

# Transforming skin, changing caste: Technical education in leather production in India, 1900–1950

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*State-organised technical education focusing on leather production was introduced in India in the early 1900s. One of its key objectives was to change the entrenched notions about the leather industry—as a ‘traditional’ industry associated with low caste and social status. This article traces the history of this endeavour, locating it within a wider account of the history of technical education in leather production. While some common concerns affected the project in both Europe and India, there were important points of difference, as technical education in leather production in India had to negotiate factors such as the extreme stigma of hides and skins mandated by caste on the one hand, and on the other, their integration within the capitalist colonial economy and their concomitant high profitability. Decisions of who or what were to be taught, and by which pedagogical methods, were produced through these negotiations. The article explores this history through a study of two leading institutions that provided technical education in this field. It highlights how official initiatives of skilling and technical education were, in complex ways, closely mediated by, and in turn mediated their historical context, its social and economic structures, prevailing ideologies and notions of skill.*

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**Keywords:** Technical education, skill, tanning, leather, stigma, pedagogy, caste

The aim of this article is to examine the role of technical education in leather production in the early twentieth century in India, tracing its relationship to the leather industry, labour and the markets, and exploring the nature of its pedagogical intervention and mediation of notions of skill and structures of caste and class. It also explores the complex ways in which technical education in this field negotiated and reaffirmed stigma and caste and re-calibrated notions of skill, and examines the tensions that surrounded the process.

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The development of technical education in leather tanning and manufacturing needs to be located in the context of the history of production of hides, skins and leather in India, specifically its incorporation in the colonial economy, and the massive expansion of production thereafter accompanied by the transformation of the organisation of production. And yet despite visible and important changes, the notion that leather was a ‘traditional’ industry, its associations with stigma, and low caste and social status, remained entrenched well into the twentieth century. This article probes how technical education in leather production (intended, when it was introduced, to at least partially counter these associations) worked in complex, direct and indirect ways to reaffirm selective aspects of ‘tradition’, while functioning entirely within ‘modern’ frameworks.

The article is divided into three parts and delves first into the general policies on technical education in leather production, which provided the structural framework of its development in India. The second part explores how caste and stigma were negotiated, focusing on the higher technical education institutions, and substantiates its findings through an exploration of the histories of two of the largest institutions from early to mid-twentieth century. This is followed by the concluding section that connects these findings with wider histories, not just of technical education in leather production in India, the constraints within which it developed, and its implications for skill formation and labour, but also the multiple registers in which ‘skill’ itself was understood, and the historical compatibility of capitalism with caste and stigma.

### Part I. Context and History

Technical education in leather production in India was influenced in complex ways by its history—the expansion of production and demand, and significantly greater commoditisation and reorganisation of traditional systems of production of hides, skins and leather under colonial rule.<sup>1</sup> This took place initially under the imperative of British military requirements, and by the late nineteenth century, more predominantly, the international market, and capitalist production in the metropolis and elsewhere.<sup>2</sup> The processing of hides and skins in colonial India came to be marked simultaneously by extremely high profits and by extreme stigma that traditionally adhered to these materials and all those who worked with them. A large labour

<sup>1</sup> ‘Hide’ refers to the skin of cows and buffaloes, or larger animals in general, while ‘skin’ is used to refer to the skin of smaller animals, goats and sheep for instance, and also wild animals such as tiger, deer, etc. The massive commoditisation, particularly of raw hides and skins—hitherto largely regarded as stigmatised wastes—was one of the key shifts of this transformation. ‘Raw’ hides and skins (which had to be cured and processed for transportation) and lightly tanned leather, called ‘half-tans’ in the trade, comprised India’s main exports. See, Bhattacharya, *Labour in the Leather Industry*, Chs. 2 and 3.

<sup>2</sup> Records of exports of hides and skins, available from the late 1840s, indicate steady growth of exports from £ 193,000 in 1848–49 to £ 1,230,932 in 1869, and £ 3,097,561 in 1879, growing significantly in the decades thereafter; see Bhattacharya, *Labour in the Leather Industry*, Ch. 2; *Statistical Abstracts Relating to British India*, various years.

market had to be created under these conditions to meet the expanded demand. This was done by recruiting outcaste workers, drawn from among general agricultural labourers, considered ‘untouchable’ and ‘permitted’ to ritually and socially handle stigmatised materials. Those recruited were mostly deployed as unskilled labour in the industry that developed, in pre-tanning operations, or to produce lightly tanned hides and skins primarily for export. Institutions of higher technical education in leather production set up in the early twentieth century were located either inside or close to clusters that emerged as the dominant sites of leather production. At these sites, located on the margins of cities, numerous informally organised tanning and processing units came to be densely packed together, where outcaste workers laboured continuously to process hides and skins.

Two other factors crucially shaped institutionalised technical education in leather production in colonial India. The first of these was the broad policy of the colonial state towards technical education and industrial training in India as it emerged by the early twentieth century, and the second was the introduction of chemical tanning.

#### *Policy Towards Technical Education*

Missionary interventions in industrial training in India, such as those by the Basel Mission, had been in place since the 1840s,<sup>3</sup> but state-organised initiatives such as the Schools of Industrial Art were set up only from around the 1860s.<sup>4</sup> The official policy on technical education and industrial training that was clearly articulated in the 1880s for the first time included leather tanning and boot and shoe-making among subjects in which institutional training could be provided.<sup>5</sup> The initial schools that were set up, however, were not specialised and sought to provide ‘technical education’ in a number of fields, including, in some cases, the making of leather and leather products. During this period, while some broad norms were set, these institutions functioned comparatively independently, with different pedagogical emphases in different provinces, driven by local decisions and conditions.

In Bengal, leather production was not considered a suitable field for pedagogical intervention in the 1890s, as it was believed to not require ‘special training’<sup>6</sup>

<sup>3</sup> BEM Educational Institutions, *Chronicle of the Basel Mission in India* states that,

In the year 1846, the Basel Mission started an ‘Industrial school’ to train people in Weaving, Carpentry, Clock making, Black smithy, Printing Technology etc., with the help of some local artisans .... In 1848, two lay-Missionaries, Bosinger and Muller, were sent from Basel to India (South Kanara) to teach some new trades. These Missionaries were by profession a carpenter and a locksmith .... They set a watch and clock manufacturing industry in Mangalore and handed over the same to the local people. The first important Industrial undertaking which met with success was the Printing Press with Book Binding Department attached to it.

<sup>4</sup> Guha-Thakurta, ‘The Museum in the Colony’.

<sup>5</sup> MacDonnell, ‘Memorandum on Technical Education’.

<sup>6</sup> Collin, ‘Report on the Arts and Industries of Bengal’, p. 205.

and that private firms already supplying leather and leather goods for military and other needs provided adequate training to workers. Moreover, 'native' shoe makers were lauded for their considerable skill.<sup>7</sup> The same report suggested that training could be provided in 'leather curing' in Bengal.<sup>8</sup> This was also not actively pursued, however, as it would require considerable capital even though there was evidently a growing European demand for Indian raw and cured hides at that time.

In the last years of the nineteenth century, the Government of India deputed Edward Charles Buck, Secretary, Department of Revenue and Agriculture, Government of India, to enquire into the general progress of technical education in each province and submit a report and recommendations. Buck completed his report in 1901. Emphasising the significance of technical education, he observed that this kind of education was not pursued properly in England either, and this, he believed, was the reason that England had lost its monopoly over modern manufactures. Buck wrote that in England,

... people are still content to repeat that trades cannot be taught in a school. The Austrians and Germans have discovered that trades cannot be efficiently taught *without* a school. In many towns employers are required to send their apprentices to a technical school for a certain number of days a week, and a breach of the law is followed by fine or imprisonment.<sup>9</sup>

Many aspects of Buck's critique of technical education and industrial training as it existed in India till then were incorporated by the Simla Conference on Technical Education held in 1901.

The Simla Conference, in its Resolution, defined technical education as (a) the study of the scientific methods and principles underlying the practice of any handicraft, industry or profession and (b) the application of those methods and principles to the practice of the handicraft, industry or profession in question.<sup>10</sup> Acting upon Buck's influential report, the Conference announced certain significant

<sup>7</sup> *Ibid.*, p. 191,

In Calcutta and the suburbs a great number of shops are engaged in shoe-making. In Bentinck Street there is a large colony of Chinese shoe-makers. The existence of European shops and the introduction of the sewing machine has greatly improved the trade. I visited the European firms and was told that a Bengali shoe-maker could do as fine hand sewing in leather as any European.

<sup>8</sup> 'Curing' refers to the temporary preservation of hides and skins using salt or salt solution. Raw hides and skins need to be flayed and cured for transportation. This was the first step in the labour process involved in the production of leather, done usually by those who flayed carcasses of animals, before being sold in hides and skins markets. The hides and skins that were exported were cured again in curing yards at the ports, to enable them to withstand long ship journeys to London, Hamburg, Boston, etc.; see Bhattacharya, *Labour in the Leather Industry*.

<sup>9</sup> Buck, 'Report on Practical and Technical Education'.

<sup>10</sup> Government of India, 'Resolutions of the Simla Conference', p. 251.

changes in the policy on technical education. For instance, two separate systems of industrial training were envisaged, one broadly for those industries where workers' output competed with English or European workers and another for 'local handicrafts', practiced by caste-based artisanal groups. Training institutions for the latter were to be set up in small towns where 'caste traditions' were believed to be more entrenched.

Further discussions took place over the next few years about the design of specific kinds of institutions to be designed. H. H. Risley, Secretary, Home, at the time pointed out in this context,

For practical purposes it is most necessary to distinguish between ... kind of institutions which will be suitable in great industrial centres, such as Bombay, Howrah or Cawnpore where capital is employed in the organisation of industries on a large scale; and those suitable for towns in which local industries are practiced as handicrafts in small private establishments.<sup>11</sup>

In the first case, 'more bold steps' could be taken as it was hoped that 'where there are organisation and capital there must be also intelligence sufficient to appreciate the value of properly trained workers'. The Government of India understood the importance of enlisting the 'active cooperation of the employers of labour in the scheme, for if the employees see that the employers attach importance to the training which it offers, they would be far more ready to believe in its value'.<sup>12</sup> With the signs of an impending expansion of the industrial employment of 'native capital' in these larger centres, prospects of employing 'more highly trained men' also appeared bright. Thus, 'whole-time schools to which pupils are admitted after reaching as high a standard of general education as can be exacted'<sup>13</sup> were envisaged. In these institutions, it was believed that a course of instruction 'divided between actual workshop practice and the study of the principles and scientific processes on which the trade depended' could be taught. This mode of training could be adopted 'where the Indian manufactures come in competition with foreign,' and there 'the object should be as far as possible to produce Indian workmen as well trained as his foreign competitor'.<sup>14</sup> These proposed institutions were to be in addition to the higher institutions of technical education that already existed, such as the various colleges of engineering and the Schools of Art. In addition to this, provision was made, for 'technical scholarships' to be awarded to 'educated young men with an inclination for technical education to secure higher technical education at "home" or elsewhere in Europe'.<sup>15</sup>

<sup>11</sup> Risley, *Scheme for the Development of Technical and Industrial Education*.

<sup>12</sup> *Ibid.*

<sup>13</sup> *Ibid.*

<sup>14</sup> *Ibid.*

<sup>15</sup> Government of India, 'Resolutions of the Simla Conference', pp. 252–53.

In the second kind of training institutions, aimed at what were called ‘local handicrafts’, admission was to be given only to students ‘whose caste occupation is the industry which the school is intended to develop’. The manual and practical component was to be substantial, and the ‘education given in the primary school should be so ordered as not to fit the pupil for clerical employment’. Further, no English was to be taught, and reading was to be ‘limited to the vernacular’.<sup>16</sup> The policy for these rural and small-town artisanal schools sought to reverse the earlier trend of combining literary and artisanal training that had become characteristic of industrial training institutions in the 1880s and 1890s. Scholarships were to be given to these artisanal students to follow these courses.<sup>17</sup> Other provisions included the initiation of demonstration exercises by peripatetic teams to teach ‘traditional’ workers who were unable to join these schools efficient or improved ways of carrying out their craft.

In the decades that followed, these policy statements and resolutions framed at the Simla Conference provided a broad framework<sup>18</sup> for measures undertaken by provinces for industrial training and technical education in leather production.

### *The Introduction of Chemical Tanning*

The second factor which had critical implications for the design and development of technical education in leather production in colonial India and elsewhere was the invention of chemical tanning. It emerged through the process of experimentation by chemists in Germany in the 1870s and early 1880s, and was finally developed and patented in 1884 in the USA by Augustus Schulz, a German immigrant. With its industrial application in Germany, the USA and elsewhere, chemicals began to be increasingly used in pre-tanning and tanning processes. Since chromium compounds were most commonly used for the tanning processes, the term ‘chrome’ tanning came to be also used interchangeably for chemical tanning. Its fundamental impact was on the speed of production, which increased dramatically. It necessitated changes in the organisation of production that had important implications for the production of hides and skins in India.

Germany and the USA began to produce and export chrome tanned leather and goods in the 1880s. Their import of raw hides and skins from India, already

<sup>16</sup> *Ibid.* This denial of access to English, by conscious design, for those who were drawn into industrial schools, meant that pedagogic design of technical education in India produced a distinct line of hierarchy that did not exist in countries such as Germany or England. English in India was a hegemonic language, a marker of social and economic status. Its denial had to be understood in this context.

<sup>17</sup> *Ibid.*

<sup>18</sup> Provinces varied from each other in adopting these policies, or adopted them selectively according to their own context (especially after 1919 when education became a provincial responsibility) while remaining broadly committed to the Conference’s recommendations.

among the highest, escalated further.<sup>19</sup> Scientific research in this field grew and leather chemistry began to develop in continental Europe, and later, in England. It came to be preoccupied with experiments of different kinds including, for instance, those aimed at making the process of leather production less odorous.<sup>20</sup> Specific institutions dedicated to scientific research into leather tanning and chemistry had already begun to emerge in Europe in the 1870s. These included the Gerberei Technische Untersuchungs Anstalt in Vienna, the main research and technical institution for leather tanning in Austria, established in 1873 and headed by legendary leather chemist Professor Eitner, and the Gerberei Technische Hochschule, also a technical institution in leather tanning, established shortly thereafter in Freiberg, Germany.<sup>21</sup> Research in chemical tanning was introduced somewhat later in England, with the setting up of the Leather Industries Department in Yorkshire College in Leeds in 1891. English manufacturers were relatively slow to adopt chrome tanning, especially in the case of light leathers.<sup>22</sup> The supply of cheap imports from India was a possible reason. It was only with the massive escalation in demand for leather during the First World War that the transition to chrome tanning took place more extensively in England. In India, though chrome tanning was introduced only a few years after England, its widespread adoption took place only after several decades.

Apart from chemical tanning's speed (mentioned earlier) and its ability to allow processes that took months in traditional vegetable or bark tanning to be completed in a few days, another major advantage for manufacturers was its ability to produce leather in different colours and textures, with greater elasticity and resistance to water. The early processes—pre-tanning operations (curing, soaking, liming, scudding, fleshing, bating and deliming)—remained identical, except that they were sought to be speeded up by chemicals as well, while the process of chrome tanning itself was done in mechanised drums run with electricity. This method of tanning thus had certain preconditions—it required mechanisation and electric power, as well as knowledge of chemical processes and composition. Chrome tanning had dramatic potential for generating greater profits by actualising mass production and processing at unprecedented scale and pace. Indeed, it can be said that tanning, which had hitherto retained some of its craft character, much longer than other industries, got fully industrialised only with the adoption of chemical tanning.

The adoption of chrome tanning in Europe and America had important implications for the production of hides, skins and leather in India—for the industry as

<sup>19</sup> The majority of the raw skins were exported mostly 'dry salted with the hair on, but sometimes they were flint dried and occasionally wet salted in the hair, or unhaired and then pickled in a solution of alum and salt'. See Indian Munitions Board, *Review of the Trade*, p. 17.

<sup>20</sup> The correspondence between Drs Popp and Becker of Frankfurt, Dr Jettmar of Prague and J. T. Wood of Leeds, which shows how between the late 1890s and 1913 the English and the Germans collaborated closely in the matter of removing odour in tanning and developing chemical bates to soften hides and skins without the odour of natural bates. *Dr. Popp & Dr. Becker*; idem. *Prof. Jettmar*.

<sup>21</sup> Flitch, *Note of a Visit to Technical Schools*.

<sup>22</sup> Church, 'The British Leather Industry'.



well as for technical education in the field. Owing to its particular characteristics, chemical tanning tended to develop as an integrated process, with pre-tanning and tanning operations done at the same site, leading to an escalation in the demand for raw and pickled<sup>23</sup> hides and skins by the countries that adopted it. Anxieties about standardisation, of the materials imported from India, as well as methods used to produce them, grew with chrome tanning. The intimately connected transnational commodity chain thus meant that these anxieties triggered debates about the methods and skill of producers in India, and the composition, nature and pattern of exports from India was affected. Moreover, the logic of capitalist competition meant that expanded production in chrome-tanning countries had to be matched by those countries like the UK that still depended more on bark tanning for light leathers, since they got cheap bark-tanned hides and skins (called ‘half-tans’ in the trade)<sup>24</sup> from India. The production of half-tans in India (constituting the largest segment of exports in value and largely imported by England) had to be speeded up concomitantly to meet the competition faced by the English leather producers from chrome tanning in Germany, the USA, etc. Thus, though chrome was introduced on a relatively limited scale in actual production of leather in India in the period under study, it led to a significant amount of re-structuring of production and increase in the intensity of work, and impacted labour engaged in this field significantly.

Broadly speaking therefore, chemical tanning with its possibility of vastly enhanced productivity and profitability served the interests of capital. In conceptualising the role of science in capitalist production, Alfred Sohn Rethel has argued that science led to a separation of intellectual from manual labour, and the capitalist depended on the abstract power of science to acquire control over the production process.<sup>25</sup> The attempt to make leather tanning and production scientific may be seen in this light, in England and Germany as much as in India. The tensions that emerged in this process were reflected in the debate over whether leather tanning and production was a ‘science’ or an ‘art’/‘craft’ (discussed in Part II of this article). This debate, and the inability to easily establish it as a science, reflected the tensions that accompanied the establishment of capital’s sway over the production process.

<sup>23</sup> The export of pickled skins particularly (for production of ‘glacé kid’—a type of leather) grew after chrome tanning as did that of raw, dry-salted hides and skins. As Chatterton discusses in his 1905 monograph on tanning in Madras, pickling involved all the pre-tanning operations (i.e., soaking, liming, unhairing, fleshing, scudding, delimiting) after which,

instead of immersing the skins in the tanning tub they are pickled in a liquor ... composed of water, sulphuric acid and salt .... The effects of this process are to cleanse and bleach the skins and to put them into such a condition that they may be kept for an indefinite time without spoiling, Chatterton, *A Monograph*, p. 35.

Pickling of skins and hides that were exported also required the use of chemicals.

<sup>24</sup> The most profitable category of the lightly tanned hides and skins exported were the tanned ‘EI’ or ‘East India’ kips or lighter hides. See, Bhattacharya, *Labour in the Leather Industry*, Ch. 2.

<sup>25</sup> Sohn-Rethel, *Intellectual and Manual Labour*.



Importantly, its resolution revealed the alliance between scientific knowledge and managerial practices on one hand, against the actual material handling of production on the other, that is, science aligned with capital, against labour. Technical education, as the primary mechanism by which this reinvention of tanning as a science was achieved, was, by inference, allied with capital. Yet, historically, sections of Indian and English capital in these decades did not respond enthusiastically to technical education, owing to a range of factors—the nature of their markets, their location at a different points of the commodity chain and the political economic hierarchies and patterns mandated by colonialism, among others. By recasting it as ‘science’ rather than the somewhat disreputable ‘trade’ practiced by outcastes it was commonly regarded,<sup>26</sup> technical education also attempted to draw in educated and upper-caste, upper-class men into leather production, bringing about a substantive breach from above as it were. Some instances of this breach and the precise mechanisms by which it was brought about are presented in Part II and its significant social, material and discursive implications in part III of this article.

### *Structure and Organisation of Technical Education*

The discussion on technical education in leather production had to first negotiate certain peculiarities of the structure of the industry which shaped its design. The starkest of these was that both the ‘modern’ urban and the ‘traditional’ rural sections of the industry were dominated by outcaste workers. By the early twentieth century, leather tanning and manufacturing straddled both kinds of industries denoted in the Simla Conference: (a) Sections of it were centred in cities, in urban tanning clusters on their outskirts, competing with European products, and potentially, workers, and (b) there were sections that continued to be involved in tanning and making leather goods in the traditional paradigm, by traditional means on caste and community basis.<sup>27</sup> Significantly, the section of the industry geared

<sup>26</sup> Presenting leather tanning as a potential career for educated young men, Sen and Weston wrote, ‘Modern tanning is based on science. Knowledge of chemistry, physics, bacteriology and mechanical engineering finds profitable use in this industry .... So nobody need be ashamed to pursue the tanning profession on modern lines’. Further, they expressed happiness that ‘educated young men are being gradually attracted to the leather industry’, and that the Bengal Tanning Institute was providing ‘facilities of training in the modern methods of leather manufacture’. See, Sen and Weston, *Opportunities for an Industrial Career*.

<sup>27</sup> These included two kinds of traditional workers with leather—(a) Rural outcaste workers, who skinned carcasses, made simple products, as part of (dependent and subordinate) agricultural labour services. The production of these goods was linked to servitude. Many of these labourers were recruited as tannery/curing yard workers and many also remained tied to old structures of production. The Simla Conference’s reach did not extend to the latter. (b) ‘Traditional’ craftsmen from artisanal castes, most commonly Muslim or from some ‘untouchable’ castes, living in small towns. These included makers of elaborate native shoes, saddle or water bag makers, among others. Their access to raw materials and inputs, and markets was severely and mostly negatively impacted by colonial economic linkage. The Simla Conference sought to provide training and support to these traditional craftsmen. See Bhattacharya, *Labour in the Leather Industry*, Ch. 5.

towards exports was also dominated by small-scale, informally organised and predominantly manually worked units. Large numbers of these were concentrated in the leather-working clusters. Another feature of the industry was that the labour force engaged in the processes that came to be concentrated in the new hides and skins processing clusters was largely male.<sup>28</sup> Yet at no point in the entire history of tanning in India through the period when it underwent a transformation under colonial rule, were women ever absent from the shop floors, though they were rarely officially counted.<sup>29</sup>

It was during the first decade of the twentieth century, in a context where chemical tanning and its implications were becoming clear, and the market in Indian hides and skins was continuously growing, that closer attention began to be paid by the state to technical education in leather production. A number of new institutions were set up between 1900 and 1925 across the country, to provide technical education at different levels. Some of the industrial schools that had already been established in the course of the last decade of the nineteenth century were significantly restructured at this time. Broadly, four kinds of courses of technical instruction in leather production came to be designed and provided for in India in state-organised institutions:

1. Programmes in English for matriculates or students with school education and with a hereditary connection to tanning (i.e., sons of tannery owners) to teach chrome/bark tanning and finishing, generally offered in large

<sup>28</sup> *Ibid.*, Ch. 6.

<sup>29</sup> Their official numbers were minimal—50 out of 13,914 workers surveyed in Cawnpore; 135 out of 2,790 workers in Madras (in the two large units only); and 21 out of 9,410 workers surveyed in Calcutta in December 1944. Mukhtar, *Report on Labour Conditions*, pp. 5, 38, 58; also Bhattacharya, *Labour in the Leather Industry*, Ch. 6. As Chatterton wrote:

In the Report of the Madras Exhibition of 1855 it is stated—‘The manufacture of leather in this Presidency is by no means so thriving as it might be, considering the great abundance of tanning materials at command. This is probably owing to the very low rank of the artisans .... Goat skins, sheep skins, buffalo and bullock hides ... are generally procurable but are very badly dressed; currying the leather being the province of the shoemaker’s wife, while manufacturing it for the market belongs to the husband. Inferiority of Indian leather may be ascribed to want of skill on the part of the currier and to the use of quicklime’. (Chatterton, *A Monograph*, p. 4)

Here, women and outcastes were explicitly blamed for the poor quality of workmanship and skill in processing Indian hides and skins. This opinion emerged and grew also in other regions with the growth of the industry. With the organisational shifts and changes in commodities produced in the late nineteenth century, women’s role in production changed to that of doing supplementary and menial work alone. They came to be officially employed in certain kinds of work—such as bark crushing and cleaning the salt and fleshings-strewn tannery floors constantly (to be packed and sent to glue factories), or collecting, washing and sorting goat hair after fleshing—operations that involved continuous, repetitive and back-breaking work that was also the lowest paid. As Naidu wrote in his influential report of 1947, the alibi for not employing them was that tanning work was ‘heavy’ requiring physical strength. See Naidu, *Report of the Court of Enquiry*, p. 120. This was belied by the heavy work of lifting and carrying hides that was unofficially done by women as well as men, Bourke-White, *Halfway to Freedom*, p. 132.

- city-based institutions in big cities such as Madras or Calcutta,<sup>30</sup> including a large component of theoretical teaching, comprising pure and applied science subjects.
2. These large city-based institutions also began to offer courses in vernacular languages, for making boots, shoes and other products, aiming to train students to produce leather and leather goods for the domestic market. Students were restricted, in practice, to particular castes and communities, primarily outcaste and Muslim groups.
  3. Craft-based instruction was provided in caste-based industrial schools set up in smaller towns for leather tanning and product-making. This was intended to help groups producing traditional leather goods within the framework of traditional markets and networks of sourcing to work more efficiently, with some modern inputs.
  4. Peripatetic demonstration exercises were set up by a few of the large institutions, demonstrating 'proper' methods of tanning to groups (often caste-based) or individuals in villages or small towns.<sup>31</sup>

In addition to these, in keeping with the provision for technical scholarships abroad in the Simla Conference's resolution, these began to be given to college-educated young men, of fairly high social and economic status, to study leather chemistry and manufacturing in England and Europe. The Department of Leather Industries in Yorkshire College, Leeds, and the Leathersellers' Technical College, in Bermondsey, London, were two of the institutions where many Indian students with scholarships studied and trained. Later, several of them joined the leather manufacturing industry in India and became leading figures in the sector in the late-colonial and post-independence years. Among them were the likes of Allan Guthrie, who became the Principal of the Leather Trades School in Madras in 1915 and B. M. Das, manager of National Tannery in Calcutta, who became Director of the Bengal Tanning Institute in 1919, and the first Director of the Central Leather Research Institute (CLRI), Madras in 1953.<sup>32</sup> Institutions of higher technical

<sup>30</sup> The article uses contemporary (colonial) spellings of proper nouns including city names. 'Calcutta' (Kolkata), 'Madras' (Chennai) and 'Cawnpore' (Kanpur) are used.

<sup>31</sup> Government of India, 'Resolutions of the Simla Conference', pp. 251–61; also see, Risley, *Scheme for the Development of Technical and Industrial Education*.

<sup>32</sup> B.M. Das or Rai Bahadur Biraj Mohan Das (1885–1956) became a key figure in framing policy on technical education in leather production in India. Born in Faridpore, he had an MA degree in Chemistry from Presidency College, Calcutta University and went on to conduct research in chemistry under Sir P. C. Ray. He studied applied chemistry in leather manufacture in Leeds University (1909–11), receiving training from Professor Procter there, and served as a technical chemist with Friedrich Bayer & Co., in Germany. In 1946–47, he was deputed as an Expert in Leather Technology with the British Intelligence Objective Committee. After retirement, he was Leather Advisor, West Bengal, and also, as Chairman of the Planning Commission he submitted a proposal to the Government of India for the establishment of a Leather Research Institute in India. This materialised in 1949, and he went on to head the CLRI, set up under the Council of Scientific and Industrial Research. His persistent efforts led to the introduction of the

education in leather production and manufacturing such as these broadly fitted into the first category of institutions outlined in the Simla Conference. They also offered part-time courses which sought to teach the gamut of work related to the tanning and finishing of leather, including pre-tanning operations.

Developing within this structural framework, technical education in leather production had to negotiate questions about the objective and target of pedagogy and the nature of official pedagogical engagement, caste structures and caste-based attitudes and notions of stigma of hides, skins and leather, attitudes towards manual work, and ideas of skill. Some crucial debates around these negotiations are discussed in Part II. The ways in which these questions were dealt with or resolved in practice—questions such as who and what would be taught and how, and importantly who would be excluded—are discussed here through evidence drawn from the higher institutions of technical education in leather production, which played a crucial role in determining the overall direction and development of technical education in the field.

## Part II. Debates and Incongruities

### *Objective of Technical Education in Leather Tanning and Production*

One set of discussions around higher technical education for leather production was about its objective—about target students and pedagogical method and content. A related question that was implicit in the debate was whether it was to be oriented towards the export or domestic market. The resolution of this debate resulted in the exclusion of the outcaste workers who worked in the industry from the possibility of securing technical education.

A crucial proposal of the Simla Conference was that different kinds of technical educational institutions be set up in India in the larger urban centres in industries ‘where workers’ output competed with English or European workers’ and the objective of the training was to ‘produce Indian workmen as well trained as his foreign competitor’.<sup>33</sup> In the context of leather production, an official like A. C. McWatters in Calcutta, involved in developing schemes of technical education, held a similar view, that is, the Indians were capable of training and engaging in technical education and could apply themselves to it if they were explained its significance and profitability. He also held that training and education in the field could only be provided by the British and that training could also be directed towards the kinds of skins that were mainly exported.<sup>34</sup>

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degree of BSc (Tanning) in the Madras and Calcutta Universities, Central Leather Research Institute, *Bio brief of Prof. B.M. Das [1885-1956]*.

<sup>33</sup> Risley, *Scheme for the Development of Technical and Industrial Education*.

<sup>34</sup> McWatters, (later Controller of Hides and Wool in the Indian Munitions Board during the First World War) wrote in 1910,

By the First World War, a few such large institutions of higher technical education were set up. However, there were differences between the officials entrusted with the task of initiating technical education in this field—over what kind of tanning process should be encouraged and what kind of market should technical education be oriented towards.

A view that eventually prevailed was that higher technical education in leather production was to be developed to meet domestic needs, rather than exports. A second related view that shaped policy in two of the most prominent institutions was that it would focus on chrome rather than bark/vegetable tanning used by exporters. The reason, as Captain Allan Guthrie of the Madras Leather Trades School stated, was ‘little could be taught to the export tanners’.<sup>35</sup> The Calcutta Research Tannery director B. M. Das’s vision of technical education also matched this view.<sup>36</sup> The choice of providing training in chrome tanning ensured that technical education was oriented towards the domestic market since chrome tanned leather was only exported on a very limited scale.<sup>37</sup>

The Leather Working School in Cawnpore, established in 1915, was one which specifically aimed at providing technical education for leather goods production by modern means. This was because it was argued that Cawnpore, with its unique history as a centre for leather product-making for military use, had large leather factories which provided training in chrome tanning. The school’s founders held that as rural tanners did not have enough capital for chrome tanning, there was no need to teach it.<sup>38</sup> They chose to focus on training caste/community-based rural

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It is ... of the greatest importance to India ... one of the largest if not the largest supplier of raw hides and skins ... should conserve her great source of wealth by bringing before the educated natives the possibilities of attaining affluence by a systematic care and study of ... production.

He held that if the problems in the methods used by them were explained properly, and modern methods taught ‘no one will second the effort better than the educated Indian who is always keen to realise his possibilities’. Further, he said the difference in standard between the widely exported raw East India (E.I.) skins and hides and tannages were due to ‘variations in tanning materials, methods of procedure, etc’. and that these would ‘all require a white man’s hand in investigation and some scheme devised for instruction’. See McWatters, ‘Memorandum on E.I. Tanned Goat and Sheep Skins’.

<sup>35</sup> Desikachariyar et al., *Report of the Leather Industry Committee*, p. 3.

<sup>36</sup> Director of Industries, *Report of the Department of Industries, Bengal, 1922*, p. 5.

<sup>37</sup> Exports of chrome-tanned leather began on an extremely limited scale in the 1920s, picking up slightly by the late 1930s. Its exports were very limited compared to bark-tanned leather. In 1933–34, it amounted to 2.3 per cent of total value and weight of hides and leather exported, while in 1938–39, it counted for 10.7 per cent in terms of value. Bark-tanned leather amounted to 50–60 per cent of the total exports of hides and skins in terms of value during the same period. See Directorate of Marketing and Inspection, *Report on the Marketing of Hides*; Directorate of Marketing and Inspection, *Report on the Marketing of Skins*.

<sup>38</sup> *Leather Working School Cawnpore*. (I am grateful for this reference to Arun Kumar, PhD candidate, Centre for Modern Indian Studies, University of Goettingen.) Boot and shoe-making classes were also set up by the Leather Trades Institute in Madras, Desikachariyar et al., *Report of the Leather Industry Committee*, p. 13. The Bengal Tanning Institute also initiated boot and shoe-making classes in 1929. See Director of Industries, *Annual Administration Report, Bengal, 1934–35*.

tanners, focusing on how to produce boots and leather goods by modern methods, again only targeting the domestic market. The Madras and Calcutta institutes also set up such courses.

The domestic market was relatively restricted, as consumer use of non-traditional leather products grew slowly. The military needs for leather and leather goods grew over time and by the early decades of the twentieth century were being met by the few existing large factories in Cawnpore and other clusters. Significantly, technical education institutions chose to avoid skill development in the most thriving sector of leather production, involving work in which a large number of workers already had some dexterity, that is, production of bark tanned hides, skins and leather for export. They opted instead for providing technical education in the new, uncharted field of chemical tanning. This decision by the colonial state authorities was, I would argue, a deliberate and strategic choice which had implications both for the possibility of skill development in India and also for the engagement of capital in India in technical education.<sup>39</sup>

Only one prominent official closely associated with leather tanning and production in the first two decades of the twentieth century, W. Fraymouth, Director of the Esociet tannery in Maihar, Central India, had argued strongly in favour of training students in bark tanning. He also believed that the outcaste workers, *chamars*, who tanned hides and skins in his region, should be given training in these larger institutions.<sup>40</sup> His view on both these matters did not prevail.

While it is true that chemical tanning, in a larger sense benefitted capital internationally, the local history of capital's responses to it and to the technical education was mediated by the specificities of geographical and historical location and commodity production. In most sites, capital engaged in the field in India thus did not particularly welcome it. Producers of bark-tanned hides and skins in Madras province, for instance, did not want to have anything to do with either chrome tanning or technical education, as the commodities they exported were in high demand and brought great profits.<sup>41</sup> English buyers of

<sup>39</sup> The combined exports of hides and skins from India in the 1950s were about 64 per cent of the total produced (including about 90% of the skins). The export orientation continued with some ups and downs until the early 1970s as evident from both official and unofficial studies. The percentage had fallen marginally between 1919 and 1953. Refer Bhattacharya, *Labour in the Leather Industry*, Chs. 1 and 3; Directorate of Marketing and Inspection, *Report on the Marketing of Hides and Report on the Marketing of Skins*; Indian Munitions Board, *Review of the Trade*; Directorate of Marketing and Inspection, *Report on the Marketing of Skins*.

<sup>40</sup> Fraymouth, *Director's Report*.

<sup>41</sup> The attitude of the tanners in Madras towards the Leather Trades Institute is evident from the sceptical comment C. Sabapathy Mudaliyar, representing the tanners Messrs. C. H. Zain ul Abidin Sahib & Co. (Madras), made in his deposition before the Leather Industry Committee:

I have no idea as to the constitution, aims and functions of the Leather Trades Institute. I gather that the Institute is intended to train the sons of vegetable tanners and those who have some interest in tanning skins and hides business to become tanners themselves. They, I suppose, start from

these half-tans were also, probably for the same reasons, slow to turn to chrome tanning.<sup>42</sup> Typically, it was the larger, more formally organised production units and firms engaged in production for the military and domestic market that responded to and sought out technical education, and adopted chemical/chrome tanning. It was in these firms, many of which were located in northern India, that the students of institutions of higher technical education got employment, in managerial and official positions most commonly.<sup>43</sup> Many of these larger firms also later set up their own training programmes in their factories, continuing to employ one or two institutionally trained leather chemists and technologists. While in the late 1930s, and during the Second World War, small informal units, such as the ones set up and run by the Hakka Chinese in the Calcutta tanning cluster also adopted chrome tanning,<sup>44</sup> they did not turn to formal technical education due to their small-scale and low profit margins.

Significantly, in these small tanneries as well as in the big firms that began to produce chrome leather, the unskilled and uneducated workers soon acquired basic working knowledge of chemicals as well, reducing their dependence on the technical personnel further. Despite these attitudes, it is noteworthy that these institutions remained in existence. They were revived during the Second World War, and in the interim continued to work closely with industry, conducting research for them. As discussed in Part III, perhaps one of the reasons why technical education in leather production remained significant for the state and the industry was because it redefined skill and kept hierarchies of caste and labour in place.

Since chemical tanning was to be taught, prospective students needed basic school education to comprehend it. This immediately excluded vast numbers of outcaste workers deployed during the same period in the industry, working in

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the lowest stage of tanning doing manual labour and all menial work done generally by *chuklars*; it is very doubtful in my opinion, if big tanners would care to send their sons to the Trades School because I personally think that a vegetable tanner owning his own tannery would prefer to put his son under training under his own men as he does not care to encourage chrome tanning as it will create competition. For one thing in a country like India where there is so much of class and caste distinction it is hardly possible to expect a caste man to do the menial work of liming, shaving and drying of skins—practically all dirty work—when a hide or skin is put under tannage. I do not think the ordinary workman has yet come to that stage to consider about a broader outlook in life to induce him to become a trained tanner and I cannot see how he can be induced to become such by the Institute affording opportunities, Desikachariyar et al., *Report of the Leather Industry Committee*, p. 59.

<sup>42</sup> Church, 'The British Leather Industry'.

<sup>43</sup> The students who finished their course in 1919 included Abdul Hameed and S. M. Yakub who found employment in the Government Harness and Saddlery factory in Cawnpore, and A. Rajagopalachari who was employed in the South Indian Leather Company, Madras. Among students graduating in 1921, there was Balwant Singh who was a proprietor at Punjab Chrome Tannery, Sialkot, and two others who found work in Cawnpore, and two more, Rajaratnam and Subrahmanyam, found work as 'supervisors' at the Institute itself, Cotton, *Notes Connected with G.O. No. 148*'.

<sup>44</sup> Oxfeld, *Blood, Sweat and Mahjong*, p. 133; also Bhattacharya, *Labour in the Leather Industry*, Ch. 2.



foundational processes in export-oriented units in the leather clusters. These workers, all belonging to various outcaste groups, actually learnt their work on shop-floors of tanneries from other experienced workers, often relatives or fellow villagers. They remained officially and permanently categorised as unskilled or at best semi-skilled, were paid very low wages, embedded in stigma-ridden work, denied any way of moving to other cleaner, drier work. The rhetoric that Indian workers had poor skills was thereby provided credence. But it was a lack of skills that was carefully maintained. Further, by creating a ‘modern’ enclave within leather production, institutional pedagogical interventions also created a ‘traditional’ enclave which was defined by caste and stigma, and lack of skill, considerably deepening differentiation and inequality. Educational qualifications in this field thus, became a strategy to maintain caste hierarchy and class dominance.

*Leather Tanning and Production:  
‘Art/Craft’ or ‘Science’?*

Another debate that arose with the introduction of chrome tanning across the world was about how the work of tanning itself was to be defined, that is, was it an ‘art’/‘craft’ or a ‘science’? This was a source of tension in England, Europe, as well as in India. Its resolution in India has to be contextualised in the way in which this work and these skills were understood in society.

Two distinct bodies of knowledge, pertaining to preparing leather—the old ‘craft’ based knowledge of practical tanning using bark—confronted, now, the ‘science’-based knowledge of the leather chemist, who was the new expert who knew about chemical scientific processes involved in the transformation of leather from theoretical study and some laboratory practice of chemical processes. Professor Smithells of Yorkshire College, England, was referring to this tension between the tanners and the leather chemists in England in 1891, while discussing the design of the courses in the then proposed Leather Industries Department at the college. In his letter to Henry Procter, the tanning expert whom he had invited to head the Department, Smithells wrote that:

As to the teaching of tanner’s sons etc. I do not propose for a moment to teach the art of tanning but merely to teach to those who have already had a sound training in general chemistry, some special developments bearing upon tanning ... I make no proposals with regard to workmen—It is impossible to teach them any science of tanning and the art can, in the opinion of most people be only properly learned in the tan-yard.<sup>45</sup>

Smithells’ view reflected two important aspects of technical education in leather production in England. First, it showed how knowledge of chemistry came to be considered a precondition for learning ‘scientific tanning’ and the objective of

<sup>45</sup> Henry Richardson Procter to Arthur Smithells. *File of Correspondence*.

technical education. Second, it indicated the clear divide between the art/craft of the tanner and the attempt of the leather chemists to present tanning as a science. However, despite the overall emphasis on scientific tanning, courses on technical education in England stressed upon the importance of practical training and experience in commercial tanneries (and not just laboratories) for students. Given this relationship between the craft and science of tanning, this negotiation, between students (potential leather chemists) and tannery owners, regarding training and apprenticeships in tanneries and leather units, remained riddled with tension. The British tanners' hesitation about chrome tanning and the lack of any official obligation on the part of the British employers to adopt and promote technical education, and the state's own laissez faire economic ideology meant that technical education was able to influence industrial production much less in England than it could in Germany.<sup>46</sup>

Yet some degree of difficulty in teaching tanner craftsmen chemical tanning was also faced by those who directed and led German or Austrian leather schools. When a team from the Yorkshire College, Leeds visited the Continental leather schools, Herr Courtier, who headed the German Technische Hoch Schule in Freiberg, Germany spoke about the importance of a thorough knowledge of chemistry as also the great importance of practical work, observing however that 'I can more easily make a chemist into a tanner than a tanner into a chemist'.<sup>47</sup> What made the German situation somewhat different from the British though was a greater emphasis on practical work in laboratories and functioning tanneries since their structure of technical education was based on a policy of social partnership between the state, employers and workers' unions.<sup>48</sup> The leather chemist could and did actually enter and work in tanneries, and his expertise and knowledge, once successfully demonstrated, was taken advantage of by the tanners, much more than in Britain.<sup>49</sup> An important intervention that took place in all this was the possibility of destabilising the notion of 'hereditary' skills or craft. The leather chemist could thus be an outsider, not belonging to a family of tanners, coming from the field of science and chemistry, a different body of knowledge. The other route of the tannery owners themselves acquiring scientific knowledge was also followed.<sup>50</sup>

<sup>46</sup> Clarke and Winch, *Vocational Education*, p. 14.

<sup>47</sup> Flitch, *Note of a Visit to Technical Schools*. Flitch ran a tanning firm and was closely associated with setting up the Department of Leather Industries and was part of a deputation consisting of Messrs. W. Brown, H. R. Procter and Professor Smithells and was himself appointed by the Leather Industries Committee of the Yorkshire College and the Leeds Association of the Leather Trade to enquire into and report on continental methods of technical instruction in the leather industry.

<sup>48</sup> Clarke and Winch, *Vocational Education*, p. 15.

<sup>49</sup> Church, 'The British Leather Industry', p. 565. In Austria, in the Gerberei Technische Untersuchungs Anstalt in Vienna, half the faculty comprised practical tanners.

<sup>50</sup> At the Leather Industries Department in Leeds University, there were students such as George Croft Foulds or B. Steinhem who were sons of tanners, who left the institution in 1904 and 1902, respectively, to go back to work in their fathers' tanneries; or students such as Allan Guthrie (founder Principal of Leather Trades Institute in India, and employed in Cooper Allen and Company) or

While the tensions between craft knowledge and scientific knowledge of tanning were also present in Europe, the Indian situation was additionally skewed by caste—the extremely low status of the workers and the work mandated by caste ideology and structure. Thus when technical education in leather production began in India, the debate acquired a different dimension. The question was sharply posed in Madras in 1903 when Sir Alfred Chatterton, Superintendent, School of Industrial Arts, Madras set up a chrome tanning department and started doing experimental work in December that year. Members of the Educational Department objected to this.<sup>51</sup> By 1906, Chatterton was forced to shift the tannery outside the premises of the school, having been told that the tanning ‘was disorganised’ and would ‘disorganise the proper work of the institution’.<sup>52</sup> A member of the Educational Department stated that it was an industry which is ‘repulsive to the general sentiment’ and employed an industrial population ‘of the very lowest classes’,<sup>53</sup> a phrase that was a code for their extremely low-caste status. Chatterton shifted the work to the Government Chrome Tannery outside the municipal limits of Madras city. Eventually the term ‘trade’ was agreed upon and hence, the name of the first institution that provided technical education and industrial training in Madras was the Leather Trades School. With this, leather’s brief career as one of the ‘arts’ came to an end.

*Courses and Classes: The Balance Between Theory and Practice*

The third broad debate that emerged over the design of technical education in leather production was about the extent of practical work to be included in the courses. Students at institutions of technical education in leather production in Europe and England were required to do a considerable amount of practical work, as well as trained as apprentices in tanneries as part of the curriculum. Though the institutions in India were modelled on these Western prototypes, this requirement of a practical component in courses was eventually drastically minimised, albeit after some debate. The argument given was that Indian society and social structure is different from the European or English, and the same kind of rules, standards and stipulations could not be applied.

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G. Greatrex who were not sons of tanners but came either to seek training in chrome tanning from India, or to secure employment as leather chemists. There were others who were not sons of tannery owners like J. Chadwick, who left the Leather Industries Department in 1904 and went on to join the Chicago Rawhide Co. at New Brighton, or those like Herbert Pettit who came from a family of tanners, J. Pettit and Co. of Northampton, *Record of Students in the Leather Industries Department 1898 [–1911]*. As R.A. Church observes, the closer connection between the leather chemists, who had secured institutional technical education and the industry and practical tanners in Vienna (in Austria, and also Germany) is evident from the fact that in the 1890s, among the four teachers there was one who owned several tanneries; the Yorkshire College in England on the other hand two teachers who were both leather chemists, Church, ‘The British Leather Industry’.

<sup>51</sup> Copy of letter from Alfred Chatterton.

<sup>52</sup> G. S. Forbes to H. D. Taylor, letter.

<sup>53</sup> *Ibid.*

This 'difference' between Indian and European students of leather production was thrown into sharp focus by the experience of Indian students who secured technical scholarships from the colonial state (under the Simla Conference recommendations) to study leather manufacturing in England. Their refusal and inability to do any practical work created problems for training institutions in Britain, as the courses they joined required them to train in tanneries as part of the course requirements. By 1920, tannery owners in England were refusing to take on Indian students (technical scholarship holders who came to learn tanning and leather manufacturing) as trainees. The issue became important enough to warrant an enquiry by the Secretary of State in London in 1921 where Dr J. Gordon Parker, the Principal of the Leather Sellers' Technical College in Bermondsey, London, one of the two colleges<sup>54</sup> where most Indian technical scholarship holders came to study leather manufacturing deposed.<sup>55</sup>

Dr Parker stated that though it was also difficult to get practical training for English students, tanners were more reluctant to let in Indian students for practical training as they believed that the 'workmen preferred to work alongside those of their own nationality'.<sup>56</sup> Another, more significant reason Parker believed, citing his long experience of training Indian students was that '... the Indian Student is incapable, except in rare cases, of realising the necessity for the detail and exacting methods necessary for the production of leather on an extensive scale' and 'educated Indians are more in the habit of giving orders to servants to do the work and not seeing it done, which is an essential feature in British productions'.<sup>57</sup> All the technical scholarship holders from India, it must be remembered, were graduates in science, belonging to upper class/caste backgrounds, and whether Hindus or Muslims, deeply imbued with caste-based notions of stigma and work.<sup>58</sup>

Parker was of the opinion that despite this, training in England was still the best option for Indian students of leather manufacturing, and even without training at a commercial tannery, with class room learning and minor practical work in the factory of the college, an Indian student could return to play his part in developing the tanning industry in India, and meet the needs of the domestic market. They could 'induce the Natives to become Boot Wearers' but given the failure to learn practically they could never learn to produce leather of good quality and 'it

<sup>54</sup> The other institution in England where Indian students came on technical scholarships was the Department of Leather Industries, Leeds University.

<sup>55</sup> Deposition of Dr. Gordon Parker.

<sup>56</sup> *Ibid.*

<sup>57</sup> *Ibid.*

<sup>58</sup> A large number of tannery owners were Muslims, belonging to different groups—Iraklis, Labbais, Ravutans, etc. They, however, largely shared and internalised caste-based ideas of tanning being 'dirty' and even polluting work. However among owners of capital, groups such as the Hakka Chinese, particularly, or the Punjabi Ad-Dharmi dalit tanners in the Calcutta cluster, did not stigmatise working with hides and skins. Their scale of production was very small and they could not afford to seek formal technical education. See Bhattacharya, *Labour in the Leather Industry*, Ch. 1.

will be many generations if ever, before they will produce any leather which will equate British Productions'. Thus, the possibility of competition with British leather and leather goods was ruled out in the higher quality profitable end of the market segment by ensuring this hierarchy in the quality of workmanship. The considerable strategic and military demand for leather and leather goods within India were met by production in India—sourced through contractors and also from factories. However, the quality and skill differential was carefully maintained. The First World War showed the full potential of Indian leather production. The availability of hides, skin tanning materials in India, all of which the British leather industry was dependent on, meant that the latter could only retain its competitive advantage by ensuring that labour did not get effectively skilled in European methods in tanning. Hence, the leather and leather goods industry in British India developed to address the domestic demand—strategic, governmental as well as commercial—producing leather and leather goods marked by distinctly lower quality of workmanship and skill.<sup>59</sup> The underlying assumption was that lower quality products were appropriate for India. These comments and assumptions—about the lack of skills of Indian workmen, or about the lower quality of work being adequate for Indians—reflected notions of colonial power as well as racialised ideas of skill, as did the statement about educated Indians not doing manual work.

Technical education in this field in India came to be designed to maintain these multiple differentials—of knowledge, skill and quality, race and caste, which suited the colonial authorities and capital at home, while accommodating some of the interests of dominant elites in India.

All of these discussions and debates closely mediated as well as reflected policies, practice and pedagogical design in the key institutions of higher technical education in leather tanning and manufacturing that came to be set up in India in the early twentieth century. This evidence is discussed in the following section.

<sup>59</sup> Finished chrome-tanned leather, referred to as 'unwrought' leather, was produced on a small scale from the early twentieth century and after the First World War. Bark-tanned hides on the other hand represented about 59 per cent of the total exports of hides and leather in value, and raw hides amounted to about 30 per cent of the value of exports (dropping from 80% before the First World War). Exports of 'unwrought leather' had also begun after the First World War and the worth of exports was about 10 per cent of the total value. The Ottawa Agreement of 1932 that ensured Imperial Preference—in this case for Indian tanned leather imports into the UK—played an important role in the increasing value of exports of unwrought leather from India. Even so, it was primarily used for domestic production and domestic leather goods manufacturing slowly grew in the 1930s and 1940s. Apart from military consumption which had existed earlier, the domestic market in shoes and other articles opened up gradually, with companies such as Bata setting up factories and Flex, a company floated by Cooper Allen and Co., Cawnpore, developing and carving out niche markets. The quality of chrome-tanned leather produced in India, as well as that of leather goods, was however always deemed poor, lacking finish and workmanship, until the 1970s. See Bhattacharya, *Labour in the Leather Industry*, Ch. 2.

*Students, Curricula and Skills: Two Institutions and a few Questions*

The introduction of institutionalised technical education in leather tanning and production in India was accompanied by a discourse of the un-trainability of tannery workers, or the inability of the outcaste workers who constituted the workforce in the tanneries to absorb technical education and industrial training. Yet in other respects, while complaints about the lack of skill of Indian leather workers were recorded from about the mid-nineteenth century, praise for their intelligence and capacity to learn modern methods of tanning was also articulated. Alfred Chatterton, a key figure associated with the introduction of technical education in leather production in India, discussed tannery workers of Madras and criticised hides and skins merchants' views about them. He wrote:

The opinion is generally held among the merchants of Madras engaged in the [hides and skins] export trade that no improvements can be effected in the tanning processes now in use because of the difficulty of getting workmen sufficiently skilled and intelligent to carry them out. But this is scarcely borne out by the history of the trade as during the last three quarters of a century great improvements have been effected in the methods of tanning and the quality of the outturn. Although the tanners and leather workers are the lowest of the low, yet they are not deficient in intelligence and there is but little doubt that if the enterprise were forthcoming, which is necessary to start modern methods of tanning there would be little difficulty in obtaining after a short time a sufficient amount of labour skilled enough for the work.<sup>60</sup>

On a similar note, B. M. Das, deposing before the Indian Industrial Commission (IIC) in 1916 as Manager of the National Tannery, observed that:

[The] Chamars [drawn in as workers in the leather tanneries and factories in Calcutta] are hard-working, regular and intelligent. They are capable of easily adapting themselves to new methods of work and also understand new processes. In our chrome tannery the Chamars who, previous to their coming to us were only accustomed to bark tanning and had no idea of machine work quickly adapted themselves to the processes involved in chrome tanning. Some of them after a few months' practice learnt to work various machines with skill and intelligence and in fact for ₹15 to ₹20 per month I am getting almost the same class of machine work from the Chamars for which in England and Germany 20 or 25 shillings are paid per week. If they are shown and instructed in improved methods of work by leather experts in the manner I have sketched earlier in

<sup>60</sup> Chatterton, *A Monograph*, p. 17; he had already mentioned that the chucklers and *madigas* were leaving leather work, while the 'ordinary' cooly, the *Vettiyan*, linked to agricultural labour was the main kind of worker in the export-oriented tanneries by this time.

this statement there is little doubt that they will be as skilled and as efficient hands as are found in Europe and America ... [several are] skilled bark tanners and taxidermists ... the leathers that some of them dress will extort admiration from the 'severest critic'. So far as labour in the leather industries is concerned the ground appears to be quite fertile. It requires now careful sowing of seed to reap a rich harvest.<sup>61</sup>

The question that arises is whether technical education and industrial training contributed towards the creation of a skilled labour force, and indeed, what was 'sowed'? And what 'reaped'? Was there a 'rich harvest'? The answers that emerge out of the experience of some of the institutions of higher technical education in leather production in India are discussed in the following.

*The Institutions: Leather Trades Institute,  
Madras and Bengal Tanning Institute, Calcutta*

What Is in a Name?

Among the higher institutions of technical education in leather production that were set up in India, the ones in Madras and Calcutta were among the two largest, established in close proximity to two thriving export-oriented leather clusters and ports. This article draws upon evidence from the histories of these two institutions to understand concretely how the wider debates in technical education, cited earlier, were articulated, and engaged with, in the formal institutions.

A common feature of both these institutions was their tendency to change names. These were not random but reflected serious shifts in the objectives and vision of technical education in leather production, which became steadily more scientific and inaccessible to ordinary workers.

The institution in Madras began its career as the 'Leather Trades School', and was conceptualised and designed from 1912 onwards. It started functioning in 1915 and intended to train 'tannery operatives'.<sup>62</sup> In 1919, its name was changed to the 'Leather Trades Institute', as its orientation became more theoretical and aimed at higher educated students and towards research. The institution became exclusively a research institution in the 1930s and later, in 1943, teaching was resumed but its name was again changed to 'Institute of Leather Technology', and its teaching programme and curriculum became more scientific and technical than before. Leather chemistry was an important component of the curriculum. In 1948, this merged into the CLRI, headed by B. M. Das. This institution continues to be located at Madras/Chennai and is a leading institution of its kind in the world today. Another major institution was the Calcutta Research Tannery, established in 1919.

<sup>61</sup> HC. Written evidence of B. M. Das.

<sup>62</sup> Desikachariyar et al., *Report of the Leather Industry Committee*.



It was re-constituted as the Bengal Tanning Institute in 1926, its vision expanded to include teaching while its scope and courses became even more scientific and technical. In 1958, it was renamed 'College of Leather Technology', after a course in BSc (Tech), Leather Technology was introduced.

Both institutions, among the most important institutions of technical education in leather production in India historically, shared in varying degrees, the concern with getting 'intelligent' students, that is, those who were educated and had knowledge of the '₹3'.<sup>63</sup> The main reason they gave for this was that modern tanning was a science, and only an educated student could 'understand' it. Significantly, while borrowing much from the English schemes for technical education, they did not actually follow the English system in which a school education was not considered necessary to secure technical education. That formal education of any kind was beyond the reach of the outcaste working groups who formed the labour force for leather tanning did not seem to matter. Or their exclusion was perhaps part of the design.

#### Madras: the Leather Trades Institute, the Leather Industry Committee and its Findings

The Madras Leather Trades Institute, in its original conceptualisation, intended to train 'tannery operatives' as mentioned earlier. Once the institution started functioning, its officials began to present those with a 'hereditary connection to tanning' as ideal students. By this they meant the 'sons of tannery owners' provided they were educated and had capacity for 'reasoning,' that is, not from the background to which the actual workers belonged. The matter of who exactly the Institute was meant to train—who were the 'proper' students of the institute—was opened up in the course of a significant and unique investigation by the Leather Industry Committee, set up by the Provincial government in Madras in 1923 and initiated at the behest of the Minister for Development, K. V. Reddi of the Justice Party, into the policies and practices of the Leather Trades Institute in Madras.<sup>64</sup> The government's commitment to non-Brahmin politics led to the setting up of the Committee, which, however, was comprised largely of officials and technical experts, a few owners of tanneries, etc. After some debate and contestation, the view that was held by the government officials and the experts/officials at the Institute prevailed, and a policy that was in keeping with the overall colonial policy on technical education in India was upheld—one which effectively excluded the uneducated, outcaste workers who worked in the industry from the project of skilling in leather production. The Justice Party members, Minister K. V. Reddi and also O. Thanikachalam

<sup>63</sup> *Ibid.*, p. 33. The term '₹3' refers to reading, writing and arithmetic, implying conventional basic education, was used by Allan Guthrie, Principal, Leather Trades Institute in his deposition before the Committee.

<sup>64</sup> Cotton, *Notes Connected with G.O. No. 148*.

Chettiyar, another member of the Leather Industry Committee, had envisaged the setting up of a workshop for training leather workers in modern methods of making footwear and leather goods as an adjunct to the Leather Trades Institute. This was, however, not instituted as it was considered commercially unviable. Chettiyar put in a note of dissent.<sup>65</sup>

One of the major objectives of the Leather Industry Committee was to examine why *madigas* and *chucklers*, (referring to ‘untouchable’ castes, traditionally involved in working with leather) were not being trained there.<sup>66</sup> It might be recalled that members of various outcaste groups were widely employed in the leather clusters in the province, as workers and ‘coolies’, labouring in the leather clusters nearby. The Committee’s findings were released in 1924. In its report, it agreed with the Director of Industries for Madras, C. W. E. Cotton, that ‘the whole object of the Institute was to teach a fairly well educated type of student the theory and practice of tanning so as to turn out a man capable of taking charge as works manager of a tannery’.<sup>67</sup> He implied that the work of the Institute should not be confined to ‘improving the quality of the coolies employed in tanneries or the small artisans engaged in making boots and shoes and saddles out of finished leather’ and that a ‘works manager who knows his business can very soon put his coolies in the way’.<sup>68</sup> Cotton went on to give the example of a tannery manager, an old pupil, who had trained all of his locally recruited ‘inferior staff’ successfully though they had no hereditary connection to leather.<sup>69</sup>

The courses taught at the Institute, initially planned as a mix of practical and theoretical components, had been becoming, already by 1923, increasingly largely theoretical and scientific, and the practical component was drastically reduced. Moreover, the Secondary School Leaving Certificate (SSLC) had been made compulsory to join the courses. This qualification and theoretical training, which were not required in England, were, the Committee suggested, necessary on account of Indian difference. The Committee explained this as follows:

In Europe the best foreman is usually the man who has ‘been through the mill’ as an apprentice and journeyman, and later has shown ability to organise work and manage other labour, and has taken the trouble to obtain a certain amount of theoretical knowledge through the medium of evening classes or by private study. In India this class scarcely exists and the next best has to be employed.

<sup>65</sup> Bhattacharya, *Labour in the Leather Industry*, Ch. 7.

<sup>66</sup> The highest number of workers in the Madras tanneries was drawn from the *paraiyan* caste, non-specialised agricultural labouring groups who could ritually touch or work with leather. The terms ‘*madigas* and *chucklers*’ were used to indicate outcastes who actually did the work of tanning traditionally. See Desikachariyar et al., *Report of the Leather Industry Committee*; also discussed in Bhattacharya, *Labour in the Leather Industry*, Ch. 5.

<sup>67</sup> Desikachariyar et al., *Report of the Leather Industry Committee*.

<sup>68</sup> *Ibid.*

<sup>69</sup> *Ibid.*

The latter is the institute or college trained man who has a certain knowledge of the manipulation of tools and apparatus. Though he is not himself a journeyman, the student after completing a course of training in the Institute has the theoretical knowledge which is not possessed by workmen, and after obtaining further practical experience in a commercial tannery he should, we consider be able to supervise the operatives and efficiently control the working of a tannery.<sup>70</sup>

This ‘practical experience’ did not involve learning how to do the different tasks involved in tanning, but rather, supervising the work, controlling labour and ensuring the proper use of chemicals by workers.

The Committee concluded that this kind of a theoretical, scientific syllabus, and curriculum and entry requirement that students should have a SSLC, set by the administration of the institution, was justified. In India, therefore, unlike England, the possibility of a practical worker ever accessing such education, like the potential foreman described in the Committee’s recommendations, was completely nullified. The Committee recommended part time courses for tannery operatives and *maistries*. Some were designed thereafter and included vernacular components, and a high degree of practical and demonstration work. But they had to be withdrawn as they did not attract students, that is, workers could not come to join these courses, primarily because they were systemically excluded from them. Most of them were engaged in difficult and tiring work all day and would lose their work if they came to the institution. Moreover, Madras *maistries* were already well versed in the methods of bark tanning needed in the market and the methods of tanning demonstrated in the Institute were probably not considered particularly useful for them, a fact recognised by the Committee itself. By the 1930s, the Leather Trades Institute stopped teaching students for some years and undertook research work for the industries for export as well as for domestic markets, for some years. When teaching was revived in 1943, the theoretical and scientific content in curricula was further intensified. Chrome tanning had become somewhat more popular and the domestic consumption of leather was growing.<sup>71</sup> Technical education at Madras developed in an institution geographically located barely a few kilometres away from the leather tanning cluster at Pallavaram–Chromepet, marked by numerous small tanneries clustered together, the smell of rotting flesh scraped from hides, and odorous pits of lime and tannery wastes, in which thousands of outcaste workers toiled continuously, handling and manipulating stigmatised materials. For these workers, chances of admission to the institution as students, or the possibility of qualifications of skill, were practically impossible.

<sup>70</sup> *Ibid.*

<sup>71</sup> *Report on the Marketing of Hides*, pp. 43–47.

### Calcutta: The Bengal Tanning Institute and the Project of Making Leather 'Bhadra'

The institution of technical education in leather tanning and production that emerged in Calcutta was more explicit from the outset in working towards their objective of attracting higher caste groups. Unlike in Madras, there was no debate about who was to be trained. The Calcutta Research Tannery was set up in 1919, for carrying out research, as the name suggests. With its renaming as the Bengal Tanning Institute in 1926, it began teaching courses in the sciences with a heavy theoretical component. The entry-level course itself required a school leaving examination certificate to enter, hardly something that the *chamar* migrant workers actually working in the tannery cluster on the outskirts of Calcutta were likely to have. D. B. Meek, the Director of Industries in 1926, approvingly reported the large number of applications from 'high caste Bengalis' for admission to the institution, which he believed showed that it had made tanning and leather manufacture acceptable to them and had 'greatly' removed the prejudice they possessed towards it.<sup>72</sup> Criticising the existing curriculum and arguing for the need to expand the scientific staff capable of providing 'an up-to-date theoretical training in the Applied Chemistry of Leather Manufacture, a knowledge of which is indispensable in an efficient tanner', and also facilities for proper scientific research at the Research Tannery, Meek wrote, 'The one-sidedness of the training now provided for has resulted in turning out men who know how to do things without knowing why'.<sup>73</sup> With its re-constitution as the Bengal Tanning Institute and its curriculum made more theoretical and scientific, the training came to be peculiarly committed to training higher caste/class students, unable by caste taboos to handle hides and skins, who knew the 'why' of leather production but did not know 'how' to do the work.

Official preoccupation with drawing *bhadralok*<sup>74</sup> into tanning through the route of technical education continued into the 1930s. Success in this endeavour was seen as almost synonymous with the development of the industry. Thus in 1929–30, B. M. Das, Director of Bengal Tanning Institute, reported,

The tanning industry has taken root in Bengal and the development it has shown in recent years warrants the hope that it will be an important branch of the industrial activities of the province. Already it has recruited workers from those sections of the people which formerly looked askance at it. Both capital and intellect are being brought to bear on it and there are clear indications that in the very near future it will be led and manned by the intelligentsia of the

<sup>72</sup> Meek, *Introduction of a Two-year Diploma Course*.

<sup>73</sup> *Ibid.*

<sup>74</sup> The term in this context refers to upper caste, upper class men, both Hindus and Muslim, referred to as such in the Annual Administration Reports, Department of Industries, Bengal, 1925–38. See Bhattacharya, *Labour in the Leather Industry*, Ch. 7.

country, and not consigned to ignorance and indigence as was its lot for centuries past.<sup>75</sup>

He further wrote that '[t]he industry is undergoing a metamorphosis by contact with science and modern enterprise. Its status is being raised so as to make it worthy of pursuit by capable and efficient men. It is no longer stagnant and moribund but progressing'.<sup>76</sup> Thus, the official understanding was that these higher caste men who secured industrial training were 'capable and efficient', even though they may never be able to handle hides and skins. As in Madras, the fact that the actual production of hides, skins and leather in the industry was continuing, carried out by outcaste workers, bringing considerable profits to tannery owners, only a short distance away from the institution of technical education in leather production, was left out of these reports. These workers are associated with 'ignorance' and 'indigence' as well as the 'stagnant' and 'moribund' state of the industry, descriptions that are contradicted by facts which the writer of the report was well aware of. These assumptions, however, became the basis of the exclusion of outcaste workers from formal state-organised training.

An incident that led to a debate in the Calcutta Research Tannery in 1923 illustrates the depth of this official emphasis on bringing in higher caste, elite, Bengali youth into leather tanning. The question of the payment of travel allowance to one Babu Dharendra Nath Mazumdar, a rare *bhadralok* who had joined the Calcutta Research Tannery as an 'unpaid apprentice' led to an active debate. On 22 December 1922, Mazumdar was sent with a tanning demonstration party to 'display tannery exhibits and explain the modern processes of tanning at the Bolepur Santiniketan Annual Fair'. He stayed there 3 days and then returned to Calcutta. He was paid traveling allowance for the trip according to the higher rates due to a Class 3 officer, which he was not. Moreover, according to the rules of the institutions, only paid apprentices (which he was not) were permitted to go as demonstrators and entitled to Travel Allowance as Class 3 officers.<sup>77</sup> This apparently small bureaucratic matter drew out the passionate views of high officials in Bengal on the matter of *bhadralok* entering tanning, or at least entering the Research Tannery, and needing to be encouraged to do so. The Officiating Director of Industries, R. J. Weston, strongly advocated his case and argued that young men of Bengal had to be encouraged to work in the leather industry, and he needed to be compensated duly for his efforts. The Secretary, J. A. L. Swan also supported the validity of this violation of rules by arguing that youth of the *bhadralok* class like Mazumdar should be encouraged by being paid the extra allowance to join manual work.

<sup>75</sup> Director of Industries, *Annual Administration Report, Bengal, 1929–30*.

<sup>76</sup> *Ibid.*

<sup>77</sup> Agriculture & Industries, Industries Branch, Government of Bengal, West Bengal State Archives (AIIBGB, WBSA), *Travelling Allowance and Daily Allowance*.

The fact that Mazumdar would certainly not have handled hides as a demonstrator, and the manual work involved would still have been done by outcaste *chamar* workers from Bihar, employed as workmen in the institution (officially ‘menials’), who had travelled with him, as they did routinely in all ‘demonstration’ exercises, did not apparently count. The concurrence between colonial authorities and dominant Indian views about the need to draw *bhadralok* into the industry, despite their inability to handle hides and skins, illustrates primarily their common agenda: the kinship that emerged in practice between the interests of dominant caste elites and colonialism. The progress of the industry was considered to be directly dependent on getting *bhadralok* into it, and higher technical education in leather tanning and production as it was designed in India, made this possible. While there do not appear to be other such clear ‘cases’ as Mazumdar’s, where the state’s objective of getting higher caste students to join the leather industry, and redeem its low status is so obviously indicated, there are nevertheless enough indications in official statements of colonial officials like Meek, and Indians like B.M. Das (cited earlier), that they believed that attracting high caste/class men into leather work would improve and develop the industry. These beliefs further closely shaped measures and official policies adopted towards this industry.

In later years too, the annual reports of administration of the Department of Industries in Bengal, in their reports on the Bengal Tanning Institutes kept count of the *bhadralok*<sup>78</sup> who entered the field, making it clear that the number of *bhadralok* in the courses was directly seen as correlated to progress in technical education, regardless of any evaluation of standards of skill acquired by them. Their entry, regardless of their inability to deal with the production process, was equated by the authorities with the improvement of the quality of students, and thereby, enhancement of skills, and by implication, output—simply because they belonged to higher castes and classes. Conversely, the outcaste *chamar* workmen in the industry or those serving as ‘menials’ in the laboratories of the Bengal Tanning Institute, who knew the production process practically, were excluded from skill enhancement through technical education.

The complex and interconnected implications of these mediations by institutions of technical education in leather production are discussed in the following section.

<sup>78</sup> The report’s choice of words is revealing ‘One *gratifying* (emphasis mine) feature was the employment of increasing numbers of Bengali *bhadralok* youths in the trade among whom the young men trained at the Boot and Shoe Department of the Bengal Tanning Institute were fairly represented’. Refer Director of Industries, *Annual Administration Report, Bengal, 1934–35*. It was also reported that 73 *bhadralok*, both Hindu and Muslim, received training at demonstrations, and 13 of them went on to start tanning. If outcaste students had sought or acquired training that year, it did not get recorded. The numbers of outcaste workers was reported in other years however. For instance, in 1936–37, it was reported that 33 Hindu and Muslim *bhadralok* and 10 *chamakars* received training in demonstrations that year. The obsession with ensuring and keeping track of *bhadralok* presence and association is visible in these attempts. See Director of Industries, *Annual Administration Report, Bengal, 1938*.

### **Part III. Transforming Skin, Changing Caste: The Implications of Technical Education in Leather Tanning and Production**

One of the key underlying objectives of technical education in leather production in colonial India was to transform the ‘quality’ of workers—effectively, their caste and class—as well as the widespread perception of the field itself as a stigmatised ‘low caste’ one. Technical education intervened discursively by reinventing leather production as a science, worthy of teaching in the sanitised space of classrooms of dedicated institutions. While certain kinds of association with leather work came to be regarded as relatively respectable, the initial work processes remained deeply stigmatised, and the labour regime harsh. Its intervention was thus also material, and it reinforced the exploitation and oppression of workers and bolstered capital and caste in this process.

‘Skilled labour’ has been written about by Marx as ‘more complex labour, labour with a higher specific gravity’ than average labour, and also ‘whose production has cost more time and labour than unskilled or simple labour power, and which therefore has a higher value’. Acquisition of skill in a given branch of industry required ‘a special education or training’ and the ‘costs of education vary according to the degree of complexity of the labour power required’ being ‘exceedingly small’ in the case of ‘ordinary labour power’, and more for skilled, more complex labour power, and formed ‘a part of the total value spent in producing it’.<sup>79</sup>

In leather production in colonial India, the design of the ‘special education’ that evolved, needed its recipients to have prior educational qualifications and free time, and know English to access it. Those who were poor, and belonged to outcaste ‘untouchable’ communities, were excluded from seeking technical education; they were, by definition, not to be educated.

Only those from higher castes and classes could hope to secure this kind of ‘special’ technical education. In the curricula of these institutions, hide and skins processing and leather production became practically a branch of chemistry, and scientific, theoretical knowledge of leather production came to be considered superior to any kind of practical knowledge and skills learnt on the shop floor. Technical education thus created the possibility for higher castes to enter the field, without losing status or caste, and be positioned as scientific experts, claiming superior knowledge. It simultaneously carefully excluded the outcaste workers who actually laboured to produce hides, skins and leather in the industry and for the thriving market.

The divide between ‘skilled’ and ‘unskilled’ workers thus had little bearing on actual abilities in doing the work. Marx’s statement about the distinction between about these categories being partly a pure ‘illusion’ could well apply here:

<sup>79</sup> Marx, *Capital*, p. 305.



The distinction between ... 'skilled labour' and 'unskilled labour', rests in part on pure illusion or, to say the least, on distinctions that have long since ceased to be real, and survive only by virtue of a traditional convention; and in part on the helpless condition of some sections of the working class, a condition that prevents them from exacting equally with the rest the value of their labour-power.<sup>80</sup>

Clarke and Winch, writing about varied notions of skill within Northern Europe, observe that for Adam Smith and Marx,

the bestowal of the term 'skilled' on a worker depends on the ability to get oneself classified as such rather than on an ability to do the work. They ... raise questions about the criteria for its application in an industrial context where power relations rather than know-how determine wage levels.<sup>81</sup>

In this case, caste and class effectively became determinants of this 'ability' to get the highest qualification for skill in leather production, and the concomitant 'helpless condition' of other sections of the working class who could not attain it.

In the setting up of technical education in leather production in India, multiple conceptions of 'skill' had to be navigated, their dissonances reconciled in particular ways for designing and implementing it. At least three different conceptions were negotiated—the Anglo-Saxon one, the one of the colonial rulers, the German one, since their technical education was seen as a model for the British (and also, through colonial agency, the Indian), and third what was understood as the dominant prior conception in India.

The conventional Anglo-Saxon conception of skill<sup>82</sup> was associated with manual ability and dexterity, application in performance, and little connection with a knowledge base. This meaning of skill, which had emerged in the context of pre-industrial craft production, remained influential in Britain even after industrialisation, producing tensions and hostile relations between technical education and the leather industry in the late nineteenth century. The German conception of skill on the other hand, having developed out of its own history of craft, manufacturing and industrialisation, referred to a different sense of practical knowledge which incorporated within it a body of theoretical knowledge pertaining to the craft/occupation. By the late nineteenth century in Germany, the conceptual connection between skill and formal qualification was already there. Here too there was some unevenness, between the 'leather chemists' and 'tanners', (as Herr Courtier's comment suggests) but by and large, technical education and the leather industry were historically more mutually dependent and developed closer links. Even as the German model was

<sup>80</sup> *Ibid.*, footnote 19 on p. 305.

<sup>81</sup> Clarke and Winch, 'A European Skills Framework?'

<sup>82</sup> *Ibid.*

studied by the British before setting up their own institutions of technical education in leather production, the departures from it were clearly specified.

Traditional caste-based meanings associated with preliminary leather processing in India necessarily burdened the way in which new attempts at skilling were understood. Pre-tanning work, that is, the preliminary curing of raw hides and skins after they were removed from the carcasses of animals, grew significantly in India, in connection with the linkage raw/lightly tanned hides and skins from India with international markets. It was traditionally occasional work, concentrated in rural areas or small towns, and linked to socially subordinate rural agricultural labour. It was not considered 'craft' work, nor believed to involve any 'skill' in the traditional framework. No tradition of guilds or craft/caste organisations of these workers existed. This history and this understanding inflected the nature of technical education and 'skilling' that developed. Studies show that ideas, practices, objects and subjects of 'skilling' through technical or vocational education are deeply rooted in the 'division of labour in society, whether on the basis of class, gender or ethnicity'<sup>83</sup> and 'the ways in which particular qualities of labour are nurtured, advanced and reproduced through VET (vocational education and training) tells us a great deal too about the value accorded to labour in society'.<sup>84</sup> The purveyors of technical education in leather production in India went to great lengths to maintain the caste-mandated low social value traditionally accorded to raw hides, skins and leather, and the work that involved handling them. While some kind of hierarchical divide between theoretical and practical knowledge existed elsewhere as well, for instance, in Britain and Germany, it was dealt with by ensuring that those who learnt the theory of leather production had to learn the practical, manual work of leather processing in tanneries. In India, the caste-driven divide between these different kinds of knowledge was unbridgeable. The evidence discussed here also suggests that the project of modern technical education in colonial India was perhaps not aimed at bridging it.

Institutional valorisation of theoretical knowledge had implications for the workers who toiled in pre-tanning and tanning work in the industry, outside the institutions. Technical education contributed to existing notions about the low social value of the work, and of such skills as workers acquired in it, by making theoretical knowledge the standard and measure of knowledge and skill in leather production. Given their caste and class context, theoretical knowledge was unattainable for them, and this ensured that the outcaste workers came to be categorised as 'unskilled' or at best, 'semi-skilled' regardless of the degree of dexterity, understanding and knowledge they acquired on shop floors. The labour processes they were engaged in the industry thus also came to be regarded as requiring less skill. Caste-based segregation of skill in this field was thus both traditional and modern.

<sup>83</sup> Clarke and Winch, *Vocational Education*, p. 1.

<sup>84</sup> *Ibid.*

The persistence of traditional notions about leather processing and skills meant that a large number of outcaste workers who were now drawn into the segment of hides and skins processing linked to exports, the processes that got industrialised, did not go through the conventional trajectory of ‘deskilling’ (occurring in capitalist production with the advent of machines), as these processes, and the workers engaged in them, had never been regarded as ‘skilled’ in the traditional context.<sup>85</sup> Thus, as chemical tanning and technical education became the foundation of new notions of ‘skill’, new hierarchies of skill were created, which overlapped with the old ones of caste and class. The valorisation of theoretical scientific knowledge about leather production and the concomitant downgrading of the practical knowledge and experience that the workers on the shop floors had, also counted as ‘deskilling’ of a certain kind, one that benefitted capital as it ensured cheaper labour and greater profits. These workers’ inability to ‘use any of their mental powers’, their subjection to the capitalists’ ‘autocratic power and despotic rules’<sup>86</sup> and the production of a structural divide between the head and the hand, that also occurred elsewhere under industrial capitalism, was made possible here by the collusion of caste and capital.

The divide was in turn upheld by technical education. Mechanisation was slow in this segment, partly because of this labour which was extremely cheap. Chemicals on the other hand were by the mid-twentieth century adopted by the industry in India, for some initial stages of hides and skins processing relatively readily, because of their ability to massively speed up production, with comparatively low investment. They contributed towards intensification of work pressure for the pre-tanning workers, while some of the students who graduated from technical education institutions, came to be employed in this field, as managers, supervisors and leather ‘experts’.

This process of re-calibration of skills was, however, one which was intensely tension-ridden due to a range of factors, not the least of which were the nature of the existing markets for Indian hides and skins, and the attitude of capital. As discussed earlier, capital engaged in this field in India had overall limited interest in furthering technical education, and closely mediated the nature of skilling initiatives in leather production. It was clear in the course of the first decade of the twentieth century that the ‘intelligence sufficient to appreciate the value of

<sup>85</sup> This work (along with flaying, skinning carcasses of animals, and basic curing of hides and skins) was traditionally linked to rural labour services, embedded in structures of subordination (refer ff. 27 in this text). Other categories of workers who worked with leather engaged in the production of traditional leather goods such as traditional shoes, saddles, etc., though also stigmatised, displayed a sense of pride in their skills. For the pre-tanning workers, their earliest labour struggles reflect their attempt to change their identity—from being regarded as servants to being treated as wage workers. See Bhattacharya, *Labour in the Leather Industry*.

<sup>86</sup> Marx, *Capital*, p. 549.

properly trained workers',<sup>87</sup> envisaged in the aftermath of the Simla Conference, simply did not emerge among most capital invested in this field. As the market for exports remained geared substantially towards the production of a high volume of low-value commodities, raw or lightly tanned hides and skins, technical education or vocational education never became a 'guardian of entry into labour market'<sup>88</sup> as it was in some other parts of the world. It did not become a basis for getting employment or just entering the labour market to do the initial processing work, which was concentrated in India in the chain of commodity production that had been established. Moreover, it was a fact that in the interest of profits, capital had to ensure that the bulk of the workers engaged in this work remained categorised as 'unskilled'. The low social value of this work, and the stigma attached to it, enabled the extraction of much higher surplus value. Related to this is the fact that the extremely low social status of outcaste labour in this industry, which served to keep the cost of reproduction of labour low and depress wages for these categories of workers to the lowest levels. By indirectly but firmly reifying the association of lowest caste workers with the most stigmatised materials and work, and denigrating such skills, practical knowledge and experience that they had developed (and were successfully applying to produce commodities that were sold in the market and brought considerable profit for capitalists), technical education was thus complicit with both caste and capital in the subordination of outcaste labour.

As personnel who knew about chemicals, eventually used to speed production even in the pre-tanning operations, they were accepted by capital. However, given the small scale and nature of the predominant kind of capital in this sector, tannery owners had a vested interest in ensuring that the number of students who graduated from these institutions of higher technical education in leather production remained low so that they did not adversely impact profits.

The numbers of those who secured technical education and went on to join the industry as leather chemists and technologists were limited in this period. But by the 1930s, it was evident that technical education had created a new, thin, but strategically located layer of non-manual scientific workers. A segmented labour market could emerge, marked by significant wage differentials between those who had scientific technical education and those who practically did the work, a divide that coincided with the axes of higher castes/classes (aligned with the former), and the lowest 'untouchable' castes/classes (with the latter). Those with technical education were also aligned commonly with the management and not labour. Given the nature and quantum of commodities produced in India, it would not be wrong to say that these technically educated workers had little impact on economic productivity. And yet, these institutions continued to function and be supported by the state. Their importance possibly lay in the fact that they enabled higher castes

<sup>87</sup> Risley, 'Scheme for the Development of Technical and Industrial Education'.

<sup>88</sup> Clarke and Winch, *Vocational Education*, p. 1.

and classes to extract the greater share of leather's profitability without having to deal with its extreme stigma. Technical education became the means by which the 'outcaste' field of leather production could be breached from above by higher castes, which could enter spaces like tannery shop floors positioned as experts. Market expansion also created the opportunity for some higher castes and classes to become hides and skins producers and merchants, breaching the caste character of the work.<sup>89</sup> In both cases—of technical education and the market—the breach was premised upon the carefully maintained distance, and abstraction from manual labouring and tactile contact with stigmatised raw hides and skins.

Another kind of segmentation built into the historical structuring of the commodity chain was along a hierarchy of skill and value—which were understood and believed to be concentrated at the international and metropolitan end of the chain, while the Indian end was marked by concentration of low skill and value. Indian hides and skins had got incorporated into this axis at the lowest end under colonialism. Technical education in leather production, by its design, and calibrated exclusions and inclusions, collaborated with the maintenance of this inequality. Those in India, who were able, by dint of caste/class status to acquire technical education and theoretical, scientific understanding of leather production were unable, because of the same reasons, to acquire practical knowledge, ensuring that the degree of skill, finish and quality of Indian commodities could never reach that of leather and leather goods produced at the international and metropolitan end of the chain. On the other hand, those who could do the practical work were effectively denied scientific training and skilling. The geographically circumscribed monopoly of skill in producing leather was thus maintained in the metropolis: Europe and America.

This monopoly was not just geographical or colonial but distinctly racialised. It demonstrated how race intersected with caste in complex ways in shaping technical education in leather production. The emphasis on the high degree of skill of British tanners and curriers, and the accepted understanding that this could never be matched by Indian workers, with their poor skills and bad workmanship, revealed how, among other notions, race explicitly and implicitly mediated the discourse around skill in leather production. The pedagogical design of technical education based on the premise that the possession of skill was an attribute of higher caste/class identity, and on the rigid separation of mental and manual labour, played a

<sup>89</sup> Evidence shows that members of higher castes began to get involved in the trade and production of hides and skins especially in the 1920s and 1930s. Thus in Madras, in the early twentieth century a Brahmin like G. Srinivas became a leading figure in the hide and skin trade, owned tanneries in Trichinopoly and Dindigul. His tanneries were known particularly for the high-quality goat skins produced under the reputed 'GS Mark' as it was called in the trade. The volume and density of this market related 'breach from above' were not very much, however, owing to depth of stigma that adhered to the field. See Bhattacharya, *Labour in the Leather Industry*, Ch. 3; also, interviews with Mohan Srinivas, All India Skins and Hides Tanners and Merchants Association, Chennai, in February 2006.

key role in ensuring that the quality of leather manufactured in India would never match the quality of British production.

To conclude and reiterate some findings, it could be said that leather production universally involved the chemical transformation of raw, perishable hides and skins into more durable and impermeable leather. In India, this transformation additionally implied the conversion of ritually impure ‘untouchable’ skins into less stigmatised leather. Labour was critical to this process. As Indian hides, skins and leather got linked to the colonial economy large numbers of outcaste workers were drawn into do this work. Modern technical education as it was introduced in India, however, excluded these workers from its ambit, and sought to engage with the science of this fundamental transformation and intervene in it, to improve productivity by imparting knowledge and skills. The project became particularly bizarre because it produced a small but significant number of new upper caste, upper class ‘experts’ who could explain the science and theory of tanning, but quite literally could not touch hides and skins because of caste taboos.

This discussion on historical initiatives at skilling and technical education in leather production in India reveals the truth of Clarke and Winch’s argument that such projects tend to be rooted in the division of labour and value accorded to labour in society. It is particularly significant, in the context of current political initiatives in India to foster and enhance ‘skills’ through institutions and otherwise, to understand how cultural attitudes to labour and skill as well as the interests of capital mediate such initiatives. In India, as the earlier account shows, the hierarchy that existed in European contexts between the knowledge of the scientific ‘expert’ and that of the ‘practitioner’ as industrialised leather production emerged, became much deeper and sharper as it got interlocked with the intense structural and ideological hierarchies of caste and its conjoint markers of stigma, untouchability and smell. The curricula and programmes ensured that outcaste workers who laboured not just on the shop floors but also completing experiments as ‘coolies’ in the laboratories and research tanneries could never move beyond the stigmatising work they did. Work processes and wage grades peculiarly became categories of birth. Thus, skill became a function of identity, of the social and historical location of its possessors.

### **Abbreviations**

AIIBGB: Agriculture & Industries, Industries Branch, Government of Bengal

IIC: Indian Industrial Commission

NAI: National Archives of India

OIOC, BL: Oriental and India Office Collections, British Library

PDFLS, LULSC: Procter Department of Food and Leather Science, Leeds University Library Special Collections

TNSA: Tamil Nadu State Archives

WBSA: West Bengal State Archives

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