-based time (as well as from craft to factory) was neither ubiquitous nor absolute. Capitalism developed in uneven and atypical ways across England and beyond.[38] Some trades did not make the transition to clock-regulated hours in any clear way, including woolen manufacturing, brickmaking, pottery and mining.[39] In a host of sectors, production retained its ties to the rhythms of the seasons, the dictates of the custom and community, the requirements of the household economy and the vagaries of consumer markets. Some authors believe these sporadic rhythms persisted because employers were limited in their ability to instill the workforce with a sense of time thrift. The continued refashioning, negotiation and redefinition of time at work by employees obstructed managerial control. In industrializing North America, for instance, many British workers held a considerable degree of autonomy over the timing of their labor. The "pre-industrial" behavior of these workers included discretionary movement in and out of the workplace and unofficial holidays taken after intensive periods of work.[40]

From another perspective, factory owners did not always value time discipline, especially if they catered to product markets where flexibility was at premium, or if their

fixed capital investment per worker was low. Gregory Clark's analysis of time discipline as a function of *a certain type* of factory production is worth considering in this regard.[41] More broadly, recent approaches to time within anthropology and sociology present a challenge to the conventional view that clock time so uniformly and irrevocably dominated industrial societies. Rather, it has been shown that time experiences of individuals and groups reflect a great deal of range and diversity, depending on the sociocultural context as well as changing pressures within the spheres of production and reproduction.[42] In the light of new research, it seems no longer tenable that industrial production is by definition and nature regular, or that any combination of clock time with task-based or natural time is backwards and indicative of a primitive stage in capitalist development.

Significantly, the irregular character of labor patterns in cotton mills persisted throughout the nineteenth and a good part of the twentieth century. This was so despite further industrial development and a seeming attempt on the part of the mill owners in the late 1920s to standardize their rules and regulations.[43] The overall persistence of diverse and sporadic work rhythms cannot be understood without due attention to the structural constraints of the cotton trade. The organization of work in Bombay factories reflected methods developed by the mill owners to navigate instabilities in the product and factor markets. The prevailing strategy of adjusting production to short-term price fluctuations underlined the varying labor needs and erratic, irregular patterns of activity. The Bombay "business model," while contributing to job insecurity and instability for workers, provided the mill owners with sufficient room to maneuver in the face of volatile markets. The flexibility thus obtained was just as instrumental for success as the low cost of labor power in India.

The cotton industry was of course not unique in terms of adopting flexible patterns of labor deployment. Operating within a colonial economy, many urban trades utilized low-cost, labor-intensive production techniques that could easily be adjusted to market fluctuations. In

fact, some mill hands considered their occupation to be relatively better paid and more prestigious than other forms of employment available to migrant workers.[44] For the urban poor, it seems, having entered factories meant a higher cash income for an indeterminate period. However, their labor routines did not dramatically differ from those of people who worked at home or in small-scale operations.[45] Flexibility was the key to surviving in an open market, so spasmodic production continued in mass-scale production. An awareness of the long-term features of capitalist production in Bombay thus allows for a better explanation of the continuities in time and work discipline across several decades. It also avoids the untenable implications of the evolutionary paradigm, such as the notion that capitalism in this context remained suspended in a transitional period for nearly a century.[46]

Different tasks involved in cotton manufacturing required different levels of flexibility. At one end of the spectrum were seasonal jobs, such as cotton ginning and pressing, to which the concept of working hours simply did not apply. Here, employers "clocked" work to the limits of the human body, not to any mechanical instrument or even movements of the sun. Located at the outskirts of Bombay, near where the harvesting was done, these establishments prepared bales of raw cotton for further processing. The job was limited to a few months in the summer, and the wages were notoriously low. Unsurprisingly, women and children comprised the chief workforce. Like the cotton mill operatives in Bombay, the workers appeared at the factory gates in the early morning hours, in fear of failing to show up on time and losing their places to spare hands. Rastamji Wadia, an advocate of labor legislation, reported in 1885 that "both the men and the women come to the factories at 3.00 a.m., as they have no idea of the time, and they wish to make sure that they are at the factory by the time it opens, i.e. 4.00 a.m."[47] Those who secured a position were put to work day and night for seven days consecutively, until they were exhausted.[48] Tanu Bapu, the overseer to the contractor at Khangam Press, said that "the men and women sometimes

work for ten or twelve days and nights at a stretch without rest."[49] The serious health ramifications of such continuous work were remarked by physicians and other concerned individuals in various committee meetings. However, nineteenth-century factory legislation did not encompass the cotton ginning and pressing works. On the surface, these establishments failed to meet the criterion of four months' continuous operation, set by the authorities as part of the definition of a factory.[50] In fact, clock hours or any means of time organization were costly for these businesses, since owners hired the machinery for the time required to press a certain quantity of raw cotton.

To obscure the industry's need for flexible labor, some mill owners propagated the view that Indian workers had no social engagements, spending their days loafing about their lodgings. The seeming lack of purposeful activity in mill hands' lives meant that employers could deploy their time as wished. Similar arguments were repeated in state publications.[51] The picture that emerged from official investigations, however, was somewhat different. Consecutive committees found that mill workers were nearly unanimous and most articulate in their request for a better structured, in fact clock-measured, time at work. Specific demands presented before the 1890 committee included regular weekly intervals on Sundays, the payment of wages no later than the 15th of the next month, a work day restricted within set hours and punctuated with regular intervals. Some workers raised the issue of the out-of-hours servicing of the machinery, a practice referred to as "time-cribbing" in England.[52] More than the fact that the mill owners did not pay for such stretches of labor, the workers seem to have felt aggrieved by the interruption to their valuable time off work. Another issue directly connected with time-cribbing was the appropriation of religious holidays. Some mills closed on the festivals observed by the Marathi Hindu community, which comprised the majority of the mill workforce. However, the workers were called to the mill the following Sunday.[53] The arrangement worked for the mill owners because the machinery needed to be cleaned every

fifteen days. During the religious festivals, the mill hands came to work even though the work was stopped, cleaned and oiled the machinery, and left at noon or an hour before noon. In other words, the mill owners got some work done for free, under the pretense of giving their hands a day of rest. The short window of leisure within the day was also indirectly taken away, especially in busy periods. The 1890 report stated that "most of the Bombay mills profess to give half an hour in their rules, but in many cases … the gong or whistle for recommencing work is sounded ten or fifteen minutes before the full hour has expired."[54]

Such subtle ways of appropriating non-work time met with increasing dissent. The committee meetings were not the only platforms upon which resistance was shown. Demonstrations and strikes became more visible and better organized and were supported by forms of written supplication such as collective petitioning. In 1889, for instance, about 6,000 workers petitioned the government to demand "a fixed and uniform hour of attendance." Signatories, mobilized by Lokhande, asked for the hours of work to be limited to between 6:30 in the morning and sunset. They also demanded one complete day of rest every Sunday in addition to a half-hour recess at noon.[55] The use of phrases such as "between 6:30 and sunset," as opposed to "between sunrise and sunset" or "between 6:30 a.m. and 6:30 p.m" suggests that the workers agreed to stay in the evening for as long as the daylight stretched, but they demanded that the start of work should be fixed to the clock. During the meetings of the 1890 committee, Lokhande mentioned the municipality's decision to ban factory whistles as the reason for this request. That is, according to Bombay local time, 6:30 was *after* sunrise for most of the year. If the operatives did not know when to head for the mill when it was dark, they could use the sunlight as an indication. In effect, the arrangement would also shorten the working day, albeit not too significantly. The extra few minutes would give the operative more time in the morning to prepare or have breakfast, wash and do morning rituals, which seem to have been a major issue for employees in a variety of trades in Bombay,

especially office clerks.[56] Thus, the politics of time in Bombay mills connected with broader issues of concern for the laboring population in the city. The petition also showed that clock hours had become important not only for management, but also for workers in the struggle for control over their work and life. The 1890 committee, however, advised that instead of fixing a certain hour to start work, "the municipality should allow that kind of whistle which causes the least annoyance to be used once in the morning for each manufacturing center in Bombay."[57]

Using the available channels of contact with the state, the Bombay mill workers made a clear request for a demarcation between factory time and personal time. Supposedly a default feature of industrial production, such clear-cut separation did not exist in the cotton mills. Neither did religious preaching about the importance of time, the urgency of worldly matters or the moral ills of idleness. Rather, mill work entailed a great deal of ambiguity and volatility. Determined by the vagaries of the market, factory time encroached upon the times for non-factory work such as cleaning, cooking, washing, shopping and care of the elderly and children, as well as socialization and rest. Class politics in these early years focused on replacing this all-invading, overly-demanding time structure with a systematized, predictable, negotiable one.[58] Such a movement necessitated, first and foremost, a good grasp of clock time and its various uses within the market economy. Subsequently, workers had to negotiate the terms under which they exchanged a function of their labor time. They did so with a degree of success. The 1891 Factory Act introduced four holidays for all adult operatives, even though it did not touch working hours except for those of women and children. Employers responded with wage cuts. This triggered a wave of protests, encompassing several mills at once for the first time in the history of the industry.[59]

As class politics gained vigor in Bombay, demands based on time took on different characteristics and modes of articulation. A remarkable incident that highlights the open-

endedness of time-related strategies at work took place in the early twentieth century. In 1906, the mill owners agreed to join a host of trades in adjusting the hours of work to standard time. The decision was not welcomed by the operatives. In January, 4,500 workers of the Jacob Sassoon Mill went on strike to protest the decision on the part of their employer to modify the prevailing system of work. To the mill owner, the reaction from the mill hands was entirely irrational because the new hours were the same in relation to the sun.[60] To the workers, the attempted change, especially taken together with the introduction of electric light, could lead to unlawful and unprecedented impositions on their work day. The newspapers reported that a few weeks before the strike, the workforce had struck a deal with the management to cancel overtime. On the next payday, they found that their wages had been reduced. Moreover, the company had modified the working hours and installed electric light to be employed "during the time there was not sufficient light to work by."[61] In protest, the workers stopped the machines and declared that they "did not want standard time, nor working by electric light. The hours should be fixed from six to six Bombay time, but there should be no working under electric light by any circumstances." The *Times of India* editors noted that "the evil of decreased wages … remained at the bottom of the whole thing."[62] Meanwhile, labor in various other mills had also taken to protesting, for they claimed, "the new time imposed an additional forty-five minutes of daily work on them."[63] The strike at the Jacob Sassoon Mill turned into a violent protest, during which the workers pelted the factory with stones and smashed its clock. The employer eventually conceded, along with the owners of other mills affected by the protest. From then on, Bombay mills continued to use Bombay time.

This example shows that workers' politics of time reflected an understanding of the opportunities provided by the political atmosphere, together with a calculation of where their interests lay. In 1889, when clocks showed Bombay time, standardization in temporal practices translated into a limitation of the work day to between the hours of sunrise and

sunset. Accordingly, labor unions campaigned for it. Whereas in 1906, when clocks abandoned local rhythms in favor of further standardization, the mood changed in the other direction. The general sentiment was that if work time lost its correlation with the hours of daylight, exercising control over it would be difficult. The objective remained the same: preventing managerial claims over unpaid-for time. Hence the *Indian Textile Journal* (ITJ) claimed that "[mill workers had] been persuaded by certain demagogues against the use of standard Indian time instead of local time … because it would rob them of a part of their working day! Had the change of time been enforced, serious riots might have followed."[64]

In summary, flexibility and irregularity of work patterns served ultimately capitalist ends rather than workers' habits or custom.[65] From the perspective of employers, restricting the work day to clock hours meant putting a time limit on production when incessant labor was required. It also meant keeping a large workforce on the payroll when there was insufficient market demand. An industrial work discipline, as in foreseeable patterns of work and leisure, was costly. By contrast, a certain degree of ambiguity regarding the time of employment, or indeed of the day, allowed for flexible labor deployment strategies. Belittling Indian mill workers' time awareness, colonial reports masked the fact that employers had never desired such awareness in the first place. While official accounts depicted Bombay mill operatives as idle and ignorant, labor unions organized campaigns to reclaim control over work time. Informed by wider political debates, they sought to establish set times for rest, family, recreational activities and communal feasts. During the campaigns of both 1889 and 1906, clocks served as instruments of resistance, not just of discipline and subjugation.

**The Diversity and Interrelations of Time Experiences in Cotton Manufacturing**

Some sociologists have argued that industrial production did not agree with the inner temporalities of women.[66] In this view, women's time was inherently multidimensional and erratic, either because of their biology or social roles. By contrast, industry imposed an artificial, uniform order that conforms better with male patterns of work. The dichotomy seems false in the light of recent studies that reveal a considerable diversity of time ordering within industrial settings, as well as of temporal experiences among women.[67] In other words, erratic and multidimensional features of a female caregiver's time did not clash with factory production of all types, in the same way as regular and rigidly-defined work hours did not exclude women of all ages and circumstances. The notion that time at mechanized production continued to be shaped by multiple external forces calls for a close examination of their interrelation. This section thus explores the ways in which family and the gendered division of labor impinged on time-related aspects of work in the Bombay cotton industry. It shows that departments dominated by married or widowed women were most visibly dissociated from perceived features of industrial production, such as a clear separation between work time and personal time. This resulted not from natural or biological imperatives but from the special positioning of female workers in the spheres of production and reproduction.

As stated earlier, nineteenth-century legislation focused on the work of women, as did official enquiries into factory labor. Colonial sources of this period are less revealing with respect to how men performed work. However, petitions and verbal statements from male workers partly offset the imbalance. The overall picture that emerges from these is that precarious employment was a common experience of both genders and all ages. Some rules applied to all: women and men typically were allowed the same amount of rest within the day. With some exceptions that will be addressed later, they were given the same number of weekly and religious holidays. Time and work organization differed to some degree, however, between those who worked on the machinery in the spinning room, such as spinners, carders,

winders and doffers; those who worked on the looms, such as weavers and their apprentices; and those who operated reels and their helpers. The last group was comprised almost entirely of women. In what follows I use various official and unofficial sources, including letters from a keen British inspector who opposed factory legislation, to analyze the ways in which women experienced time in cotton reeling departments. I will then contrast these experiences with other temporal frameworks that prevailed in the factory, such as those of the male weavers.

H. W. J. Bagnell, the district collector and inspector of factories, did not leave much of a biographical trail in official records. He appears to have been a civil servant eager to defend the Bombay mill industry against miscalculated colonial intrusions. While English papers deplored the exploitation of women and children in Bombay factories, he claimed that factory work actually granted women considerable flexibility and freedom. Once he wrote that "women take so many holidays, that there is as little need to protect them against themselves as against the mill owners."[68] In 1889, two years before the first protective legislation came into force, he was asked to draft a report on the conditions of female and child labor in Bombay. In the hope of reversing the tide in favor of legislation, he set about examining registers of attendance for factory women. Obtaining muster rolls was a challenging task, one that involved personal visits to mill agents who were unwilling to reveal detailed information about their businesses. After several months of inquiry, he obtained records from 25 out of 52 cotton mills concerning the period between March 1, 1888 and February 26, 1889.[69] Half of these mills were engaged in spinning only, while the other half were involved in weaving as well as spinning.

Based on these records, Bagnell drafted a detailed chart showing the average days of absence of female workers in each mill. He identified a great variance between mills. The lowest average of female non-attendance was 4.1 and the highest was 17 days a month. He

found that when all mills were taken together, female workers had absented themselves 6.6 days a month on average. Such level of absenteeism "would be an absolute impossibility" in England.[70] He argued that these records manifested a lower degree of commitment among women to paid work. Upon various "excuses" such as illness, childcare, funeral or marriage ceremonies, he commented, women abandoned their tasks in the factory.[71] The owners and supervisors overlooked this irregularity for there was an oversupply of labor in the reeling departments, where female labor was concentrated. The task required little training, and therefore a woman wishing to take leave quite easily found a substitute. He wrote that "the leave is always freely granted, and no woman would be dismissed for taking seven or eight days a month. And if she produced a substitute on each occasion she could take as much leave as she desires, and this is constantly being done."[72] Given that all women equally benefited from the flexibility conferred by the practice, it did not cause friction among them.

How accurate were Bagnell's observations about the laxity of discipline in departments employing women? According to official reports from 1890, nearly 80 percent of female workers in the Bombay cotton industry were reelers.[73] Reeling was a manual process that stood at the end of the manufacturing chain together with weaving. That is, reelers and weavers shared the output of spinners in varying proportions, turning it into either cloth or cotton yarn. The pace with which this task was performed had no direct bearing on the overall speed of production in the factory. Having engaged almost exclusively women and young girls, reeling rooms were often in physically separate buildings or at least had different entrances.[74] The lack of coordination with the moving machinery brought a semi-independent status to these divisions. The supervisors here could adjust the pace of work to the task at hand. They could also establish a separate set of rules regarding attendance to accommodate childcare and other gender-specific tasks that concerned reelers. One such task involved the breastfeeding of infants during normal work hours. The proceedings of the committee in 1890

provide ample evidence of this flexibility. For instance, a female winder from Jairaj Balloo Mill, Khandi, had two daughters and went home every day for an hour at twelve. She said that when she was breastfeeding, she went home three times a day. During her absence, the neighbors looked after the children.[75] Another female reeler reported that most women in her mill took an hour in the middle of the day to look after their children.[76] In addition to stepping out of the factory for short breaks, most women were allowed to go to work a half-hour later and leave a half-hour earlier than the men. This arrangement allowed them to safely travel the distance between their homes and workplaces within daylight hours.[77]

However, the flexibility of work organization did not mean less work. It also certainly did not mean freedom to leave at any time or for as long as one pleased. First, reelers were subject to the same rules as other mill hands with respect to intervals taken while at work, fines to be paid when absent, and procedures to be followed at each entry and exit. More importantly, they continued working when the other mill hands did not. A reeler employed in the Empress Mill, Dhurpati, said to the committee in 1890 that she was not allowed time off work either on Sundays or during religious festivals. When the engines were not working, reelers had to go to the mill to "work up the cops."[78] Another reeler from the James Greaves Mills similarly said that "the other mill hands get two Sundays as holidays in the month. Reelers have to go on Sundays, every Sunday, therefore no holidays."[79] When reelers took time off of their own accord, they forfeited their wages and their absenteeism records swelled. Significantly, they performed long stretches of labor to compensate for the time spent away. In Bagnell's own words, "they [female workers] would prefer to take ten days or fifteen days or twenty days at a time and make up for the holiday by working for the twenty-eight or twenty-nine days the mill engine is going."[80]

The constant wavering of Bombay reelers between the market and non-market spheres of production eroded the neat isolation of work time from the time of the household and

community. At the same time, activities such as nursing of infants or preparation of funeral ceremonies took place outside of the mill compound, indicating a minimal degree of separation between paid and unpaid labor. By contrast, in cotton ginning and pressing, the two overlapped both in temporal and in spatial terms. Thomas Drewet, a consulting engineer, told the Factory Commission in 1885 that he often saw women in Khandesh taking their meals at the cotton gins and "supplying the gins mechanically three parts asleep, and a child at the breast sucking one minute and throwing cotton into the machine the next."[81] The multi-tasking of women in this manner produced a multi-layered temporal experience. The singularity of the purpose and the quality of one activity, i.e., tending the machine, was interrupted by another activity with an entirely different purpose and quality. While the former involved only physical labor, which was timed and sold to the employer, the latter demanded both physical and emotional labor, which occurred in its own, non-commodified time. These activities intersected in the same space but operated on different temporal planes.

In Bombay town where female reelers left the factory to nurse infants, paid and unpaid work was divided in space, yet sporadic production retained its relevance. Labor patterns of a cotton mill operative were shaped by at least three levels of task-orientation: first, that of the factory as a whole with its shifting production targets, second, that of individual departments with their varied modes of technology and labor use, and third, that of the home and community. These affected longer-term fluctuations of waged work for women and men alike, for instance, their records of absenteeism and patterns of movement between different mills and tasks. There were, at the same time, contrasting experiences on the shop floor level. Two things increased the frequency of breaks while at the factory: hourly payments and a low level of coordination with the moving machinery. That is, workers could afford to leave their place more often if they were paid an hourly wage and engaged in a department that did not require a high degree of synchronization with the spinning operation. Female reelers were

paid piece-rate wages but their position in the manufacturing chain reduced the pressure for synchronization and allowed for some flexibility. They could look after their infants and attend to domestic chores briefly while at work. Some male weavers enjoyed the joint advantage of hourly wages and a low level of synchronization with the rest of the mill. The male spinners received hourly wages but worked under a considerable time pressure. These contrasts between male workers' labor routines will be explored shortly.

Before 1891, when factory legislation restricted the hours of work for women to eleven, there existed a small number of female workers in Bombay employed as winders, and in Ahmedabad and Surat as spinners and weavers. Each task had a different pattern of attendance, depending on its connection with other tasks in the factory. Any delay in the winding department caused a short supply of reels to the weaving rooms and a block of work in that department.[82] Female winders were therefore liable to work for longer stretches of time, especially at busy times. A female winder, Awdi, told the committee in 1890 that there was no great difficulty in getting leave if there was sufficient yarn ready in the factory. But if there was pressure of work, she could not get leave "even if anyone died in the family." If absent without leave in such situations, she was fined two days' pay.[83] Another female winder employed in Elgin Mills at Cawnpore similarly said that "she remains the full time that the machinery is working," and "she cannot get leave easily if she wants it."[84] These examples show that winders had a somewhat reduced autonomy over the *organization* of their productive and reproductive work, compared with reelers. Crucially, neither group had more freedom from waged employment or more control over the disposal of their time. The autonomy pertained only to the management of their routine, i.e., the handling of factory and domestic tasks in an order of urgency.[85]

It must be noted that most women interviewed by the factory committees expressed dissatisfaction with the time organization at the factory. They joined men in the general

request for standard schedules, specifically regular weekend holidays.[86] The mill owners, however, went to significant lengths to protect their business from legislative interference. In March 1890, the Bombay Chamber of Commerce petitioned the government about the proposition of fixed holiday times for women. The petitioners, rather unexpectedly, suggested that women's menstruation times demanded flexibility in the arrangement of holidays. "It is well known that women require a certain number of holidays in the month for special reasons," the members said, "and that it suits them to regulate the holidays which they take during the month according to their personal requirements." Given that it was not possible to know these "requirements" ahead of time, there was little sense in introducing fixed holidays for female workers. Instead, the petitioners suggested women should be given three days off each month, individually at times that suited them best.[87] A few days later, the Bombay Millowners' Association petitioned the government, repeating the request. By allowing women to take leave at separate times, the mill owners argued, "the holidays would be absolutely assured, while the women would be able to take them on such days as would be personally most convenient for them – a matter of great importance considering the reasons for which such monthly holidays are really required."[88]

Thus, the times of women's menstruation became an instrument of politics, suggesting an alternative temporal order against that of the calendar and clock. Women's convenience, though, was in fact not really the issue underlying these anxieties. Rather, the much-valued flexible organization of work was at stake. In advancing the argument that female workers were allowed to absent themselves during menstruation, the mill owners were challenging the idea that factory work could be organized through a uniform, abstract time standard. The notion that employers allowed women to stay off the factory during menstruation was so out of touch with the realities of women's work that Bagnell himself criticized it in his report.[89]

Female laborers interviewed in 1890 also uniformly denied that they were allowed, let alone obliged, to leave work during menstruation.[90]

Although colonial inspectors showed little interest in patterns of male labor, patchy evidence shows that men were subject to diverse work arrangements in accordance with their position in the manufacturing chain, as well as in the structures of workplace hierarchy. Male operatives in the mixing, blowing, scotching, carding and drawing rooms, those operating spinning frames and those in the weaving sheds performed different activities with varied degrees of intensity and regularity. The three elements that seem to have impinged strongly on men's disciplinary structures were whether they received a piece-rate or fixed income, the degree of flexibility allowed by their individual departments, and their skill/income status. It seems that domestic and communal engagements carried less weight in shaping men's temporal experiences at work. This was not because male workers were atomic individuals detached from the household and community, but because they had the social power to delegate the responsibility for the daily maintenance of these domains to female relatives. In contrast to women's work in reeling, skill and experience mattered more, because there was a greater variance among men with respect to the tasks that they performed. The more a male worker was paid, the more the chances were that he could afford to lose part of his income. For instance, Gyanaji, a male jobber and "monthly paid artisan" in the Khattav Mackanji Mill, told the committee that in addition to the two Sundays, "every month he absents himself for one day on account of private business. They cut two months' wages."[91] Having been paid 15 rupees per month for his labor, this senior operative could clearly afford the loss of income. The following table, which breaks down wages by skill for 1893, provides an overview of the layers of hierarchy among the male workers:

| **Men** | **Rupees** |
|---|---|
| Jobbers | 15–80 |

| | |
|---|---|
| Scutching-room hand | 9 |
| Carding-room hand | 7–10 |
| Frame tender | 10–13 |
| Ring-frame hand | 9–12 |
| Spinner | 20 |
| Other male room hand | 7–10 |
| Weaver | 16 |
| Help | 9 |
| **Women** | |
| Reeler | 7–8 |
| Winder | 8 |
| **Children** | |
| Doffer | 6 |
| Piecer | 7 |

**Table 1.** Average monthly wages of operatives in Bombay's mills in the year 1893. A.M.T. Jackson, Chief Inspector of Factories, "Provincial Report on the Working of the Indian Factories Act in the Bombay Presidency for the Year 1892", Bombay Custom House, 21 June 1893, B.L., I.O.R/V/24/1627:1 -892-1910, 14.

Studies have shown that the weavers, who had a prestigious and well-paid occupation, could take more frequent intervals than other mill hands. They could also refuse to work night shifts and recorded higher rates of absenteeism.[92] The weavers' relative autonomy derived, first, from their organizational strength. The occupation was dominated by men from specific communities, most notably Julaha Muslims, who also worked in various small-scale handloom weaving factories in Bombay. The pre-formed and maintained solidarities among these established artisans translated into higher bargaining power, less supervision and better income at the factory. By contrast, workers with less power, job security and income were more anxious about breaching the disciplinary rules and risking wage cuts. Equally important to the weavers' frame of time organization was their position in the manufacturing chain. As mentioned earlier, the task was one of the two final steps before the goods left the factory, the other being reeling. The pace of the weaving process did not have a direct effect on the

production rate in other departments. This organizational feature relaxed the pressure for coordination and allowed the weavers to leave their looms unattended occasionally. Dewal, a weaver from Khandesh, said to the committee in 1890 that in addition to the lunch break, his co-workers took intervals twice for about half an hour in total. "This is the case for good weavers', he noted, '[T]hose who do not care to earn much can go oftener."[93]

One must note that despite their relatively relaxed schedule, the weavers, like reelers, did not have absolute freedom of movement, nor did they determine the pace of their work. Although individual departments varied in their degree of coordination, all responded to production targets set by the employer who owned the equipment and floor space. There were, of course, other methods of organizing labor in the weaving industry which continued to co-exist with the factory system. For instance, a considerable number of handloom weaving workshops in nineteenth-century England allowed artisans to control their work pace, work hours and personal conduct on the job. At the same time, these weavers were charged for their use of the facilities and tools. In this arrangement, "workers were paid a piece rate for their output, but were required to pay a fixed sum per week for the rent of their machines, the floor space they used, and even sometimes explicitly for managerial overhead."[94] In Bombay mills, by contrast, the discipline was tighter because the rent and charges system did not exist. Shaik Mahomed, a male weaver employed in the New Great Eastern Mill, told the committee in 1890: "the piece work is not voluntary as regard the operatives, in so much as a man cannot leave off his work when he likes. He must remain and work until the mill stops."[95] In fact, according to this weaver, they "got ill for want of rest" and received no compensation for accidents.

The time of the spinners, carders, scutchers and others were similarly contained within the factory from sunrise to sunset. As witness accounts reveal, those who were paid by the piece had more incentive to work continuously, whereas monthly wage earners were "anxious

for small hours."[96] Babaji Krishna, a drawing-frame operative in the Lalljee Mill, said that he frequently took five-minute breaks because he was a "monthly servant." However, the piece-rate workers did not "go out like this."[97] Dewal's description of work in other departments of his mill also implied that payment by the piece, combined with the requirement for higher coordination, restricted workers' movements: "If the mill is going," he said, "nobody can leave his work, and besides nobody, doing piecework, is willing to go." Similarly, boys in full-time employment worked to a continuous rhythm. Dhakia, a fourteen-year-old male scutcher, told the committee in 1890 that he worked from 5.30 a.m. to 6.45 p.m. with only a fifteen minutes' break in the middle, and two fifteen minutes' stops in the morning and afternoon. He did not get regular Sunday holidays, and at odd times when he had one, he went in to clean the machinery. If he were given more time, such as regular Sunday holidays, "he could wash his clothes, and all the boys [in his department] would be pleased."[98]

Despite the diversity of male-dominated jobs and the variability of temporal structures framing them, the factory physically bounded men from sunrise to sunset. There is very little mention of men leaving the factory premises in the middle of the day like women seem to have done regularly. The only exception to this, as mentioned in the first section, was when the mill owner or manager stopped or slowed down the machinery in the middle of the day to adjust production to the market demand. A male worker could thus easily find himself idle and would leave the mill premises for an indeterminate amount of time. Such instances were common, and the experience was shared by female and male workers as part of the circumstances of their precarious and irregular employment. For instance, the weaver Mahomed told the 1890 committee that "it is optional for the employer to stop the machinery whenever he likes and he pays no compensation for sending them away in the middle of the day."[99] When there was sufficient demand, however, most male operatives stayed within the mill, unlike women, who moved in and out to combine factory work with outside work. More

importantly, men's productive activities, both in definition and in practice, had a higher market value. Childcare, cooking and cleaning belonged to women, who had to divide their time between these unpaid tasks and lowly-paid factory labor. During work hours, a male spinner's temporal experience was dominated by a single source, the continuous rhythm of the spinning mule. A female ginning operator, however, wavered between contrasting temporalities of breastfeeding and machine tending. The different roles assumed by men and women in the reproductive sphere thus determined their different relationship to time in the factory.

**Conclusion**

Three decades after the Factory Act came into force, a group of women in a Bombay cotton mill collected 40 rupees and bought a clock. They asked the manager for permission to hang it on the wall. The manager, seemingly happy, agreed. He even offered to reimburse the 40 rupees that the workers had paid for the clock. The women refused the offer. They said that they wished the clock to be their own, "and no doubt they also wished to keep the management of it."[100] This anecdote from a European author who traveled to Bombay in the early twentieth century sums up the long struggle of factory workers in India in achieving knowledge and control of clock time. The purchase of this expensive instrument did not simply reflect a popular interest in new technologies or decorative objects. The clock created a temporal order which could not be easily manipulated or obscured by management. By possessing and controlling this mechanical piece, workers could check the length of the midday break or afternoon shift. They could identify and charge for extra demands on their

time. They could challenge the uncertainty about the confines of paid labor. They could use the clock, usually a symbol of discipline and subjugation, as an instrument of resistance and negotiation.

The analysis presented in this article supports the notion that industrial production did not impose a single, abstract, objective ordering of time. Operating simultaneously within temporal orders of the global economy, agriculture, family and community, the industry in Bombay combined emergent disciplinary schemes with a task-oriented, flexible approach to labor. Gender, religion, skill, experience, stage of life, and position in the manufacturing chain shaped disciplinary frameworks as well as subjective experiences of time at the factory. In order to allow for competitive and flexible business strategies, capital owners sought to obscure the temporal organization of their business. They resisted attempts to standardize and rationalize production, such as legislation prescribing set hours and regular intervals. The workforce fought against this oppressive ambiguity by asserting the importance of clocks and calendars. Street demonstrations, strikes, petitions and testimonies emphasized the notion that time was not an unlimited source but a quantifiable entity with market value. In the end, it was not only the educated, office-holding, urban male elite who had a vested interest in transforming time-related practices and values. Factory workers, many without possessing clocks, reading magazines or commuting daily on trains, participated in the emergence of new Indian temporalities.

**Endnotes**

[1] Vanessa Ogle, *The Global Transformation of Time: 1870-1950*, (Cambridge, 2015); Ritika Prasad, "Time-Sense: Railways and Temporality in Colonial India," *Modern Asian Studies* 47, no. 4 (2013); Avner Wishnitzer, *Reading Clocks, Alla Turca: Time and Society in the Late Ottoman Empire* (London, 2015); On Barak, *On Time: Technology and Temporality in Modern Egypt* (Berkeley, 2016); Stefan Tanaka, *New Times in Modern Japan* (Princeton, 2009); Thomas C. Smith, "Peasant Time and Factory Time in Japan," *Past & Present* 11 (May 1986), 165-197. For studies of time-use in Africa, see Frederick Cooper, "Colonizing Time: Work Rhythms and Labor Conflict in Colonial Mombasa" in *Colonialism and Culture*, Nicholas B. Dirks, ed. (Ann Arbor, 1992); Keletso E. Atkins, *The Moon*

*Is Dead! Give Us Our Money!: The Cultural Origins of an African Work Ethic, Natal, South Africa, 1843 – 1900* (Portsmouth, 1993), ch. 4.

[2] According to Vanessa Ogle, the debate over temporal standardization was an instrument through which British-educated Indians could express their dissatisfaction with various aspects of the Raj. See: Ogle, *The Global Transformation.*

[3] Rajnarayan Chandavarkar, "The Making of the Working Class': E. P. Thompson and Indian History" *History Workshop Journal* 43 (Spring 1997): 188; Idem., *The Origins of Industrial Capitalism in India: Business Strategies and the Working Classes in Bombay: 1900 – 1940* (Cambridge, 1994).

[4] This meant that she had four holidays in total, since cleaning the machinery did not count as work.

[5] *A Copy of Report of the Recent Commission on Indian Factories*, India Office (London, 1891), The British Library (Henceforth B.L.), Asia, Pacific & Africa P/W 73, 41-2.

[6] S. M. Edwardes and James M. Campbell, *The Gazetteer of Bombay City and Island*, Volume 1, (Bombay, 1909), 487-8.

[7] Ibid., 165.

[8] *A Copy of Report*, 23.

[9] Ibid.

[10] Ibid., 20-21.

[11] Sonya O. Rose, *Limited Livelihoods: Gender and Class in Nineteenth-Century England* (London, 1992), 56.

[12] See: Giordano Nanni, *The Colonization of Time: Ritual, Routine and Resistance in the British Empire*, (Manchester, 2012); Ogle, *The Global Transformation.*

[13] Ibid. It should be noted that he members of the 1890 committee were predominantly non-British: Surgeon-Major A. S. Lethbridge (President), Sorabji S. Bengali, Esq., Mir Muhammad Husain, Esq., Narayan M. Lokhande. See: *A Copy of Report*, 18.

[14] Jim Masselos, "Bombay Time" in *Intersections: Socio-Cultural Trends in Maharashtra*, Meera Kosambi, ed. (New Delhi, 2000), 162.

[15] Ibid., 164.

[16] Ibid., 165.

[17] Ogle, *The Global Transformation*, 107.

[18] Masselos, "Bombay Time," 178.

[19] Ibid., 180.

[20] Ogle, *The Global Transformation.*

[21] "Factory Commission in Bombay," October 14, 1890, *The Times of India*, 5.

[22] "The generation of workpeople who labored at their machines before the introduction of the Factory Act were almost wholly illiterate." S. M. Rutnagur, ed., *Bombay Industries: The Cotton Mills* (Bombay, 1927), 316.

[23] *Report and Proceedings of the Commission Appointed to Consider the Working of Factories in the Bombay Presidency* (Bombay, 1885), B.L., I.O.R./V/26/670/86, 13.

[24] Jim Masselos, "Appropriating Urban Space: Social Constructs of Bombay in the Time of the Raj," *South Asia: Journal of South Asian Studies* 14, no. 1 (1991), 34.

[25] *A Copy of Report*, 13.

[26] Chandavarkar, *The Origins of*, 305.

[27] Ibid., 327.

[28] Ibid., 332.

[29] *A Copy of Report*, 14.

[30] Chandavarkar, *The Origins of*, 330.

[31] *A Copy of Report*, 25, 27, 31, 34, 36. Also see: "Factory Commission in Bombay," October 10, 1890, *The Times of India*, 5.

[32] The rationale behind differences in male workers' wage schemes is not entirely clear. However, it seems like piece-rate wages were associated with lower skill. *A Copy of*, 25.

[33] Ibid, 15, 51, 53. The male weaver interviewed by the committee first said that he was not in debt but later revealed that he owed the grain dealer about twenty rupees. If he was paid earlier in the month, he remarked, he could pay the men he borrowed from.

[34] Ibid., 31.

[35] Edward P. Thompson, "Time, Work Discipline and Industrial Capitalism," *Past & Present 38*, (December 1967), 56-97. As pointed out by Glennie and Thrift, Thompson's analysis became so influential that it tended to block out new work in the English context. Therefore, nearly all the recent studies on this subject have been concerned with areas other than Britain. Paul Glennie and Nigel Thrift, "Reworking E. P. Thompson's 'Time, Work-discipline and Industrial Capitalism," *Time and Society* 5, no. 3 (1996).

[36] Thompson, "Time, Work Discipline," 56-88.

[37] "Or it [the problem of restructuring people's work habits] may appear as it did in the early years of the Bombay cotton-mills, as one of maintaining a labor force at the cost of perpetuating inefficient methods of production", Ibid., 93.

[38] Richard Whipp, "A Time to Every Purpose': An Essay on Time and Work" in *The Historical Meanings of Work*, Patrick Joyce, ed., (Cambridge, 1987). See the discussion on the British automobile industry.

[39] Maxine Berg, *The Age of Manufactures: 1700-1820: Industry, Innovation and Work in Britain* (London, 2005); Tamara Hareven, *Family Time and Industrial Time: The Relationship between the Family and work in a New England Industrial Community* (Lanham, MD, 1993); Derek Gregory, *Regional Transformation and Industrial Revolution: A Geography of the Yorkshire Woollen Industry* (London, 1982); Patrick Joyce, ed., *The Historical Meanings of Work*, (Cambridge, 1987).

[40] Whipp, "A Time to Every Purpose', 218.

[41] Gregory Clark, "Factory Discipline," *The Journal of Economic History* 54, no. 1 (1994): 128-163.

[42] Barbara Adam, *Timewatch: The Social Analysis of Time*, (Cambridge, 1995)*;* Eviatar Zerubavel, *Hidden Rhythms: Schedules and Calendars in Social Life* (London, 1985); Miriam Glucksmann,

"Time for Women" in *Cottons and Casuals: The Gendered Organization of Labor in Time and Space*, (London, 2013): 108-128.

[43] Chandavarkar, *The Origins of*, 329-330.

[44] "Report of the Commissioners Appointed by The Governor of Bombay in Council to Inquire Into: The Condition of the Operatives in the Bombay Factories, and the Necessity or Otherwise for the Passing of a Factory Act," Bombay: Government Central Press, 1875, B.L., IOR/V/26/670/85, 135.

[45] As documented in a publication by the *Indian Textile Journal*, the number of workers employed in some of Bombay's largest mills were as follows: Jacob Sassoon Mills: 5,413 hands, Manockji Petit Mills: 4,800 hands, Century Mills: 5,880 hands, Spring Mills: 5,353 hands, Swadeshi Mills: 3,299 hands. See: Rutnagur, *Bombay Industries*, 498.

[46] Chandavarkar, "The Making of the Working Class," 185.

[47] Letter from Mr Rastamji Framji Wadia, *Report and Proceedings*, 11.

[48] The manager of the Graham & Co.'s Press in Khangam told the 1885 committee that "they have worked eight days and eight nights without stopping, and he himself has been ill through working these excessive hours. After working eight days without stopping, they are compelled to get another set of hands from Bombay and work with two sets." Ibid.

[49] Ibid.

[50] J. C. Kydd, *A History of Factory Legislation in India* (Calcutta, 1920), 148-9.

[51] "[A Bombay mill worker is] somewhat of an idler who spends his holidays in roving about, in sleep, and in gambling." Edwardes and Campbell, *The Gazetteer*, 207-10.

[52] For the English context, see: Berg, *The Age of Manufactures, 194.*

[53] Some workers had as little as six holidays per year, which could be cancelled at the managers' will. See: "Factory Commission in Bombay," October 9, 1890, *The Times of India*, 5.

[54] *A Copy of the Report*, 13-14.

[55] Petition, Narayan M. Lokhande to Marquis of Lansdowne, Viceroy and Governor General of India, Bombay, October 24, 1889, New Delhi, The National Archives, Home Department 1890, Judicial Records, 42-49, 3.

[56] Jim Masselos, "Time for Work and Labor" in *Urban Studies*, Sujata Patel, Kushal Deb, eds., (New Delhi, 2009), ch.5.

[57] A Copy of the Report, 14.

[58] The disciplinary frame bore resemblance to that of the earliest English mills in which employers sought to expropriate workers of all knowledge of time. Thompson argued that these mills saw the most rigorous imposition of the 'new time discipline', overlooking in the meantime the inconsistency of such enforced time ignorance with the ethics of time thrift and punctuality. Thompson, "Time, Work Discipline," 85-86.

[59] The chain of strikes started at Britannia, the Queen, and Star of India Mills on October 2, 1892. See reports: "Strike Amongst Mill-Hands," *Times of India*, October 6, 1892; "Strike of Mill-Hands," *Times of India*, October 26, 1892; "Strike of Mill Hands," *Bombay Gazette*, October 26, 1892; "Another Strike of Mill Hands," *Bombay Gazette*, November 3, 1892; "Another Mill Strike," *Bombay Gazette*, November 7, 1892.

[60] Masselos, "Bombay Time," 177.

[61] "Turbulent Millhands: No Standard Time, No Electric Light," *Times of India*, January 6, 1906, 6.

[62] Ibid.

[63] Ogle, *The Global Transformation,* 113.

[64] The Editorial, "Our Mill Workers," *The Indian Textile Journal 252,* March 1911, 410-411 as cited in S. D. Pudekar and R. Varickayil, eds., *Labor Movements in India: Documents 1891-1917,* (New Delhi, 1990), 339.

[65] Please note that it is not unusual for historians to base their interpretations of industrial time on ill-considered assumptions regarding the nature of pre-industrial work habits. In most cases, however, evidence indicating the supremacy of task-oriented labor among the peasantry is controversial. See: Smith, "Peasant Time and Factory Time in Japan."

[66] Aharon Kellerman, *Time, Space and Society: Geographical Societal Perspectives* (London, 1989), 62.

[67] Adam, *Timewatch;* Glucksmann, "Time for Women;" Clark, "Factory Discipline;" Keith McClelland, "Time to Work, Time to Live: Some Aspects of Work and the Reformation of Class in Britain, 1850-1880" in *The Historical Meanings of Work,* Patrick Joyce. ed., (Cambridge, 1987).

[68] H. W. J. Bagnell, "Proposed Amendment of Indian Factories Act XV of 1881 and the Rules Under It," August 8, 1889, Maharashtra State Archives (Henceforth M.S.A.), General Department 1890, Vol. 43-44, No. 477, Parts 1-2.

[69] Letter, H. W. J. Bagnell, Inspector of Factories, to the Secretary to Government, Bombay, September 24, 1889, M.S.A, General Department 1890, Vol. 43-44, No. No. 477, Parts 1-2.

[70] Idem, August 8, 1889, 17.

[71] Ibid, 18.

[72] Ibid.

[73] *A Copy Of Report*, 6.

[74] "In the best managed and newest mills the reeling room is often in a separate building and is usually well lighted and ventilated. In other mills, it is simply a part of the spinning room partitioned off and perhaps provided with a separate entrance." A.M.T. Jackson, Chief Inspector of Factories, "Provincial Report on the Working of the Indian Factories Act in the Bombay Presidency for the Year 1892," Bombay Custom House, June 21, 1893, B.L., I.O.R/V/24/1627:1 -892-1910, 14.

[75] "Factory Commission in Bombay," October 14, 1890, *The Times of India*, 5.

[76] "Factory Commission in Bombay," October 10, 1890, *The Times of India*, 5.

[77] Masselos, "Time for Work and Labor."

[78] *A Copy Of Report*, 27. 'Cops' here refer to the mass of thread wound on to a spindle.

[79] Ibid., 32.

[80] Letter, Bagnell to the Secretary to Government, September 24, 1889, 1.

[81] *Report and Proceedings,* 12-13.

[82] Bagnell, "Proposed Amendment of Indian Factories Act," August 8, 1889, 17.

[83] "Factory Commission in Bombay," October 9, 1890, *The Times of India*, 5.

[84] *A Copy of Report*, 77.

[85] For a similar argument in a very different context, see: Glucksmann, *Cottons and Casuals*, 119.

[86] *A Copy of Report*. See female workers' answers to questions seven and eight.

[87] Petition, the Chamber of Commerce, Bombay to the Secretary to Government, General Department, Bombay, March 5, 1890, M.S.A., General Dept. 1890, Vol. 43-44, No. 477, Parts 1-2.

[88] Petition, the Millowners' Association, Bombay to the Secretary to Government, General Department, Bombay, March 12, 1890, M.S.A., General Dept. 1890, Vol. 43-44, No. 477, Parts 1-2.

[89] Bagnell, "Proposed Amendment of Indian Factories Act," August 8, 1889, 17-18.

[90] *A Copy of Report*. See answers given by women to the question nine.

[91] Ibid., 27.

[92] Chandavarkar, *The Origins of*, 300, 320.

[93] Ibid., 36.

[94] Clark, "Factory Discipline," *133*.

[95] *A Copy Of Report*, 24-25.

[96] Ibid.

[97] Ibid., 53.

[98] Ibid., 23.

[99] Ibid., 24-25.

[100] Janet Harvey Kelman, *Labor in India: A Study of the Conditions of Indian Women in Modern Industry* (London, 1923).