LITHOGRAPHY V. LETTER- PRESS IN INDIA
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A recent study of early lithographed books has observed that lithography was more widely used for book production in the East than in the West during the nineteenth century (1), most extensively in the Indian subcontinent where the new process had a particular appeal for the local population. The importance of lithography in the subsequent course of printing history in South Asia has not yet been fully recognized, and its introduction into India in the 1820s is a clear reminder that technical development - a change of printing process - can have as profound and pervasive an influence on book production as any social, economic or political factors. Part one of this paper presents new first-hand evidence of the earliest practice of lithography in India and of the economic argument surrounding its introduction in Bombay; part two then considers in broad terms the contribution made by lithography to the creation of a recognisably 'vernacular' printed book in the tradition in India.

PART 1 : LITHOGRAPHY IN BOMBAY

From the material preserved in the India Office Records we probably know more of the early day-to-day working of the lithographic process in India than we do for the same period anywhere in Europe. The first practitioner of lithography in India was James Nathaniel Rind, an assistant surgeon in the Bengal Medical Service, who had studied the process in Edinburgh while on sick leave at the end of 1821 or the beginning of 1822 and had brought back with him to Calcutta a lithographic press. After this was purchased by the Bengal administration of the East India Company, Rind's lithographic establishment quickly expanded and he soon acquired a considerable reputation for the quality of his printing, particularly maps and charts, by the new process (2). As with photography two decades later, lithography in the 1820s was a technique which required considerable adaptation in order to work effectively in the Indian climate and no less initiative on the part of the would-be practitioner to cope with shortages of suitable materials and with the attitude of government. A fascinating glimpse of the problems involved had recently come to light in the Bombay Proceedings series of the India Office Records, principally in the form of Rind's responses to a series of questions put to him by Robert McDowall, the lithographic novice in Bombay who was plucked for this duty from the Secretary's Office in July 1824 (3). As the more experienced MacDowall was to comment some nine months later: "Lithography as practised in England and India may be said to be two distinct arts" (4).

Six lithographic presses had been shipped out to Bombay on the Dunira by June 1824, a month before MacDowall's appointment. The Bombay Government's
original intention had been to distribute one of these presses "to each office where it might be most required, and worked by the regular establishment of such offices or at all events with very limited addition" (5). In other words, even with the importation of this new printing technology, the East India Company in Bombay intended to maintain its stand against setting up a separate government press. However, the Governor of Bombay, Mountstuart Elphinstone, had already consulted Rind in Bengal about the best way to proceed, and as a result a European superintendent, MacDowall, was appointed to oversee one central lithographic establishment that would take undertake all official printing. It was to be conducted for an experimental period as part of the General Department of the Secretary's Office, MacDowall being overseen by a committee consisting of two Assistant Secretaries, James Farish and Gilbert More. MacDowall must have shown astonishing aptitude for his new responsibility for just one month later in August 1824 the committee members reported that they "had inspected specimens of his printing from the first attempts to the present time shewing his progressive improvements ... If the latter of these are inferior to the specimens of Bengal lithography, it is owing to inferiority of penmanship more than to defect in managing the press in respect to which we consider Mr. MacDowall entitled to credit for having so soon overcome the difficulties of the undertaking" (6).

The first detailed statements of output that can be traced are those for October and November 1824 which show the great variety of official forms and circulars which MacDowall was called upon to produce. For example, 8 October, 300 copies foolscap "Circular & Notices for the collector of Bombay regarding toddy"; 11 October, 100 copies third "Notice for the sale of woollens", 150 copies third "Licence for toddy", and 70 copies imperial "Victualling statement for the Marine Department on 2 sides"; 28 October, 109 copies imperial "Victualling statements for Marine Office", 200 copies foolscap "Form of report for the Master Attendant's Office", 100 copies imperial "Proclamation regarding the economy to be observed with water in English Gazette and Mahratta", 276 copies third "Receipts/Forms of/for the Military Pay Office", 1746 copies foolscap "Summons for the Petty Sessions" and 1030 copies foolscap "Pass notes for the Sub Treasurer"; 3 November, 200 copies second "Forms of certificates for the Customs Master"; 15 November, 150 copies foolscap "Circular regarding the Pension Fund (2 sides)"; 25 November, 25 copies foolscap "Circular regarding the abolition of the office of Registrar", 100 copies second "Licences to distil mowrah", and 300 copies third "Circular for the Native School Society" (7) - the lithographic press here seen in its lowliest incarnation as an early nineteenth-century equivalent of the office photocopier.
Chinese Machine for Winding Silk.

चिनियाई सीम की सापोलीन कावर्यांचे यंत्र
MacDowall complained bitterly that he was unable to manage affairs of the press as he would have wished because of two unavoidable preoccupations. First, the "labour of etching and preparing the stones ... It is necessary to have a knowledge of the nature of every stone in the establishment in order to regulate the solution by which they are prepared". Secondly, even this task had to be neglected on occasions from his "attention being repeatedly called to the preparation of new inks" (8). For the lithographer, obtaining suitable inks presented the greatest problem in terms of materials. No wonder then that MacDowall's first two questions to Rind concerned the preparation of printing and chemical inks. For printing, Rind replied that he had "never used Europe ink except experimentally, and very soon discovered that it would not suit this climate", and recommended that "a very little fine indigo rubbed down with varnish in the manner of paint ... renders the colour much finer and darker". Rind was also able to supply his own recipe for transfer ink in response to MacDowall's dismissive remarks that "Senefelder's recipe may, there is no doubt, be accomodated better to this climate ... The inks required for this climate are all of a different consistency, and in no instance now do I adhere to the various recipes laid down for their composition in the various treatises on the subject" (9). MacDowall stressed the dangers involved in preparing printing inks in the office "as the flame which proceeds from it occasionally rises as high as 6 or 7 feet" in order to press his claim for better accommodation for the lithographic office. Rind had observed that "the thermometer in my printing office indicates a temperature very generally of 90 degrees, and often above it, but this does not interrupt the work", but advised MacDowall nonetheless to "get a good cool house ... I am allowed Rs. 200 per mense, for house-rent and office-rent, but so much do I value a cool situation that I pay 350" (10).

MacDowall's principal complaint was that he was expected to run a comparable office to Rind's on less than one-third of the latter's monthly budget i.e. Rs. 558 against Rs. 1,721. Rind's advice was plain: "Employ double the number of workmen; indeed, I am inclined to think that, by employing as few as you do, the stones round the edges of the letters get dry before the roller is applied to them. I have 5 men at each press, 1st to work the roller on the ink slab; 2nd to apply the ink to the drawing; 3rd to wet the stone; 4th to work the handle of the press; and 5th to stand behind the press and give what assistance is necessary ". Rind had thought too on man-management: "Give the men pay according to their conduct, and do not engage them at higher or lower wages; neither let one man be over another; pay them on the first of the month for the preceding month and with your own hands, whether it be 2 or 3 months before you yourself are paid. I am three months in arrears, but always pay the Establishment the day after the month expires" (11). The daily output Rind obtained from his workmen was accordingly high: "I have often taken 1,000 impressions from English writing in one day, so many have not been required
in the native languages; but a Persian and a Naguree writer are daily employed in this office, and 260 impressions are always taken of their writing in about 2 hours, and the stone remains in most cases as good and clean as at first; but, more impressions not being required, the stones are immediately cleaned for other purposes. From 600 to 800 impressions, agreeably to their size, etc., I look upon as a good day's work for one press; when very numerous impressions are required of a form, I have always two or more copies on the stone. I remember having an order for 1,200 impressions of a very small form, 12 copies of which could be written on half a sheet of Post paper; this was accordingly done, and 100 impressions of the dozen copies were taken next morning in less than an hour. I often have orders for some thousand copies of forms, and manage in that way" (12). MacDowall's four presses by comparison were able to print a total of 2,000 sheets per day (13).

Rind laid great emphasis upon obtaining a "really good writer, whatever the salary may be", adding that "anyone you may employ must have some practice before he can be of much use; for I never yet met with one who could at once fall into the way of writing with equal freedom on the prepared as on the post paper" (14). The Bombay committee had made no immediate recommendation for employing writers in the vernacular languages (Persian, Arabic, Marathi and Gujarati) on a permanent basis since sufficient work to warrant them was not anticipated. Instead, the Persian Secretary should arrange "for the transcript of any paper to be made by the best native writers in his office" (15). However, in December 1824 MacDowall was allowed to employ "one man ... met with who can write both Mahratta and Guzerattee in superb style" (16).

In February 1825 MacDowall felt confident enough of his assistant, Francis de Ramos, to apply for leave of absence to visit Rind in Calcutta where he would also take the opportunity to visit Mr. Wood's commercially run Asiatic Lithographic Press, and permission was duly granted. MacDowall's admiration for Rind shows through in his application: "Mr. Rind had studied lithography and was master of it in a different climate before his arrival in India. He is professionally a chemist and must consequently know more of the theory as well as the practice than I am likely to do for some years to come by remaining stationary in Bombay, as epistolary communications regarding which matters are of little or no avail ... Mr Rind has produced prints very little inferior to some of the finest specimens of English lithography" (17).

The debate within the Bombay Council on the establishment of a lithographic press centered on economic considerations which pressed hard on MacDowall. When he questioned Rind on whether his press had proved a saving for the Bengal government, the reply indicated a fundamental difference in attitude between the administrations of the two presidencies: "I really do not know from actual calculation, whether my Establishment has been a saving to Government, for I should feel at a loss how to estimate the work executed in it; what value,
for example, would you put upon a hundred copies of a large Map of the
Burmese and Assumes Empire; another of the N.E. frontier of our Territories;
another of the S.E. frontier ... I had also some weeks ago to print various
Proclamations in the Burmese and Assumes char[ac]ters, which I was told could
not be read, written, or printed in Calcutta, unless I could manage it; this was
definitely done by lithographic transfer ... I only know that I have
received more testimonies, both public and private, than I can remember of the
utility of the Establishment; for everyone, from the Governor General
downwards, have expressed themselves satisfied beyond my expectations; but
this, believe me, was not effected by confining myself to the small
Establishment that was at first authorized, and certainly I would not have you to
expect such successes in the present condition of yours, and unless you go to a
very great expense personally, you will be fortunate indeed, if you attain it”
(18). Depressing final words for MacDowall.

Governor Elphinstone in Bombay was hopeful that "savings in printing at the
Courier Office and receipts from printing for others when the presses are not
required for government duty, would cover the expense" i.e. the East India
Company at Bombay would no longer contract out its printing work to the
leading commercial press in the city, that of the weekly Bombay Courier, and
would expect the lithographic press to recover some of its running costs
through undertaking and charging for non-official commissions. There was to
be one significant exception to charging, "the printing of the Native School
Book and School Society being done gratis" (19). Elphinstone, the Society's
President and energetic promoter of Western education in Bombay, clearly saw
from the outset a prime role for the government's own lithographic press in
satisfying the growing demand for elementary teaching material in Marathi and
Gujarati. It would eliminate the factors which had hampered efforts in this
direction ever since the Society's foundation in 1820 - the dearth of suitable
fonts of type and the use of just one printing press (20). An early statement of
the Lithographic Office's output such as that for August - November 1825
shows just how considerable the proportion of work for the Society free of
charge was:

<table>
<thead>
<tr>
<th>Month</th>
<th>Sheets Printed</th>
<th>Cost of Official Work</th>
<th>Cost of Society Work</th>
<th>Total Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aug</td>
<td>3,419</td>
<td>Rs245</td>
<td>Rs480</td>
<td>Rs725</td>
</tr>
<tr>
<td>Sept</td>
<td>7,572</td>
<td>370</td>
<td>1,200</td>
<td>1,570</td>
</tr>
<tr>
<td>Oct</td>
<td>?</td>
<td>1,065</td>
<td>880</td>
<td>1,945</td>
</tr>
<tr>
<td>Nov</td>
<td>?</td>
<td>842</td>
<td>880</td>
<td>1,722</td>
</tr>
</tbody>
</table>
Horizontal Sugar Mill worked by Cattle
Well over half the output of the press was work undertaken for the Society, the orders carried out in October and November being entirely for sheets (probably alphabets) in large Marathi characters (21).

The strongest opposition in Council to the establishment of a government lithograph press came from Francis Warden. A Company servant since 1793, he had served as Chief Secretary to Government at Bombay before he was appointed a Member of Council in 1822. His dissenting minute bluntly expressed the argument in economic terms - public ownership versus private enterprise: "The object of employing lithographic presses as one of economy has already been departed from, the salary ... which it is proposed to assign to the Superintendent of the Press exceeding one third of the annual amount which the Government incur on account of printing in ordinary times and one fifth of the charge incurred on the average of ten years". His general conclusion bore the unmistakable hallmark of the modern treasury mandarin: "All such establishments conducted as a Government concern must be costly; & infinitely more so when the same work can be executed for in the market. The agents of Government require salaries and establishment longer than what individuals stand in need of, the former are incurred constantly throughout the year, whilst the wants of the Govt. are only occasional" (22). Warden sustained his financial attack whenever statements of output were presented to the Governor in Council. On each occasion, MacDowall would compare the cost of having items printed by the lithographic process with the charges the Courier Press would have demanded for the same amount of work by letter-press, thus showing a consistent saving. For the period 3 August 1824 to 31 July 1825, this amounted to Rupees 21,505 i.e. the equivalent Courier Press charges for printing 166,437 sheets of Rs. 35,127, minus the Lithographic Establishment total costs of just Rs. 13,622 (23). Warden attacked the false principles on which this calculation was based: "No saving can possibly be realized except where expenditure has been or is likely to be incurred ... Work is included in the calculation of saving for the performance of which the Government either grant adequate establishments or which has never hitherto been sent to the Press and for some items it has not been on account for the public, but of private individuals" (24). Warden's examples focus on the benefit to the Native School Book and School Society: "24,000 forms of statistical reports required by Captain Jervis [the Society's Secretary] cost Rs. 6,000; 34,400 copies of Marhatta arithmetic required by the same officer Rs. 12,400; 47,200 copies of Marhatta characters ... Rs. 9,680 ... Now to make such a saving, it ought to be shown that the Company would have incurred that charge had the Lithographic Press not been in existence. But has a single rupee for statistical reports for the Guzeratta survey ever been incurred? Would any of the Native Schools, maintained by the Government, have conducted education on so costly a principle as to have had the alphabet and arithmetic printed at a charge of Rupees 22,000?" Sarcasm then got the better of Warden: "The great merit of the Indian system of education is, that no such charge is necessary, sand and
slates sufficing to teach the rudiments ... If the Company never incurred such charges as they certainly never have, it is fallacious to assume them as the basis on which to exhibit a public saving ... The annual average charge [i.e. from the Courier Press] in a period of seven years on account of current work including stationary has amounted only to Rs. 6,259. On a comparison with that sum ought the saving effected by the Lithographic [Press] not be calculated?" (25). Of course on such a calculation the saving would have become a considerable deficit.

If the increase in government expenditure in setting up a lithographic press had led to a comparable reduction elsewhere on the Bombay establishment, then Warden might not have objected so strongly, but this was not the case: "When during the war [i.e. the Second Maratha War 1803-05] I was called on almost monthly to circulate a dozen or more copies of the overland intelligence, or when circulars were issued, a lithographic press might have saved no expense, but a great deal of trouble, but the best writer in the office would have been selected to perform the duty without any extra charge for Establishment for an office and for salaries. If however such is to be incurred and every office allowed to resort to it, it ought to lead to a reduction of official Establishments" (26). From Warden's narrow financial viewpoint, the lithographic press had indeed failed to make either cost or staff savings. His objections were brushed aside by Elphinstone: "As I have been induced to recommend a lithographic press almost entirely by the facilities which it will afford to the diffusion of education among the natives, it cannot be expected that Mr. Warden's arguments ... will have much influence on me. I must of course still maintain that the publications prepared for that purpose were required and that if they had not been printed at the Lithographic Press, they ought to have been printed at the Courier or Gazette presses. The saving therefor does not appear to me fictitious" (27).

When MacDowall suddenly died in September 1826, his assistant Francis de Ramos was put in charge of the lithographic press, but with a reduced establishment (28). Six months later in February 1827, less than three years after the press had been set up, Warden had his moment of triumph, proposing that "the whole apparatus, stones, etc. should be presented to the Native School Book Society to assist in the publication of native works" (29). If the School Book Society had been the principal beneficiary of government's introduction of lithographic printing, it would henceforth have to find the funds to support its continuance on its own account.

Although short-lived, this first lithographic press at Bombay had broken new ground for the process in India. While it did not attain the range of printing which MacDowall reported seeing in Rind's press - "plans of public works, revenue survey maps and plans of the country, anatomical figures for the Medical School Society, botanical prints and every thing else connected with
the fine arts and sciences generally" (30), it had importantly shown its usefulness for the cheap multiplication of educational material. From the outset, Elphinstone had clearly envisaged the lithographic press as essential underpinning of his educational policy and the transfer of the government press to Captain Jervis undoubtedly accelerated this process. Indeed, at Elphinstone's behest, MacDowall had as early as February 1825 handed over one press to Jervis who also acquired four additional presses, from other sources, in April 1826 (31).

Even more significantly, MacDowall's press had also elicited the first recorded interest of the Indian population in the new process: "Several Natives have already made applications to have works of some extent printed at this press as the Gulistan in Persian & Guzerattee, with several others" (32). The Gulistan or Flower Garden by the thirteenth-century poet Sa'di is one of the best-known of all works of classical Persian literature and this request brought an enthusiastic response from Elphinstone: "Something should be done without the least delay, to enable Natives to profit by the presses at a moderate rate. The Persian and Guzerattee Gulistan should be begun on directly, even if they were printed gratis, but for the credit of the Press the very best writing should be secured" (33). Clearly the Governor saw the potential of the lithographic press not simply in terms of providing basic teaching material such as alphabets and arithmetical tables but in making more widely available edifying works of oriental literature that would continue the educative process. Whether an edition of the Gulistan was in fact printed at Bombay about 1826 has not been verified. The British Library does not appear to hold such an edition and, with the winding up of the lithographic press as a government venture only a few months after Elphinstone's words were recorded, its publication must be open to doubt. The earliest Bombay edition otherwise known is that lithographed by R Prera for the Bombay Native Education Society in 1833 (34).

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Note on the Illustrations

The two illustrations are taken from a collection of lithographed official documents from Bombay, mostly dating from the 1830's preserved in the British Library (2 volumes: 793.m.17-18.)

(1) A Chinese machine for winding silk. p. 3
(2) A horizontal sugar mill worked by cattle. p. 7
Notes

3. Bombay Public Consultations, 7 July 1824.
5. Bombay Public Consultations, 7 July 1824.
6. Bombay Public Consultations, 1 September 1824.
8. Ibid.
11. Ibid.
12. Ibid.
15. Bombay Public Consultations, 1 September 1824.
22. Bombay Public Consultations, 7 July 1824.
24. Ibid. pp.98 & 100.
25. Ibid. pp.100-104.
27. Ibid. pp.107-108.
30. Board's Collections No. 26079, p.80.
31. Ibid. p.56.
32. Ibid. p.78.
33. Ibid. p.93.
34. Three copies are held in the British Library, Oriental & India Office Collections: 306.33.E.3 & 4, 14749.a.1.