

SMALLPOX IN NINETEENTH CENTURY BENGAL*

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The British colonial medical policy of vaccination for smallpox in India served basically as a means of negotiating power between the colonialists & the colonized and also as a interface between the multiple ethno-religious communities in the nineteenth century Bengal. The paper seeks to analyse and locate multiple sites of events, happenings and practices how smallpox in colonial Bengal was intervened by indigenous use of inoculation by the *ṭīkādārs* and how the disease was interpreted, understood and constructed in the context of people's collective imagination and cultural tradition.

Key words: *Basanta roga*, *Masurika*, Inoculation, *Śitalā*, *ṭīkādārs*, Vaccination, Vaccine lymph

INTRODUCTION

Literature on smallpox epidemics in India is indeed amazingly abundant. Many scholars have emphasized the killer disease, keeping in mind the medical encounter of the physicians as also the medical research undertaken by the colonial masters (Kumar 1998), while some have examined the phenomenon in a socio-historical perspective (Bala 1991). Others again have looked into the phenomenon in terms of emergence of colonial medicine in India (Arnold 1988). Still some others have engaged the scourge to address a much wider question of vaccination in an uninitiated society (Ray 2003, Bhattacharya 2005). Thus much of the historical engagement with epidemic smallpox in colonial Bengal/ India is generally caught between the rhetoric

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of two opposing sites of intervention: the inverted polarity of inoculation/vaccination syndrome.

From Ralph W Nicholas (1981) and David Arnold (1993) to Michael Worboys, Mark Harrison and Sanjoy Bhattacharya (2001) the discourse swings between the 'poetics' of worship and rituals associated with *Śītālā*, the reigning deity, and a 'technique' of inoculation. Though wisdom, individual or collective, and perception, secular or religious, are verily present in their discourse, these are eventually marginalized in the entire exercise.

Despite the 'native' perception of the failure of vaccination, it has been argued, medical establishments continued to sustain the rhetoric of vaccination, presumably because state sponsored vaccination sought to redefine the contract between patient and practitioner (Naraindas 1988, pp.67-96). Under colonial dispensation, a vaccinator ceased to be a practitioner altogether. In popular perception, he was just a marker of bodies and an extractor of lymph.

To them, the pock was a new sacrament, 'an external visible symbol of an internalized state', indicating that the person had not only 'taken' the disease and was protected but was also the carrier of an external visible sign of a contract he had entered into vis-à-vis the state. Thus smallpox assumed a political character in the perception of government. But what is generally missing in the recent discourses on epidemic and medicine is the patients' perception. The moot question is how did the people perceive the killer disease? The present paper would therefore arguably seek to explore *inter alia* how the proliferation of epidemic smallpox and the consequent western/colonial medical intervention in Bengal had been interrogated, interpreted, understood and constructed in people's collective imagination vis-à-vis an enforced rigidity of the colonial state in continuing vaccination despite its evident failure.

ANTIQUITY AND INCIDENCE

Smallpox had all along been a general disease in India. People did die from it, and even many of those who managed to recover, carried marks of the disease with them as pits on the face and sometimes even the loss of the eyes, and such other defects. In order to diminish the evils of smallpox, inoculation was resorted to in parts of India. Matter was taken from a person

who was ill of smallpox and inserted under the skin of a healthy person. People who were thus inoculated did get smallpox but in a much milder form than it came of itself. But inoculation/variolation was not without danger. Sometimes a very severe attack followed and the person used to die of it. Again, inoculation kept up the disease (Vyas 1886, pp. 19-20).

The incidence of smallpox in India was great and uniform from year to year ever since its presumably first historically recorded virulence in Assam in 1574¹. Stavorinus, a Dutch naval commander in Chinsura, recorded an incidence of severe type of smallpox in Bengal in 1770, which he argued, spread among persons of all ages and killed people in great numbers (NAI 1912). Holwell wrote in 1767 about the prevalence of smallpox in Bengal where every seventh year without any respite smallpox raged epidemically during the months of March, April and May, until the annual returning rains, about the middle of June, put a stop to its fury².

But references to a disease called *masurika*, a kind of pulse similar to the kind of eruptions during the disease, in early medical compilations suggest that it was much an ancient affliction among the people of India. *Basanta roga* was also known as *pāproga*, *śītālika*, *śītālā*, *gunri*, and *guli*.³ Even *masurika* was of nine varieties: *vātāja*, *pittāja*, *śleṣmāja*, *tridoṣāja*, *vātapittāja*, *vātaśleṣmāja*, *pittaśleṣmāja*, *raktāja*, and *carmāja*⁴. The term 'small pokkes', meaning pockets and bags, was introduced in country in the fifteenth century. Due to its prevalence during spring, the ailment was also known in Eastern India as the *Basanta roga* or the spring disease⁵. *Basanta R̥tu*, being a season of festivities facilitating social mobility, helped transmit the disease in all directions. Moreover, the political disintegration of the mighty Mughals facilitating the British acquisition of power, the recurring Maratha raids resulting in displacement of population, the severe drought of 1769 and the consequent famine of 1770 might have favored its dissemination (Ray 2003). Admittedly therefore, smallpox was a scourge of India, responsible for more victims than all other diseases combined, outstripping even cholera and plague in its tenacity and malignancy (James 1909)⁶.

But yet it is difficult to determine the exact smallpox mortality in early nineteenth century rural India due to paucity of reliable information. We have of course some official statistics of smallpox ravages for Calcutta. The Report of the Smallpox Commissioners, Bengal, stated in 1850 that

within the last eighteen years smallpox appeared to have visited Calcutta in an epidemic form not less than four times, each for about 12 or 16 months. During the intervening period, the complaint seemed to have almost entirely disappeared⁷. Its sudden reappearance so often in a populous and wealthy city, at a particular season, and when the surrounding villages were perfectly free from the disease, might lead to the presumption that the occurrence had not been accidental or of natural causes. But whatever might have been the reason, the fact remains that the mortality was enormous. The epidemic in question, the Commissioners argued, had very far exceeded all its predecessors both in fatality and in duration (Report of Smallpox Commissioner 1850). While in 1832-33, epidemic smallpox carried off 2,814 in sixteen months in Calcutta, in 1837-38 it killed 1,548, in 1843-44 killed 2,949, but in 1849-50 it swept away no less than 6,100 people (Report of Smallpox Commissioner 1850).

In his Annual Report on Vaccination to the Medical Board for 1838, Dr Stewart computed that 'taking the census of Calcutta made in 1837 to be correct and the average of six years as affording a fair estimate of the mortality, the annual mortality of the Hindus by smallpox is 0.295 per cent, or one in 399; that of Muslims is only 0.128 per cent, or one in 782. Out of 100 deaths of Hindus, five and a half are caused by smallpox; in 100 deaths among Muslims, the number caused by smallpox is six (Report of Smallpox Commissioner 1850).'

GOVERNMENT INTERVENTION AND VACCINATION

To combat the proliferation of smallpox further, the government sought to replace variolation by western vaccination. But the history of vaccination in Bengal presents a shoddy picture, resulting from the want of some principles in the organization and of a consistent sincerity in the execution of any general scheme designed for the specific object contemplated. It exhibits at one time an empty struggle between efficiency and economy, at another a vain attempt at compromise between the alleged prejudices of ignorance or superstition, and the views of a seemingly enlightened benevolence. Recent researches tend to indicate that the development of smallpox controls and public health policies between 1890 and 1940 more often than not mirrored the fractured nature of the colonial Indian administrative structures.⁸ It has

been argued that conflicts arose frequently between British bureaucrats, and within government departments, such that even when adequate funds were available, vaccination was occasionally impeded by the competing interests of various government officials. The promotion of vaccination, it is true, had never ceased to engage the attention of successive Governor Generals, of each new Medical Board, and of all the Superintending Surgeons in India, but yet until the closing years of the nineteenth century it had made no corresponding progress in public opinion, and its practical benefits were still almost entirely confined to the European sojourners in this colony, and to their families and followers.

Let us see what actually transpired between the givers and takers of vaccination that arguably accounted for its evident failure. The vaccinators, it can be argued, were indeed not government servants and as such were not recognized by people. They were in fact looked upon with disfavor. They depended for their living on the fees, which they got from the people. But unfortunately they could not realize those fees in many cases, as there was no special law in force compelling the payment of those fees.⁹ They had, therefore, to depend on the good graces of the village *panchayets* or the police in the matter. But the people had come to know that the only course left to the vaccinators to realize his fees was by instituting a civil suit, which they very well knew he would not care to do for the worry and expense of it. And they thus easily evaded payment. The result was that many trained, good vaccinators threw up their appointment in disgust, and took to some other occupation for a living. It was also difficult to replace them as there was no competition for the work. Those who stuck to the occupation worked in areas where fees could be easily obtained, leaving others to do so where there was opposition to vaccination and the people were reluctant to pay fees. The consequence was that many places were left 'unprotected' and on the outbreak of smallpox, it usually played havoc with the people (Dyson 1902).

From Dr. Cameron's Report as also from the Records of the Medical Board, we learn that in 1828 there were as many as 30 vaccine stations maintained at the expense of Government in the Bengal Presidency at an average expense each of Rs.260 per month. Dr. Stewart suggested that the Board should concentrate its efforts to diffuse the prevention in certain towns

between Calcutta and Delhi in order to keep all parts of the country regularly supplied with fresh virus. The Board expressed its approbation, but reserved its comments on the proposed employment of six assistant surgeons entirely in vaccinating, arguably because it could not be entertained consistently with the interests and general utility of the Medical Service. It recommended instead that the expensive establishments then maintained at 16 stations should be reduced to Rs 120 each, and that 18 new vaccine stations should be formed at an expense of Rs 60 each, while Calcutta, Dacca and Patna alone should be continued on the existing scale of allowances (Stewart 1844, pp. 191-193).

T Smith, a senior member of the Medical Board wrote to the Governor of Bengal around the same year arguing that the salaries of the Civil Surgeons were sadly insufficient to induce them to devote their mind to the profession, or even to prevent them from 'partly renouncing it by becoming a merchant'(Stewart 1844, pp. 209-210). Dr. Stewart was mistaken, Smith apprehended, in attributing to Natives generally a partiality to the European remedies and practices. The rich and higher classes, Smith argued, unless when 'enlightened by European education and habits', invariably preferred the prescriptions of their own *hākims* and *vaid*s to those of European physicians. The indigent, at least equally prejudiced and ignorant, would also follow suits if they could pay their own practitioners. But under the pressure of pain and necessity, and not choice that they would overcome their antipathies and accept offers of treatment and attendance from the Europeans. Averting to the dislike which the people of Bengal usually showed to the necessary discipline of Government Hospitals, Smith considered the dispensaries best suited to their wants. He argued that the superintendence of such institutions might be very properly associated with that of vaccination. The aversion or indifference of the indigenous people to the prophylactic, Smith considered, was of similar origin and character with their disesteem of European medicine. The Hindus and the Muslims still employed 'inoculators who produced, instead of vaccinators, who prevented smallpox'.¹⁰

The idea of establishing public hospitals or dispensaries in the centre of the large and populous towns under the professional management of Native Surgeons and Physicians educated in the Calcutta Medical College had for some time engaged the interested attention of the Earl of Auckland.

By means of this agency, Auckland contemplated not only the immediate and effective relief of the Indian poor from the dangerous diseases, but also the gradual, silent yet certain diffusion among the people at large of a 'correct knowledge and due appreciation of the benefits of medical science in its extended application to the preservation of public health, the protection from disease, the cure of sickness and prolongation of life'. Following out the expansive views of Lord William Bentinck regarding the medical education and subsequent employment of Bengali youths, the Governor General began to entertain a well-grounded conviction that the time had arrived when he might 'confide the management of a few such dispensaries substantially and responsibly into hands of some of the most distinguished young men who had taken their degrees at the Medical College at Calcutta'¹¹.

The situation in Bengal can well be contrasted with that of Madras. The Madras Government was probably the most responsive in its awareness of medical problems and active in taking measures to deal with them. One of the most important of these was the control of smallpox (Shortt & Colonel 1987, pp. 133-134). Unlike many countries, vaccination against smallpox was compulsory in the Madras Presidency, and was carried out under a meticulous programme. Vaccine lymph was produced at the King Institute, local calves being used for the purpose. The calves were vaccinated on the belly and then confined in a special large byre under strict sanitary condition. If a calf defaecated or urinated, the mess was immediately cleaned up. After a period of days the calf would become ready for collection of the lymph. This was collected from the skin of the belly where it occurred as the vaccine in lines along where it had been vaccinated. The vaccine collected was preserved for use and the calf returned to the source from where it had been purchased, none the worse for its experience. The returned calves were often seen in the bazaar and could be recognized by the linear scar lines remaining on the belly¹².

A special staff of vaccinators then took up the job of vaccination. Here a very strict routine was carried out. A vaccinator was allotted a certain itinerary, going daily from village to village. He had to keep to a very strict schedule so as to be in a particular village on a particular day. On arrival he would vaccinate all babies not previously vaccinated and also those requiring revaccination, careful record being kept. The operators were followed up

along the identical itinerary by inspectors who checked on the vaccinations carried out. This routine ensured that there was no covering up of inadequate work by incorrect reports on works done. In this way about two million vaccinations were carried out each year, and Colonel Short of Indian Medical Service believed that as a result, the people of the Province of Madras were 'probably the most universally vaccinated in the world' (Shortt & Colonel 1987-88).

But Bengal presented a different picture altogether. Partly because of the lukewarm response of the government and partly because of the popular inhibitions, vaccination was never adequately practised in this province. Even in Britain itself, the benefits of Dr Jenner's significant discovery were hardly appropriated. Sir J Y Simpson, the President of the Public Health Section of the Social Science Association, Edinburgh, estimated in 1868 that there still died about 5,000 annually from its ravages¹³. Some among those people had been duly vaccinated, and yet were susceptible of smallpox after cowpox just as men formerly were found susceptible of a second attack of smallpox after they had passed through a previous attack of natural or inoculated smallpox. Others seemed susceptible in consequence of the vaccination having been performed inadequately with imperfect matter. Again, a large number of those who perished from smallpox consisted of persons who had not been vaccinated at all, or who happened to have been exposed to the variolous poison antecedent to the age at which vaccination was usually performed. Doubtlessly, Colonel Simpson argued, a stricter enforcement of the new compulsory laws of vaccination, and a greater amount of attention to its proper performance with proper matter would gradually diminish the number of the susceptible classes¹⁴. Coming to the situation in Bengal, the remedy for the evils, one can argue, perhaps lay in the temporary introduction of the Compulsory Vaccination Act in refractory areas, the appointment of paid government vaccinators and higher classes of men who could exercise greater influence on the people as Inspectors and Sub-inspectors of vaccination, and the more extended supply of good calf lymph¹⁵.

Having failed in their attempt to convince the Bengalis of the imperatives of vaccination against smallpox, the British health officers advised their young ones to help themselves while proceeding to India for the first time¹⁶. It was well, they argued, to be revaccinated against smallpox before

proceeding to India. During residence in India vaccination should be repeated at intervals of five years. It must be remembered, they warned, that 'in India the infection of smallpox is constantly present' (Smith 1926).

One may very well recall the arguments of Sanjoy Bhattacharya, Mark Harrison and Michael Worboys in their seminal work (Small pox policy 2005). They argue that during the colonial period the government sought to control smallpox through four administrative levels: central, provincial, district and local. These multiple levels of administrative intervention very often worked against any uniform and concerted action. British officials, for instance, had to depend on their Indian counterparts at the local levels to carry out the vaccination policy. But these Indian officials were often found to be empathetic with the community sentiments and therefore not so keen about enforcement of vaccination. The policy also foundered on flaws of technical inadequacies. Apart from the problems of refrigeration of the serum, which in itself posed a serious hurdle, the technique of making a deep incision into the skin using a scalpel made the vaccination unpopular. However, the introduction of safer vaccine technologies gradually improved vaccination rates, and, during the 1930s, improved the public's perception of vaccination.

Nevertheless, there were however some conscientious Indian health officials and educated good Samaritans who having some working knowledge of western medicine tried hard to impress upon the people and even the indigenous inoculators certain golden rules for vaccinating the Indian people. For instance, Gopal Chandra Majumdar, the chief assistant in the Vaccination Superintendent's Office in Calcutta argued in 1872 that people were extremely suspicious about the nature of modern vaccination, for they hardly knew anything about it. The vaccinators should therefore first dispel their doubts and then administer the vaccination. They should meet the village headmen or the agents of the zamindars and seek their help in convincing other villagers on the efficacy of vaccination (Majumdar 1872 pp. 7-8). One Ramanarayan Vidyaratna Bhattacharya wrote in 1857 a treatise on vaccination in which he argued that smallpox, a scourge in Bengal, carried away every year a pretty large number of Bengalis. The ancient Hindu physicians had recommended for *ṭīkā* or modified smallpox through inoculation by the *ṭīkāḍars*, but the remedy prescribed, Bhattacharya argued, was not sure, and not even lasting. People should therefore try out, Bhattacharya insisted, the

western method of vaccination¹⁷. Haradhan Vidyaratna Kaviraja, still another practitioner of indigenous medicine, wrote in 1868 that treatment of smallpox by *vaidyas* had become outdated and consequently people had to fall back upon providential treatment and propitiate the disease deity¹⁸.

THE DISEASE DEITY AND THE *ĪKĀDĀRS*

But what exactly was the nature of socio-religious observances associated with propitiation of smallpox through inoculation? From very early times, we know, there had existed in India the worship of a goddess of smallpox, *Śītalā*, and among certain castes it is still a rule to take no precaution whatever against the disease, a visitation of it in their households being regarded as a sign that they are favored by the goddess. But if familiarity with this dreaded disease evoked its ritualization, it also prompted attempts at medical control as well. For more than half a century after the introduction of vaccination in 1802, nearly all the inhabitants in some parts of India were wedded to the practice of “smallpox inoculation”, and many thousands of Brāhmin inoculators, having great influence with the people, were violent opponents of vaccination.¹⁹ Partly because of the religious inhibitions and partly because of the large expenses involved it had been extremely difficult for the Bengalis to employ skilled medical agencies in the actual work of vaccinating and for any years the only vaccinators who could be obtained were generally illiterate and very ignorant. From time to time prejudices arose and rumors were spread which on account of the credulity of the people proved a serious deterrence to the progress of vaccination. A very early prejudice against vaccination arose because vaccine disease came from the cow, an animal highly revered by the Hindus. One of the rumors causing most difficulty in early years was to the effect that the object of vaccination was to set the “government mark” upon the people who would afterwards be sent as coolies to other British possessions. Another rumor was floated that the government mark was a means of obtaining a census of the people with a view to imposing a new capitation tax²⁰. Much more incredulous rumors were afloat for many years.

We are told that in 1850 there were at least one *īkādārs* for every 8 or 10 groups of houses, and that in Calcutta town alone the names and addresses of 68 inoculators were known in that year. From 1848 to 1867 attempts were made by various civil surgeons to estimate the extent to which

smallpox inoculation was practiced in Bengal. From an examination of more than 35,000 people in those years it appears that over 81 percent had been inoculated. At least two accounts of the mode in which the operation was performed by the professional inoculators of comparatively olden times in India are available: one by R Coult in 1731, and the other by J Z Holwell in 1767. Holwell studied surgery at Guy's hospital and served in Bengal from 1732 till 1760. Francis Buchanan has also elaborated information on the practice and its practitioners.²¹ All of them did concur that inoculation consisted of matters originally taken from the pus of smallpox pustules with a thick needle, but disagree on the process of administration. While Coult argued that the pus was taken from a patient when the pox came to maturity, Holwell believed that it was taken from persons who contracted it in a milder form from the inoculation itself and was then preserved in cotton within a rag for a year. Buchanan says it was only taken from pustules of those who had contracted the ailment 'naturally', and kept cotton for no more than three days. Again, while Coult believed that punctures were made with a needle, impregnated with the pus, the *ṭīkā* was laid on the upper arm, Holwell argued that the incisions were made on the outside of the arm by a barber's instrument for cutting nails, and the variolous matter was secured by placing it in a moistened cotton-wad put on the cut for hours. Buchanan corroborated Holwell that first the incisions were made and then the variolous matter soaked in the cotton was rubbed on them (Habib 2001 pp. 5-8).

There is again little agreement in the contemporary evidences about who the inoculators were. Holwell says, 'inoculation is performed in Hindoostan by a particular tribe of Brahmins,' who came on regular tours from Brindaban, Allahabad, Banaras, and 'arrive commonly in the Bengal provinces early in February'.²² Buchanan believes that the inoculators were 'of both religions (i.e. Hindus and Muslims) and of all castes'. Both Holwell and Buchanan believed the success rate to be high. To Holwell, it was 'a miracle to hear that one in a million fails of receiving the infection', from the inoculation. And Buchanan testifies that when smallpox struck Dinajpur as an epidemic it could take as its tolls only one of a hundred of those inoculated. Holwell however gives a detailed story of how the feat was performed:

'The inhabitants of Bengal, knowing the usual time when the inoculating Brahmins annually return, observe strictly the regimen enjoined, whether

they determine to be inoculated or not; this preparation consists only in abstaining for a month from fish, milk, ghee ——. When the Brahmins begin to inoculate, they pass from house to house and operate at the door, refusing to inoculate any who have not, on a strict scrutiny, duly observed the preparatory course enjoined them. They inoculate indifferently on any part, but left to their choice, they prefer the outside of the arm midway between the wrist and elbow, and shoulders for the females. Previous to the operation the operator takes a piece of cloth in his hand and with it gives a dry friction upon the part intended for inoculation, for the space of eight or ten minutes; then, with a small instrument, he wounds by many slight touches, about the size of a silver groat, just making the smallest appearance of blood. Then opening a linen double rag (which he always keeps in a cloth round his waist) he takes from thence a small pledgit of cotton charged with the variolous matter, which he moistens with two or three drops of the Ganges water, and applies it to the wound, fixing it on with a slight bandage, and ordering it to remain on for six hours without being moved; then the bandage to be taken off, and the pledgit to remain until it falls off itself. The cotton, which he preserves in a double calio rag, is saturated with matter from the inoculated pustules of the preceding year; for they never inoculate neither with fresh matter, nor with matter from the disease caught in the natural way, however distinct and mild the species. Early in the morning succeeding the operation, four *collons* of cold water are ordered to be thrown over the patient from the head downwards, and to be repeated every morning and evening until the fever comes on, which usually is about the close of the sixth day from the inoculation; then to desist until the appearance of the eruption (about three days) and then to pursue the cold bathing, as before, through the course of the disease, and until the scabs of the pustules drop off. They are ordered to open all pustules with a sharp pointed thorn as soon as they begin to change their colour, and whilst the matter continues in a fluid state. Confinement to the house is absolutely forbid, and the inoculated are ordered to be exposed to every air that blows; and the utmost indulgence they are allowed, when the fever comes on, is to be laid upon a mat at the door. But in fact the eruption fever is generally so inconsiderable and trifling as very seldom to require this indulgence——. Their regime is ordered to consist of all the refrigerating things the climate and season produce——. These instructions being given, and an injunction laid on the patient to make a thanksgiving *poojah* or offering to the goddess on their recovery, the operator takes his fees, which from the poor is a pun of cowries, equal to about one penny sterling, and goes on to another door, down one side of the street and up on the other; and is thus employed from morning till night, inoculating sometimes eight or ten in a house (James 1909 pp. 7-8).”

It can also be seen from the contemporary accounts that the operation was carried out with great care, and there can be no doubt that in those comparatively olden times a high degree of knowledge about the procedure necessary for success had been attended. In this connection, certain other important details regarding the practice as carried out that period are worth mentioning.

First, infants at birth were not inoculated, but children above one year of age were considered old enough for the operation;

Second, the rules to which in accordance with ancient custom everyone desiring inoculation had to conform were not only arduous in themselves but interfered greatly with daily work and with business generally. The restrictions included abstinence for a month prior to inoculation from milk, fish and ghee. In addition to that, for 21 days after the operation, no member of an inoculated household was permitted to have intercourse with the outside world, and no person from another village was permitted to enter a house containing inoculated patients. Each time if either of these rules was infringed the guilty person was regarded as "unclean", and was required to bathe and to put on different clothes.

Third, the early professional inoculators freely acknowledged the infectiousness of the disease set up by inoculation and the elaborate code of rules to which the people in inoculated villages had to conform bears abundant testimony to this. Thus, no inoculation was allowed in a village unless nearly all the unprotected people were willing to have the operation performed; all the inoculation in a village were done on the same day; women who were pregnant and others who could not arrange to be inoculated on the date fixed had to leave the village until the danger of infection was past; the clothes of all inoculated persons were kept for 21 days and then washed on a fixed day separately from those of unprotected people; no barber was allowed to ply his trade in any house where inoculated persons resided; bathing in public tanks were not permitted until the eruption had disappeared.

Finally, the fatality attending the operation, depending as it did very greatly on the skill and care of the operator, was probably very low at the period to which we are referring. This is evidenced by Holwell, and much later by the observations of Bedford who saw 79 inoculations performed

without a death resulting, and Wise who reported that in Chittagong the mortality attending the operation was only .5 percent.²³

We see then that in olden days when all the rules enumerated above were strictly enforced, and when only the professional Brahmin inoculators performed the operation, the measure proved a real blessing to the inhabitants of certain parts of India, especially Bengal. We must also remember that the conditions of certain parts of India where the operation was general were very favorable to the success of the measure. The great bulk of the inhabitants of Bengal, Assam and Burma lived in small villages, hamlets, each house being some distance from the next, and each village, hamlet a mile, or more from neighboring ones. Under such conditions, and with the strict rules of segregation in force, the danger of spreading the disease set up by inoculators was not great.

Unfortunately, there remains still another side of the story. With the increasing belief in the efficacy of the measure, the demand for inoculators became greater than the supply and the price charged for the operation rose. In 1850 a usual fee was four *annas* and some rice for the operation on a boy and two *annas* and some rice for a girl (James 1909); other writers of the same period say that the lowest fee taken for puncturing was two or three rupees and the highest sixteen rupees and a shawl. As time went on, the work of inoculation was undertaken by Hindus of low castes or people who were not only exceedingly ignorant but had not the influence necessary to make the people conform to the rules for preventing the spread of the disease. The result was that about the middle of the nineteenth century many epidemics were definitely traced to the operations of inoculators. In 1831, Dr Cameron stated: "It is now well ascertained that inoculation is the great means by which smallpox is kept in existence in Calcutta," and in 1844 the Superintendent of Vaccination reported, "Smallpox is annually introduced into Calcutta by a set of inoculators, numbering about 30, to the great endangerment of the public health".²⁴

By 1850, it was ascertained that in Bengal their number had risen to 68. It appears that 42 of them were permanent inhabitants of Calcutta, residing chiefly in the northern division or native part of the town. They were principally of low Hindu castes or trades, such as those of *maulee*, *tānty*, *koomār*, and *nāpit*, from which they derived their principal livelihood during

nine months of the year, practising their profession only during the remaining three months. The rest were Brāhmins or *daivajña*. They were said to come to town annually from Burdwan, Hooghly, Birbhum, and the adjacent west and northern districts, generally in the month of *Māgh* or February, remaining in town for about 4 or 5 months, and inoculating on an average 70 or 80 persons each day. It appears that very poor people used to pay about two rupees to the *ṭīkādārs* for 2, 3, 4, or even 5 children at once in a group or family, which was the custom. The middle class people paid from 3, 4 to 10 rupees to the operator for a similar party, and much more to the Brahmins for the performance of poojah or worship, the most expensive part of which was the *gaun* or canticle to be sung for several successive days in the honor of the goddess *Śītālā*²⁵. When the operator was a Brāhmin himself, or rich enough to possess an image of the goddess, the poojah was performed at the nearest shrine of the deity, the fees were in that case paid to the officiating priest there (Report of Small Pox Commissioner 1850).

The following is the statement of the expenses actually incurred by a respectable native of the middle class for inoculating three children in his family, the total amounting to 15 rupees 4 *annas*²⁶(See Table 1.1)

Table 1.1 Expenditure for inoculation of three children of middle class

Items	Paid to <i>ṭīkādārs</i>	Paid for Puja	Misc. Expenses
The day of inoculation (in cash)	Re 1		
The day when the pustules were ripe	Re 1		
The day of sprinkling water on pustules	8 annas		
On cure	Rs 2		
Puja, 16 days at home at 2 annas		Rs 2	
The last day on cure— silk, cotton cloth		Re 1 4annas	
Gold		Rs 2	
Sweetmeats		Rs 2	
Priest's fees		8 annas	
Misc. (gaun) cash& old cloth, rice etc.			Rs 3
TOTAL	Rs 4 8 annas	Rs 7 12 annas	Rs 3
Total for 3 children	Rs 4 8 annas + Rs 7 12 annas+		
	Rs 3		Rs 15 4 annas

At that time, the inoculators increased their gains largely by treating cases of smallpox so that it was to their advantage when epidemic broke out. Indeed, it was said that when they reached a village, where, in consequence of the absence smallpox, the people were reluctant to be inoculated, it was not an unusual custom for them to throw pieces of cotton soaked in smallpox matter in places where children played, knowing that if they could set up an epidemic of smallpox the people would flock to them for inoculation. No one would therefore be surprised to read that in the practice of inoculators of this period the mortality attending the operation was often very high. Thus, the Civil Surgeon of Serampore reported in 1850 that one inoculator admitted having operated during the season upon 400 individuals of whom 200 died (Report small pox commissioner 1850). It was stated publicly in the *Bhāskar*, a respectable Bengali newspaper, that in the villages of Sonatikoree in Hooghly district nearly 1,000 boys and girls were inoculated some time before 1850 of whom 300 died. Again in the village of Caderpore among 100 children that were inoculated, more than 20 cases had terminated fatally²⁷.

In France the practice of inoculation was prohibited by law as early as 1793, but in England it required the epoch-making discovery of Jenner and over 40 years experience of the benefits of this discovery before prohibition of inoculation was passed. In India as early as 1804 an attempt was made at the desire of Wellesley to prohibit smallpox inoculation within the town of Calcutta. The observance of the rule was not however made compulsory by law and it gradually sank into neglect. It was not until 1865 that smallpox inoculation was prohibited by law in Calcutta and its suburbs, the Act being extended in the following year to villages in the neighbourhood of Calcutta and to several large stations in Bengal Proper.

Apart from the practice of inoculation the usual treatment followed by the indigenous people was essentially "cooling" and expectant. One of the benignant divinities of the Hindu pantheon, variously named *Śītalā*, *Bhavāni* etc. was specially the guardian of those affected by smallpox. At her shrines, prayers were generally offered and vows made by the relatives of the afflicted. Duncan Stewart tells us that he happened to possess a 'curious' ancient gold coin of about half an inch square, which he believed represented the goddess Sitala in her usual attire²⁸. Goddess *Śītalā* is seated naked upon an ass bedecked with flowers and jewels. She holds in one hand

a broom, representative of the duty of cleanliness. Resting on the left hip and supported by that arm is a large water jar indicative of the necessity of ablution and coolness. On her head she carries a winnowing sheaf or fan to be used as a ventilator. Medals of the same description of gold or silver were in fact very commonly worn by people as amulets. But it appears that the essential duties of observance of cooling, cleanliness and proper ablution enjoined on the worshippers of *Śītalā* were very much neglected for the more supposed important ones of priest craft, incarnation ceremonies and propitiatory offerings.

Contemporary Bengali dignitaries too expressed an almost similar opinion. Baboo Russomoy Dutta, for instance, argued that there was hardly any medical treatment; the recovery was more relied on under the superstitious belief on the mercy of *Śītalā* than on any medical treatment. A passage in the prayer usually offered to *Śītalā* runs: 'No charms or medicines exist for the wicked disease'. The usual mode of treatment, as evidenced by Dutta, was as follows (Stewart 1844 pp. 49-50). In the first stage of five days when the patient was laboring under fever he was almost starved; dry sweets or sugar candy (*bātāssā*) was given only for food, and some ingredients, *jaree* and *panchan*, were administered as medicines. In the second stage after five days, when the fever went off, food was given, milk and rice, rice and *moog jurie*, and milk *mooky* after the eleventh day. On the seventh day cold water was sprinkled over the body, and on the ninth day a thin poultice made of turmeric, linseed meal, and milk was applied over the pustules. On the twelfth day the diet was restricted and confined to thin *capatee* bread, *moog jurie* and fried potatoes, *potol* and *kātkalā* grain, and that too in small quantity. This continued up to the fifteenth day when generally the patient was expected to recover.

Dutta also enumerated certain usual features of smallpox in Bengal. First, all classes and castes of Bengal, all ages and both sexes, Dutta argued, were pretty equally susceptible of infection. The mortality was mainly dependent upon the modifying circumstances of previous inoculation or vaccination. Nevertheless, it also depended on certain other conditions of the victim: (a) the natural constitution, (b) present health or feebleness, (c) personal comfort, and (d) destitution affecting the individual. Mortality, Dutta argued, depended also on the particular constitution of the atmosphere, the salubrity of the locality, and the construction of the dwellings.

Second, the great majority of the victims were totally unprotected either by vaccination or previous inoculation, though the latter practice was most common.

Third, those who had undergone the disease previously either naturally or communicated by inoculation, or who had been *successfully* vaccinated, always had the disease in a *modified* form. The incursive fever was often equally violent, but the eruptive stage was always milder, and the secondary fever proved fatal only in previously debilitated or scrofulous subjects.

Fourth, in those who suffered from high fever at the onset with much cerebral and nervous excitement, headache, delirium, and severe lumber pain, the eruptive stage succeeded most fully and favorably, affording though in a confluent form, great relief to the sufferings and promise of a favorable termination. In these cases chief danger used to arise about the twelfth and fourteenth day from the secondary fever then occasioned by the erythematous condition of the skin.

Fifth, the worst and most certainly fatal cases were those of asthenic type occurring generally in miserable, impoverished and debilitated subjects. Finally, a damp and hot atmosphere, its diffusion promoted by dry and cold weather, moderated the violence of the epidemic (Stewart 1844 pp. 50-51).

Dr H H Goodeve of Calcutta Medical College argued in the 1840s that the purely European population of the city was peculiarly exempt from the true smallpox during the late epidemic of 1830s. A few cases did occur but those were chiefly in the lower classes. Goodeve neither saw for himself nor had he from others heard of more than a dozen cases in the respectable portion of the community. This exemption, Goodeve believed, was no doubt caused by their superior mode of living as regards dwelling houses, cleanliness, ventilation, and food, but there was no doubt it might be attributable also to the greater care taken to give full effect to the operation of vaccination in their childhood²⁹.

CONSTRUCTING THE EPIDEMIC

These were evidently the discourses of the literati. But the moot question is: what was the popular approach to health in Bengal as evidenced by the outbreak of smallpox in the early nineteenth century? The focus was

arguably not on microbes, vectors, antigens and antibiotics, but on right conduct, over-indulgence, sin, and the intervention of demons and deities. Popular health culture in Bengal, it has generally been argued, enshrined an amalgam of Ayurvedic, religious, folk “magic” and other elements. Western medical intervention was limited to a small-educated minority³⁰. British officers of the nineteenth generally tended to believe that the diffusion of smallpox was largely due to inoculation with the matter of smallpox. It is however difficult to trace the origin of this practice in Bengal, but there is hardly any doubt that it is of great antiquity, and that it was extensively practised by all classes of people in Bengal, Hindu and Mohammedan. From investigation done by Dr Wilson of Bauliah, Dr Wise of Dacca and others, it appears that in all probability 70 per cent of the population of Bengal was inoculated by the middle of the nineteenth century³¹. There had existed a popular belief, industriously supported by succeeding generations, that the observance of this practice by Hindus at some period of life was a religious duty, and its neglect criminal or at least disreputable.

The Committee on Smallpox Inoculation, 1850, instituted a most searching enquiry on this matter. It submitted several questions on smallpox inoculation to different pundits. First, is there in the holy *Śāstras* any distinct commandment enjoining smallpox inoculation as a religious duty, or recommending it as a commendable act? Second, what religious or other observances are enjoined on those who are attacked by smallpox? Third, is the omission to be inoculated considered a sin, or disreputable? Fourth, is there in this world any penalty for the omission or punishment in the next, and if so, how may it be atoned for? Fifth, supposing it is proved that the vaccine disease is really a modified form or variety of the smallpox, should not all the religious ceremonies observed hitherto in cases of common smallpox be attended to after vaccination by good Hindus?(Report Small Pox Commissioner 1850)

The replies to these questions received from the *pundits* of Nadia, from those of the Banaras College and of the Sanskrit College of Calcutta, as also from the *pundits* of the Court of Sudder Dewanny Adalat indicate that they were quite unanimous in declaring that although certain religious observances were proper or incumbent on all persons being Hindu who contracted smallpox in any form, either casually or by inoculation, yet there was no sort of obligation, moral or religious, imposed by Hindu laws upon

any one to subject himself or his children to the disease by practising inoculation. They further argued that neither penalty nor reproach was attached to its omission³².

The replies of the Banaras *pundits* in these regards are nevertheless instructive and can be reproduced here. They argued:

“There is no reference to Inoculation in the Holy Books, but if the practice be calculated to save life, it must deserve to be praised... On the appearance of smallpox, the Goddess *Śītalā* is to be worshipped by recitation of praises and feeding of Brahmans... As neither praise nor blame is assigned to the practice of inoculation in the *Śāstras*, so neither in the practice in common life regarded either with approval or disapproval.... In consequence of the absence in the *Śāstras* of any injunction as regards inoculation, of course there is no penalty with reference to it... If it is ascertained that there is no essential difference between the ordinary smallpox and the pustular disease which follows vaccination, of course the ceremonies proper in the one case are proper in the other.”³³

Nevertheless, the *pundits* differed. A more guarded reply to the same queries was that of the Sanskrit College Professors and *Pundits*, which runs thus: “In case of *modified smallpox* in a person who has been punctured in the English manner, the worship of *Śītalā* may be performed with all the usual formalities, she being the guardian Deity of Smallpox Disease; such religious observances are necessary.”³⁴ But the most definite answer was from the *Pundit* of the Sudder Dewanny Adalat in Calcutta: “The Vaccine Disease is in reality a modification or variety of smallpox; such being the case virtuous Hindoos when vaccinated, should with veneration, faith and purity, observe the same religious ceremonies mentioned in my answer to the fourth question as they do when attacked with smallpox” (Report of Smallpox Commissioner 1850). It was necessary, they argued, for those who were naturally attacked with smallpox to live in secluded, pure, cool, and pleasant rooms, free from impure things, such as remnants of food etc. and to keep themselves clean. It was also necessary for them to hang leaves of *neem* trees (*Azadirachta indica*) around the rooms; to worship *Śītalā* Devi according to their ability, with devotion, faith, and purity; to repeat her name frequently; to make *homa*, to present offerings, to give alms, to perform *sustian* or propitiatory rites for the averting of evil, to adore Brahmans, to worship cows, to worship *Śambhu* and *Gauri* (Lord Shiva and Goddess Durga), and to cause faithful Brahmans to sing hymns to *Śītalā* — all these

were necessary to be done by the patient for the alleviation of the pain of smallpox³⁵.

Nevertheless, indigenous medical practitioners and informed literati in Bengal were more often than not in favor of vaccination. Even in the early nineteenth century attempts were made to overcome the popular prejudices to vaccination by resorting to a 'pious fraud' that pre-Jennerian smallpox vaccination was practised in India (Wujastyk 2001 pp. 121-154). We are informed that Mr. Ellis of Madras who was well versed in Sanskrit composed a short poem on vaccination in that language. 'This poem', the story goes, 'was inscribed on old paper, and said to have been found, the object of the pious fraud being that the impression of its antiquity might help to reconcile the minds of the Brahmins to the use of a prophylactic drawn from their sacred cow'.³⁶

Again, Calvi Virumbon, a Hindu, is said to have adduced reference to a supposedly ancient passage in support of western vaccination. Since vaccine prepared from cowpox was revolting to Hindu perception, Virumbon perpetrated a 'pious fraud' and composed a Sanskrit verse to legitimize the introduction of Jennerian vaccination. The Sanskrit verse enjoined: 'take the fluid of the pock on the udder of a cow...then mixing the fluid with the blood, the fever of the smallpox will be produced' (Baron 1827 pp. 543-559).

Even much earlier than this, on 29 December 1804, one 'obedient and very humble servant' Mooperal Streenivasachary wrote a letter to Dr J Anderson stating that 'it is therefore greatly to be wished that an intimate knowledge of this wonderful discovery may be acquired by the natives of this country, so as to enable them to preserve the lives of the rich and honourary as those of the low caste'.³⁷

Such persuasive passages were in fact not wanting in Bengal. In 1857, one Ramnarayan Vidyaratna Bhattacharyya wrote an entire treatise on vaccination arguing that the western method of vaccination was more rational and effective (Bhattacharyya 1857). Bhattacharyya was further corroborated by Haradhan Vidyaratna Kaviraja who in 1868 observed that inoculation had almost ceased to be practised in Bengal and that the Bengalis should go in for vaccination for their own interest (Haradhan 1868).

Generally speaking, the prevalent attitude of the people in Bengal towards vaccination was one of passive acceptance of the prophylactic³⁸. But in nearly every village there were certain families who habitually refused vaccination either openly or by covertly hiding away their children from the vaccinators. This was due not so much to the vaccination itself as to the use of human vaccinifers. What the villagers seemed most to object to, the Sanitary Commissioner argued, was having to pay for the operation and the using of some of their children as vaccinifers, this being attended by the discomfort of having to carry their children to the neighboring village and other obvious discomforts³⁹. Moreover their principal objection was that it was done without puja or any kind of sacrificial offering⁴⁰. Their objection can indeed be explained in four ways: first, the very great prejudices of the natives from the highest to the lowest to adopt anything contrary to or deviating from the established customs of their ancestors; second, the inoculators were principally Brahmins of high caste, who enveloped in 'mystery' the process of inoculation, bringing in religion to their profession i.e. *Śītalā* must be propitiated, puja should be performed and offerings made; third, to get vaccinated with lymph drawn from cow was to the Hindus nothing less than eating beef⁴¹; four, the Hindus were impressed with a belief that *Basanta* or smallpox was above all medical care, for the native medical works prescribed no remedy for it, and that a patient was entirely at the mercy of *Śītalā*, whom they considered it their duty to propitiate by worship and various offerings, the *ṭīkāḍārs* acting in the capacity both of doctors and priests on such occasions⁴². The Hindus who most resisted vaccination were the higher and better off classes viz. Brahmins, Marwaris, Rajputs and Baniahs. As years rolled on, some progress undoubtedly occurred in the popularizing of vaccination, as the people came to regard it as the government *dustur* or order to have the operation performed. To a certain extent, they then seemed to appreciate its benefit.

Among the Muslims the Ferazis gave most trouble and there was a growing feeling of opposition⁴³. They successfully withstood every attempt, whether by the Sanitary Department or local officials, to introduce vaccination among them⁴⁴. The Ferazis belonged to the Sunni division of the Mohammedan faith, and might aptly be described as the Puritans of the Islamic religion, their position being very similar to that of the Pharisees in

the Jewish dispensation. One Haji Shariatulla who went to Mecca and Medina, and came under the influence of Abdul Wahab first started the sect. He returned to India imbued with Wahabiism and settled at Daulatpur village in Faridpur district. Finding that the religious life of the Muslims had greatly deteriorated by the contact with Hindu idolatry, he addressed himself to the task of reforming their practices with the aid of the new theology he had learnt in Arabia. In fact it was a modified Wahabiism that he sought to enforce, and it was not long before he gathered an immense following in Eastern Bengal.

Shariatulla taught *inter alia* that inoculation and vaccination should be forbidden on the following grounds: First, it being the custom among Hindus and degenerate Muslims to do *puja* to the goddess *Śītalā* before being inoculated, and all connections with Hindu worship being forbidden, inoculation should be rigidly proscribed. Second, no prophylactic measures should be taken against disease. Third, that it was a sin for the Muslims to have pus or blood from man or animals injected into their bodies. Thus, vaccination in any form was put out of count, and was never submitted to⁴⁵. Maulavi Sharitulla's following increased, and by the end of the nineteenth century there were over one million Ferazis in Shibchar *thāna* alone. Clinging as they did to their religious prejudices with great tenacity, they had resisted vaccination in a most determined spirit. They drove away inspectors, sub inspectors of vaccination and vaccinators from their houses until those officials had been positively afraid to venture into their villages (Dyson 1902). One of their great objections to vaccination was a belief that they had among them an Imam Mehndi, who was to be their future ruler. One of his peculiarities, they believed, was that he had no blood in his veins, and that he had milk in his veins instead. Knowing this and wishing to seize him, Government had instituted vaccination, as a means, by which he might be identified, because the man from whose punctured arm milk flowed, instead of blood, must be Imam Mehndi. As soon as he was discovered he would be taken away and handed over to the authorities. This 'tale' was firmly believed by the villagers, and stood in the way of their submitting to vaccination.

There was the same opposition to vaccination in Bihar and in the districts of Orissa too even in the opening years of the twentieth century⁴⁶.

In fact there was scarcely any district in Bengal where there was not some opposition in some form or other. In fact vaccination was very unpopular in most parts of the Province. Parents used to hide their children from the vaccinators in the belief that the operation would cause them pain and lead to suffering and disease. Not infrequently, deaths from other causes months after children were vaccinated were attributed to vaccination. Resistance to vaccination was still much stiffer in Madras. In 1804 Surgeon J Dalton was accosted by a group of angry crowd who refused to submit to vaccination and declared that they would prefer death to vaccination (Brimnes 2004). More hostile to vaccination were the Mapilla Muslims in Malabar, not unlike the Ferazis in Bengal.

The vaccinators therefore had to work under great pressure. They were not government servants and as such were not recognized by the people and were looked upon with disfavor. In the absence of compulsory law to enforce vaccination, the vaccination department had to depend chiefly on persuasive measures to advance the cause. But persuasion was of no avail with poor people who had not the wherewithal to pay for the bare necessities of life and could ill afford to pay for vaccination however beneficial it might be. The result was that the vaccinators who were unpaid men left 'unprotected' the areas that were least profitable and carried their work in places where they got their fees without difficulties and sometimes illegal gain in the shape of article of food. The inspecting staff that for the most part was promoted vaccinators was not men of sufficient status and strength of character to be able to inspire confidence. They often shared the spoils of the vaccinators and attempted to protect them⁴⁷.

There were however numerous families that neither inoculated nor vaccinated their children. Whenever one of them had been naturally attacked by smallpox, they considered that the goddess of smallpox *Śītalā* was propitiated by one she had taken, and would leave the others alone⁴⁸. Thus they all remained from generation to generation uninoculated and unvaccinated in that family however it might be increased. Evidence available indicates that this was the case generally with the middle and lower classes of the Hindu population of the town and village. The Hindustani people were however most bigoted in regard to *Śītalā*, and they believed that if *Matta* or smallpox came naturally into a family, it was favorable and good. In this

belief they did not allow themselves to be inoculated nor vaccinated, and therefore the disease in a severe form generally attacked them (Report of small pox commissioner 1850).

CONCLUSION

A few tentative conclusions can be drawn from all these. Popular responses to epidemic smallpox in nineteenth century Bengal offer a mixed and complex pattern, and these complexities stemmed from their varied and differential perceptions of the epidemic. Generally speaking the response of the masses was one of stoic acceptance of the disease and not a dreaded repulsion.

Coming to the question of vaccination, the event of its acceptance was hardly a monochromatic linear progression; nor was the resistance from the practitioners and the beneficiaries of variolation uniform. The metropolitan or educated Hindus/Brahmins were gradually accepting the value of vaccination as a remedial measure. Early years of the nineteenth century witnessed the formative period of this transformation from resistance to acceptance. By contrast, the unlettered, superstitious and tradition-bound village masses were slow to acknowledge its efficacy. Partly because of the 'pious fraud', but largely due to government persuasion/coercion during the second half of the nineteenth century, the low caste/Hindu masses relented and went in for western method of vaccination.

Historically speaking, the 18th -century India was punctuated by dramatic events which brought in profound socio-economic consequences for its people. Progressive revenue demands by the British government had pushed the peasants to extreme poverty and squalor; the English traders in Bengal vowed to buy cheap, sell dear and corner commodities. Poverty and malnutrition lowered people's resistance to infectious diseases. Recurrent Maratha raids and the Nawabs' battles with the Company had disrupted the village life to the extent that the villagers' indigenous mode of disease control through the regular annual visits of the tikadars was thrown out of practice. Regular diet and inoculation failed. All the villagers had been left with was their capacity to write and sing hymns to the goddess, which the socio-political turmoil occasioned by the colonial intervention could not destroy. Not only did the tikadars recite hymns to the goddess *Śītalā* while inoculating

and enjoined the inoculees to recite along with him, but the inoculees had to prepare themselves by abstaining from three food items- fish, *ghee* and milk. This procedure indeed constituted their subjectivity in a pre-modern social milieu.⁴⁹

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