



BHOWÁNI, THE CHOLERA-GODDESS

SOME EXPERIENCES IN HINDOO SANITATION

THAT an Englishman on visiting an Indian village in which cholera was raging should be able to offer the inhabitants no advice which he was certain was good and at the same time practicable, except that they should pray to Bhowáni, the Cholera-Goddess, may appear a matter for surprise to people in England. When it is further explained that the Englishman had come to the village furnished with such resources of modern science as a portable bacteriological laboratory, which included an autoclave and an immersion lens, and that he had had some experience of cholera epidemics under different conditions in India, the surprise will not be lessened; neither will it be diminished when it is learnt that Bhowáni is another form of Kali, the terrible goddess of the Thugs, those road murderers who used to appease her by offering human sacrifices. Nevertheless, this was my experience on the occasion of a visit which I made to the Balrampur district in the autumn of the year 1894, and I venture to think that an account of my experience may prove of some interest.

Balrampur is a small native state, about half as large as England, situated to the north of the River Gogra, and lying within sight of the snow-clad ranges of the Himalaya Mountains. Much of it is frequently flooded. Fever is constantly present, and cholera breaks out almost every year. No railway exists nearer than Gonda, which is twenty-six miles distant from Balrampur, the chief town of the state. One or two roads run through the district, away from which travelling is difficult, especially during the rains, when, as was my own experience, the tracts are impassable for horses and heavy going even for elephants.

My object in spending a few days' leave in this place was to see if it might not be possible to check the march of cholera by disinfecting wells. Thanks to the kindness of Colonel Anson, the Political Agent, I found myself installed in a comfortable bungalow, with the town in which cholera was present on one side, and the village of Dhusaha, in which the disease was also raging, on the other. A soldier belonging to the state had died in the compound, and one of the only two Europeans in the place had died of the same disease, in each case a

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few days before I arrived. I afterwards found that two out of the three wells in use in the compound contained the microbe of cholera, and were probably responsible for these deaths.

The villagers at first objected to my putting any medicine in their wells. I regret to say that, so far as my experience goes, the first symptom of civilisation among the lower classes in India is that they develop a sort of inverted conscience, which pricks them whenever they tell the truth. In Dhusaha this influence had not yet arrived, and consequently my suggestion to put a medicine in their wells was met with a plain-spoken and unambiguous refusal. I therefore spent my first few days in the place in making bacteriological observations and in studying the beliefs and customs of the inhabitants.

The village Dhusaha consists of a collection of mud huts. There had been about 320 inhabitants, but seventy-eight had died of cholera in the epidemic that was then existing. The water supply is obtained from four shallow wells. The mud huts are constantly falling down in the rains, and mud to repair them being taken from a piece of waste land, the hollow thus formed has gradually formed a tank. Refuse is usually thrown down on the margins of the tank; hence, its water is so putrid that the inhabitants not only do not drink it, but I believe do not use it even for washing clothes. The inhabitants pointed out to me that the reason why the water in one of the wells was bad was that it was situated near the tank, and that the bad water from the tank travelled along under the ground to the well and gave a disagreeable taste to the water. I afterwards found that the water of this particular well contained no less than 7,000 microbes per cubic centimetre, and thus thoroughly deserved the character the villagers gave it.

The inhabitants are all high-caste Hindoos, mostly Brahmins. Not a single sweeper or other low-caste man was in the place. Being of high caste they only eat food which has been cooked by themselves, and this only when it is perfectly fresh. They eat no sweetmeats or other food brought from the bazaar in the neighbouring town. Their food consists almost entirely of rice and pulse, with occasionally a little unrefined sugar or dried mangoes.

But what chiefly aroused my interest was their views of cholera, and their religious observances in the presence of this scourge. If cholera breaks out in a village, the inhabitants say that it is due to Bhowáni their goddess, or to the army of Bhowáni being present in the place. They regard it as a judgment for their sins and shortcomings, and, as in other religions, they consider this evil to be a blessing in disguise. They immediately commence to propitiate the goddess by sacrificing flowers and rice. When travelling through the district the first sign of the presence of cholera which struck the eye was a small booth of grass mats surmounted by flags borne on

long bamboos. In Dhusaha such a booth had been erected on the margin of a well which contained the cholera microbe, and in this booth the chief 'jogi,' or priest, of the village prayed with about a dozen of the older villagers. I myself heard him praying on three successive days in a loud voice, and I believe he prayed the whole day long with scarcely an interval for refreshment. I shall mention him again later on.

The villagers in this district, however, not only attempt to propitiate Bhowáni by prayers and sacrifices, but also by certain rules of conduct, which appear to me to be of interest and importance. Firstly, they say that Bhowáni will be angry if any of the inhabitants leave the village. Secondly, they say that she will be angry if any outsiders are allowed to come into the village at a time when cholera is present. A curious incident illustrating the good effect of this belief happened at about this time in a couple of villages some distance from the town of Balrampur. There was only one well between the two villages. Cholera one day broke out in the village which possessed the well. On the next morning women came as usual from the other village to fetch water. But the inhabitants of the first village turned out and refused to allow them to approach, on the grounds that Bhowáni was among them and would be angry at being disturbed. The inhabitants of this second village had to get their water from elsewhere, and consequently came into the town to make a complaint. It may be noted that the official to whom they chose to bring their complaint was not the native prime minister or the native secretary for home affairs, or any other native official, who might be supposed to be better able to sympathise with their wrongs, but the head stableman, who was the only English official in the district at the time. I have no doubt that he pointed out to them that if they could not get their water, they were equally unable to get the cholera through this source.

Granting that the spread of cholera is chiefly furthered by human intercourse (and this at the present time few people seem inclined to doubt), it appears to me difficult to see how cholera could spread if these simple rules were rigidly enforced.

But there are other ways of avoiding the wrath of Bhowáni which appear to me to be only slightly less admirable than those above mentioned.

Firstly, they say that Bhowáni will be angry if any one takes medicine when cholera is about. Perhaps I owe some apology to medical men in suggesting that this rule is good. But when it is considered that if the natives were willing to take medicine, they would often have to walk twenty miles to the dispensary to get it, thus increasing the risk of spreading the disease through the four thousand villages that are in the district in question, it will be seen that there are advantages in the plan. Further, it would often

happen that the medicine would arrive too late to have any effect on the patient, and probably it would have a bad effect on the relatives in making them doubt the efficacy of English drugs. Cholera in this district often kills in a few hours, and when a fairly unanimous choice has been made as to which of the thousand and one now existing remedies is most likely to be able to cope with it, it will be time to object to the custom in question. The wish to do something when one sees a fellow creature in pain is very natural. I saw an old woman dying of cholera in Dhusaha. The sole treatment to which she had been subjected was that a mud plaster had been spread over the stomach, and small doses of holy water from the Ganges were being poured into her mouth. The latter treatment was intended as a medicine for her soul rather than for her body, as every Hindoo should, according to the prevalent belief, drink this water before his death. Her relatives were too troubled by the occurrence to object to my putting some salol which I happened to have with me into this water, but it certainly did no good to the patient, and had I at the time known more about their religion, I should have avoided the risk of hurting their feelings.

When Bhowáni is in the village, it is also necessary to avoid feasting and other forms of indulgence. The excellence of these rules is sufficiently obvious.

What is the origin of this worship of Bhowáni, every detail of which, excepting the sacrifices, appears to be a sanitary precaution? Is Bhowáni the name of some primeval bacteriologist, who has since been deified? Or of some early sanitary commissioner, whose studies on the nature of cholera have since earned him a place in the Hindoo pantheon? Or, on the other hand, has the form of worship arisen by some process of evolution from a simpler and perhaps less admirable model? *A priori* the latter alternative would appear to be the most probable, and it agrees the better with some inquiries I have instituted since my return to Agra. Bhowáni is another name or incarnation of the goddess Kali.¹ There are not many worshippers of this goddess in the parts of the North-West Provinces with which I am acquainted. They occur more frequently, however, in the neighbourhood of Calcutta; and here I made inquiries. I found, however, no trace in her worship of the above-described sanitary precautions. After some search, I met in Agra with a most devout worshipper of Kali, who had given up his business in order to be able to devote his time to religion. He showed great willingness to tell me everything connected with the ritual, and further gave me free permission to chop off his head if he could not stop a cholera epidemic by offering sacrifices and prayers. He was, however, more

¹ Kali is the Destroyer. Diseases and pestilences are caused by her emissaries. The views of the Thugs were that they could please her by acting as her emissaries. Consequently they regarded the murder of their fellow creatures as a religious act.

shocked than interested in the ideas of his fellow religionists in Balrampur, and I found in his worship of Kali no trace of any hygienic precaution. He told me that if cholera is present in a village, it is necessary to sacrifice to Kali every day, and that while the public worship, which may last about two hours, is going on, it is necessary that no one of the inhabitants of the village should stay away. Further, while the worship is proceeding, the inhabitants do not like strangers to come into the village and interrupt them, either by drawing water or in any other way. It would seem that, in Balrampur, it is these details of the ritual that have been more developed than they are elsewhere. In other places the worshippers of Bhowáni or Kali seem content with enjoining that the inhabitants should remain in the village during the two hours during which the religious ceremony is going on. In Balrampur, on the other hand, it is considered necessary that every one of the inhabitants should remain in the village during the whole of the twenty-four hours. Elsewhere the worshippers merely object to their service being interrupted. In Balrampur they object to strangers coming into the villages at any time when cholera is present, as if the worship were proceeding continuously.

I have left to the last a curious custom, rather than a religious observance, which is met with in the Balrampur district. It relates to the disposal of the dead. The body of a person dead of cholera, instead of being burnt, is buried. This may appear at first sight to be an insanitary proceeding. But in reality it is the reverse. Usually the bodies of Hindoos are burned. It is a necessary part of the ritual that on the fifth, tenth, eleventh, or thirteenth day after the burning, according to the caste, all the relatives of the deceased should meet in his house with as many Brahmins as can be obtained, and that they should have a feast. Supposing this to be done at a time when cholera was present in the village, there can be no doubt that it would lead to the diffusion of cholera over the surrounding district. A case in which this appears to have happened is mentioned in a recent report by Surgeon-Captain Pratt on cholera in the Gonda district. The worshippers of Bhowáni, on the other hand, prefer to bury the bodies until cholera has vanished. The burying of the body is not followed by the assemblage of the relatives for the funeral feast, but after the cholera is over they dig up the body, burn it, and then carry out the religious ceremonies. I cannot find that this apparently insanitary proceeding has ever re-started the cholera. Nor is it likely that it should, for it has recently been shown that the cholera microbe rapidly perishes in buried corpses. How far this disagreeable custom may be objectionable in respect of other diseases I am not prepared to discuss, but I have little doubt that it tends to prevent the spread of cholera.²

² In many parts of Oudh it is a custom to throw the bodies of persons dead of

As already stated, my object in coming to Balrampur was to disinfect wells, and my proposal to do so had been met by a direct negative on the part of the Dhusaha villagers. After learning their belief as to the nature of cholera, and the nature of their objections to the presence of a disinfectant in their wells, I was in a position to attack them again on the subject. Knowing that it is more easy to convince people by education than by argument, I collected about a dozen jogis and other kinds of fakirs and some Brahmins, and gave them a lecture which, with the accompanying experiments, lasted about two hours, and was completely successful in its object. Those who know fakirs chiefly, as I have seen them, hanging for hours head downwards, over a hot fire in the burning Indian sun, or attempting to earn their salvation by other eccentric methods, such as sitting on a bed of upturned nails, may think that I was too sanguine in hoping to succeed, and a short account of this lecture may therefore be of interest.

I commenced my lecture by showing them a human hair under the microscope, first slightly magnified, and then under increasing degrees of magnification, until, as they affirmed, it looked as large as a tree. Then I showed them some mildew growing in a test tube; this they recognised. Then, under a low power of the microscope, they saw that the mildew consisted of a mass of threads. Under a higher power (a magnification of 750 diameters) they recognised with evident interest that it was a plant, and they themselves pointed out the branches, the roots, the flowers, and the seeds. I then showed them a large collection of microbes which I had at that time collected from different wells in the neighbourhood. In each case I gave the name of the well in the hope of increasing their interest in the subject, and with the *arrière-pensée* of suggesting that their water was in need of improvement. The first microbe which I showed them was a large bacillus, that had grown out into long rods similar in thickness to the threads of which the mildew consists, and containing rows of spores which they recognised as seeds. I then showed them the same bacillus at an earlier stage of its growth, when the individual rods were shorter and slowly moving through the culture liquid. The next microbe I exhibited was still smaller and rapidly motile. The last was the smallest, and moved so quickly across the field of view that they could only see it with difficulty. This was the cholera microbe. I told them that it was the army of Bhowáni, but afterwards referred to it as the 'cholera mildew.' I pointed out how in some respects these creatures resembled plants, in others animals. cholera into rivers. In other parts of the country this fate happens to the bodies of persons dead of snake-bite. Still more widespread is the custom of disposing of the bodies of lepers in this way. For this I believe there are religious reasons. The bodies of young children are not cremated. In the case of poor people the cremation is often very partial, and the greater part of the disintegration is left to the sacred turtles which are always waiting at the burning ghats.

Since they had seen them moving, it was no use asserting that they were merely plants, so I contented myself with asking the question, 'Who can tell which they are, animals or plants?' I then told them that the food of these creatures is dirt. I showed them some peptone under the name of the 'essence of dirt taken from the inside of a pig.' The nomenclature may appear strange, but if I am right in believing that peptone is usually made by allowing a pig's stomach to digest itself at a warm temperature, it at least cannot be described as highly inaccurate. I then showed them some water to which some of this 'essence of dirt' had been added. I told them the name of the well from which the water had been taken, and explained that on the previous night the cholera mildew had been present in such small quantities, that I was unable to see it by means of the microscope, but that owing to the 'essence of dirt' having acted as food, the water now looked as if milk had been added to it, and the reason of this was that many thousands of the cholera mildews were now present in every drop. It may be explained that the addition of peptone to water in this way is the ordinary method of testing for the cholera microbe.

I then somewhat changed the subject by asking why it was that no one ever got cholera by drinking holy water, whereas many persons died of cholera every year by drinking water out of ordinary wells. Holy water, it may be explained, is water taken from the Ganges or Jumna.³ Many bodies of persons dead of cholera are thrown into these rivers. Natives constantly drink the water of the river while cholera corpses are floating past, yet none of them contract the disease from so doing. Yet it is certain that the cholera mildew gets into the water. Further, this must also happen when cholera breaks out at religious festivals at Hurdwar and Allahabad; yet there is no evidence that cholera spreads to villages downstream more quickly than it does to other villages, to which it is carried by the returning pilgrims. I suggested that the reason of this is that the water of these rivers contains no dirt suitable for the cholera mildew. Consequently, when it gets into these rivers it quickly perishes owing to lack of nourishment. The water of these rivers appears to be muddy. If some of the mud floating in their water is examined under the microscope, it is seen to consist of nothing but little pieces of stone. If the mud from a well, on the other hand, is examined, pieces of leaves, of clothes, of human skin, and of other particles of animal origin may be discerned. Such things furnish food for the cholera mildew. Consequently, if a trace of the cholera mildew gets into one of their wells, finding there a suitable food, it rapidly reproduces until the cause of cholera is present in quantities in every drop. Here in Balrampur the wells were dirty, and hence cholera came and

³ Evidence of the extraordinary purity of the Ganges and Jumna may be found in a paper which I read at the Indian Medical Congress in Calcutta (December 1894), entitled 'On the Microbes of Indian Rivers.'

was bad every year. In Agra, on the other hand, where I came from, the wells were cleaner and cholera was far less frequent.⁴

I then went on to ask how cholera could be stopped. This could be done by adding to the wells a medicine which I possessed, which had the wonderful power of destroying dirt. The medicine, it may be explained, was potassium permanganate. To exhibit its action, I placed before them two glasses of water. To one I added a small quantity of the 'essence of dirt.' The other was pure water, or, rather, the best that I could obtain. I showed them some potassium permanganate, dissolved it in water, and added a few drops of the solution to each of the glasses. The purple colour produced by the addition remained permanent in the glass containing clean water; but in the other, owing to the presence of the peptone, the colour was destroyed in a few seconds, giving rise to a yellow colour; and presently a brown precipitate was deposited. I pointed out to my audience that where dirt was present the medicine had combined with it. The medicine was destroyed, and also the dirt, both falling to the bottom as a precipitate. I pointed out that this might be done in a well just as easily as in a glass, and that by so doing they inevitably render the water less fitted to support the life of the cholera mildew, and make the water like that of the Ganges.⁵ I did not ask them to take away the life of any living creature, for this I knew was contrary to their religion; but I did ask them to remove its food and thus prevent this living creature from reproducing itself, and so giving them the cholera. Further, I said that I knew that drinking an English medicine was also contrary to their religion, and I did not ask them to drink it. There was plenty of dirt in their wells with which it would combine, and if they added it at night, it would, before the morning, have fallen to the bottom. Further, as they could see for themselves, if a trace of the medicine was present in the water, it produced a purple colour, and therefore if they waited till the purple colour had disappeared, they would be safe to avoid the chance of swallowing the medicine.

Whether they were most impressed with the cogency of my arguments, or the exceeding badness of the Hindustani in which I

⁴ I have stated some of the grounds on which this and other opinions expressed here are based in *The Annual Report of the Chemical Examiner and Bacteriologist to the Government of the North-West Provinces and Oudh* for 1894, published at the Government Press, Allahabad. But since writing the above, I have been led to the view that there is something in the water of the Ganges and Jumna which kills the microbe.

⁵ Some evidence that permanganate really acts in the way here described—namely, by removing the food of the microbe and thus 'starving it out'—was subsequently obtained in an epidemic of cholera in Shahgunj. Here the cholera microbe vanished from the well water a few hours after the addition of the permanganate, but reappeared on the following morning. But within three days it had wholly disappeared from the wells which had been treated, though it continued to exist for weeks in other wells that had not been medicated. Less than two ounces of the permanganate had been added to each well.

expressed them, or by the price of my microscope, I do not know ; but they appeared to be satisfied that it was a good thing to add the medicine to the wells ; some of them even appeared to be eager to do so, since cholera was in their villages.

After giving this lecture I went to Dhusaha, and at last persuaded the chief jogi, Mahadeo Purhit by name, to allow me to put medicine into his well. The natives crowded round, showing much surprise at the quantity of colour produced by so little of the substance. The addition was made at evening, and on the next day both the colour of the permanganate and the cholera microbe which had previously been in the well had completely vanished.

Later in the day news was brought to me that Mahadeo Purhit was dangerously ill. I hurried over to see him, and to my dismay found that he was dying of cholera. In the afternoon he died. I went again immediately to the village, not feeling very sure of the reception I should get, since it was inevitable that, sooner or later, the inhabitants would come to the conclusion that his death was a judgment from Bhowáni for his allowing a Sahib to come into the village and to put medicine in his well. However, I thought that it might be possible to prevent their arriving at this conclusion by first getting another idea into their heads. I spoke to the villagers, and pointed out that his death proved the truth of what I had been saying, for I had said that the cause of cholera was in his well at a time when no one who drank its water was suffering from the disease. Now he had died from drinking this water. If I had put the medicine into the well a week earlier, he would now have been all right. I then seized the opportunity of making some prophesies about other wells which were in the village, and in which I had found the cholera microbe ; and without more ado the villagers allowed me to put permanganate into all these wells.

It may be noted that it was most important that the villagers should have no objection to this medication of their wells. For if they did not approve of it, they might obtain their water from a tank or some other source which might be worse than the well itself. Although I succeeded in showing the natives that the addition of this medicine implied nothing dangerous to their caste, I could not help their being at first a little frightened of it. So I drank some water (and this was the second of the two occasions only on which I have drunk water since I have been in India) from one of the wells in the village, to which permanganate had been added ; this I had to do in order to convince the natives that it was not poisonous.

The cholera stopped within three days of the treatment of the wells, that is to say within a time covered by the probable incubation period of the disease. It is not the object of this paper to prove that the disinfection of wells during cholera epidemics is useful, so I will confine myself to saying that the results obtained in other epidemics

as in this have been encouraging, but not conclusive, as to the value of the method.

I wish rather to suggest that a help to progress in sanitation in India may possibly be secured by studying the customs of the people in the light of recent knowledge, and by encouraging those which appear to be of use. The customs above described exist, so far as I am aware, over a limited area only, and from the standpoint of others than the inhabitants themselves, this religion which makes quarantine in the presence of cholera one of the cardinal virtues, is little more than an ethnological curiosity. In other parts of India the religious beliefs of the people impel them to the most insanitary actions, especially at their religious festivals, which are known to be so potent in spreading diseases.

But I have come across customs which exist over a far wider area, and which I believe to have a beneficent influence in limiting the spread of epidemic disease. Take for instance the customs connected with giving water to strangers. I have been told that in some districts Brahmins keep a bucket and rope at each well for the special use of travellers, these not being allowed to lower their own buckets into the well. In other places a man also is provided to draw water for strangers. Sometimes, in the case of villages situated near to the high road, a man brings water from the village to sell to the passers by. But I believe a more frequent plan is for the villagers to subscribe, and to keep going a house in which passers-by can obtain water free of cost. A man of high caste sits inside the house at a little window. A traveller comes up and asks for water. In England he would receive it in a glass which he would put to his lips, and after having deposited on the edge of the glass any objectionable microbe which he might happen to have about him, whether influenza, diphtheria, or whooping cough, would return the glass in a condition in which it might possibly be ready to infect the next comer. In India the simple process of giving a cup of cold water to a traveller is carried out with more regard to sanitary laws. Firstly the traveller states his caste. If he is of high caste, immediately he holds out his hands, and washes them with water poured into them. Then more water is poured into his hands and thus conveyed to his mouth. If by any chance he should happen to touch the drinking vessel, it would be necessary to heat it in a fire to sterilise it, or, as the natives say, to remove the defilement, before it could be used again for the next comer. Supposing the traveller is of low caste, that is to say one engaged in some filthy occupation, then the water cannot be poured direct from the vessel into his hands, because, as was explained to me by a Brahmin, it is possible that some defiled water might splash back from the man's hands on to the vessel. Hence the low-caste man has to drink from a little spout called a 'tonti,' usually made of bamboo, projecting from below the window. The

water-provider pours water from his vessel into a sort of funnel. Thence it issues by the spout, and if any water does splash back from the man of dirty occupations, it merely falls on to the spout, and there is no risk of its infecting the water supply for the next comer. If one realises the complete absence of the dirt-fearing instinct, among, for instance, the sweepers, and the fact that it is their business to remove the most filthy offal, which they generally do with their hands, and that consequently their hands are liable to be polluted with the most objectionable microbes, it will be understood that the above precautions are by no means a useless refinement. When I was examining one of these places the water-provider offered me a drink, adding that he had a glass. When I reflected that I had only just recovered from a mild attack of cholera, owing to an infection contracted in my laboratory from a moment's carelessness, I felt more inclined to drink from the spout than to run the risk of infecting his water by drinking in the English fashion.

It is now abundantly proved that the cholera infection is often carried into villages by returning travellers. There can be no doubt that it then infects others by the intermediary of the village well. In reading certain reports which contained much evidence in favour of this statement, I was struck by the fact that the traveller in each case appears only to have brought the disease to the village to which he returned, but does not seem to have deposited the infection in the villages through which he passed. There is the possibility that this, if true, is due to the above described arrangements for giving water to strangers. This inference, however, cannot be made with certainty until investigations have been made, both as to the customs in the villages in question, and as to the amount of cholera in villages situated on the high roads. Against this idea may be stated the fact that cholera is known to be frequent along great pilgrim routes. But it is possible that this is an exception which helps to prove the rule. Owing to the vast numbers of pilgrims passing along the roads, it would, I suspect, be impossible for the villagers to provide water for them all to drink, and it thus becomes necessary for them to draw it for themselves.

I have had opportunities of watching the customs of these pilgrims at the large religious festivals held annually near Allahabad, at the point of junction of the Ganges and Jumna. For miles along the roads leading to the fair, and all over the plain near the site of the fair, families of Hindoos (chiefly Brahmins) can be seen encamped, and cooking their simple food. Before eating they take off all their clothes, except a loin cloth, and wash themselves all over, for fear some defilement may be present on their clothes or bodies. As is well known, they object to a person of another caste coming near to them while they are eating. It is not so well known that they have

no such objection if their food has been heated to a temperature sufficient to kill microbes, that is to say, if it has been fried in oil, except so far as persons are concerned who belong to the five lowest castes. The occupations of members of these castes are regarded as unclean, and they are not allowed to come near high-caste Hindoos while they are eating under any conditions, neither are such persons allowed to bring the uncooked food of Brahmins from the bazaar. It is obvious that each one of these rules has a tendency, though it may be slight, to prevent men of higher caste from swallowing the microbes which can cause diseases. Unfortunately, when at pilgrimages, they do not appear to pay much attention to the precautions which at that time are most required. I questioned several of them on that point, and they told me that they took no care as to what water they drank. I may parenthetically remark that I was walking alone among these natives without any imposing array of police or other officials. The only sign that I was an official was the doubtful one that I was carrying a notebook. Yet frequently as I passed the natives would turn round and call out after me, 'God bless the power and property of the English Government.' I was particularly struck by their using the term English, and I commend the fact to the attention of the members of the National Congress.

Sometimes the customs attending pilgrimages are fearfully insanitary. For instance, at the site of a pilgrimage in the Madras Presidency is a hill which is supposed to be a god. It is surrounded by twenty-four small tanks. On the great day of the festival nearly a hundred thousand persons bathe in, and drink, the water of each of these tanks. Each tank is thus defiled by every body, since, for religious purposes, everyone must go round the hill and bathe in each of the tanks. Little wonder that these pilgrimages are potent means for the spread of cholera.

The idea that natives in certain parts of India, when in their villages, habitually take precautions to insure the purity of their water supply, may seem strange not only to English readers, but also to Anglo-Indian officials stationed in certain other parts of India where no such care is taken, as, for instance, is, I suppose, the case in localities where the supply of drinking water is derived from tanks. Here, I am informed, the natives are in the habit of washing themselves, their cows, and the Sahib's shirts, in the tank that also acts as the village cesspool and the village water supply. Personally, I know nothing of these parts of India. The following account is based on experience obtained near Agra, and in other parts of the North-West Provinces.

In every village at least one well is reserved for the supply of drinking water. Only vessels especially reserved for the purpose are allowed to be lowered into such wells. Great care is taken to preserve the drinking-water vessels from pollution. Musalman water-carriers

or bhistis⁶ do not allow any one but themselves to touch their water buckets, or the skins in which they carry their water. Hindoos generally draw water in an iron vessel known as a 'dol.' This is only used for drawing the water. When required the water is poured into another vessel, and only from this other vessel is the water poured into the hands of any one requiring a drink. No one is allowed to go on to the platform of a well without removing his shoes.

Other wells in the village are reserved for household purposes. The vessels used to draw drinking water are never allowed to be lowered into these wells by Hindoos. I suspect that Musalman bhistis are not so particular; at any rate, this is the case with bhistis employed by English people. The poorest Hindoos have two separate sets of vessels, one to hold drinking water, the other for water used in household purposes, such as washing the cooking vessels.

Houses, being generally made of mud, are constantly in need of repair. The workmen (or coolies) who need water for carrying out this work necessarily employ very dirty earthenware vessels. I am certain that these are not allowed to be lowered into drinking-water wells, and I believe they are not allowed to be lowered into wells used for household purposes. A small tank containing dirty water is generally attached to each well, and from this the workmen take the water which they need in repairing houses. When first I saw these tanks I thought it was rather unsanitary to have such dirty water so close to the well. But the above statements, I venture to think, make it obvious that it is better to have such tanks than that coolies should lower their dirty vessels into a well used for drinking purposes.

I once asked a completely uneducated native why it was necessary to have dirty wells in the place, why the dirty wells could not be closed, and all the water, whether for drinking or household purposes, be obtained from clean wells. His answer was that if this were done diseases would become prevalent. Whatever truth there may be in this answer appears to me to depend on the practical necessity that in some cases dirty vessels have to be lowered into wells; and hence it seems to be a good plan, as things go, to reserve some wells into which alone such vessels may be lowered.

I recently had to do with a cholera epidemic in which certainly most of, possibly all of, the infection was derived from wells used for household purposes, and it is probable that the disease would have been far more widespread if the water of such wells had been actually drunk by the mass of the population. The epidemic⁷ in

⁶ Bhistis are always Mahommedan, and only draw water for Mahommedans or for English people. Hindoos usually draw water for themselves, but sometimes water-drawers are employed. These are always of Brahmin or Cahar castes.

⁷ Some details concerning this epidemic will be found in my Annual Report already quoted.

question occurred in Shahgunj, and at the time it was stated to be inexplicable on the grounds that only women had been attacked. I found that the latter statement was true so far as the first part of the epidemic was concerned. The women who were affected had no supply of drinking water in common. Some of them obtained their drinking water from a well situated a couple of miles away from their houses. But out of seven cases I found evidence that six had been in the habit of going to one well which was used, not for drinking, but only for household purposes, and consequently was chiefly frequented by women. A few poor Musalmans, however, were in the habit of using the water for drinking purposes. Hindoos used a better well situated about sixty yards away. The epidemic affected twenty-six Mahommedans and only one Hindoo. I have little doubt that the first part of the epidemic was due to accidental infection from the water brought by the women for household purposes. In the latter part of the epidemic the cholera microbe appears to have spread to other wells in the place; but in these cleaner wells the microbe seems to have assumed a less virulent form, for the cases which now affected both men and women in nearly every instance ended in recovery, and on my putting disinfectants into the wells the epidemic ceased.

It is commonly supposed that the natives are in the habit of washing their clothes and themselves at the wells, and that the water frequently runs back into the well. This is not quite accurate. Women generally wash themselves either in their houses or in the river, if one is near. Men wash themselves and also their dhoti or loincloth at the wells, and owing to the platform of the well sloping away from its mouth, very little water, if any, gets back into the well, provided it is in good repair. Clothes, both of men and women, are washed by dhobies, who are never allowed to carry on their business near a well. They are obliged to use either the river or a tank. It is considered that the occupation of dhobies is unclean, and consequently they belong to one of the five lower castes who are not allowed to come near a well used by higher castes.

Perhaps the most interesting precaution taken by Hindoos about their drinking water is that those who are supposed to be engaged in dirty occupations, or vessels belonging to such persons, are not allowed to come near a well. In towns and larger villages it sometimes happens that a well is especially reserved for the use of Chamars and sweepers. More generally, if a sweeper wants water, he has to sit down at a distance from the well and wait till some one of higher caste comes and draws water for him.

This does not exhaust the list of precautions taken by natives in this district to insure the purity of their water supply. I was astonished to discover that they take pains to prevent the contamination of the River Jumna. While staying the other day in a bungalow in the

Ram Bagh Garden, which is situated above Agra on the banks of the river, a fisherman came to me and complained that my servants had dug a drain from the cook house and that from it dirty water was running into the river. The servants had made this drain by my orders, as I had a prejudice against the accumulation of stagnant water near to where my food was being prepared. On the fisherman making the complaint I hazarded the statement that it did not matter, since all up the banks of the river everywhere the natives were in the habit of depositing on its banks, as they often did at the margin of a tank, refuse which frequently fell into the water. The fisherman somewhat indignantly denied that this was the case, saying that men who would do such a thing must be of very low caste, and that higher caste people certainly always took pains to prevent the pollution of the river. To this I objected that the natives did not care whether the water was dirty or not, because a mile or two lower down the stream they were bathing at the ghats just where a large drain ran into the river. The fisherman admitted that they did this, because their ancestors had always bathed there, but at the same time he said they do not like the drain being run into the river, because the river is holy and they make many prayers to it. It appears to me that this incident well illustrates to what extent with these people cleanliness is godliness, and tends to make one regret that cleanliness has not been left a matter of common-sense instead of having become incorporated with their religion.

I have only attempted to describe some of the customs of the Hindoos in respect of their supply of drinking water. A further study of their customs would show that, with the higher castes of Hindoos, cleanliness and the avoidance of defilement are virtues to be cultivated in one's self and admired in others. Among the poorer classes and among men of lower castes these hygienic virtues are apt to be tempered with much original sin of the insanitary kind. But it cannot, I think, be denied, that even when only a few members of higher castes are present in a village they exert a beneficial influence in preserving the supply of drinking water from contamination. Unfortunately, their influence does not go far enough, but it appears to me that this is only a reason for trying to extend it in those directions in which it appears likely to be of use.⁸

The above remarks may seem like a eulogy of the caste system. This is far from my wishes. A system which enjoins that persons

⁸ For instance, I am engaged in writing a tract in Hindustani on the prevention of cholera in India. By way of advocating the imposition of a quarantine on persons returning from a pilgrimage who may possibly bring back the cholera virus with them, I suggested in my rough draft of the pamphlet that such persons should be regarded as unclean for a week after their return. But on translating it into Hindustani, I was unable on the one hand to find any word for unclean that did not mean unholy; and on the other hand I found that the custom already existed in the case of certain distant pilgrimages. My informant, whom I have every reason to rely on, tells me that

who are careful in avoiding defilement should be admired and respected, but not imitated, at any rate by part of the population, is far from satisfactory even from the hygienic standpoint. From the ethical standpoint, a system which tends to keep certain classes in a low position and to prevent them from rising to anything higher, no doubt leaves much to be desired. Further, it seems to make no distinction in importance between matters which might be of great use, such as those relating to the water supply, and those of trivial import, such as the position of the cooking vessels while food is being prepared.

E. H. HANKIN.

pilgrims returning from Goya and Budrinath are not allowed to eat with other members of their families or, I believe, to come near their wells, until they have bathed in the Ganges. I believe this custom to be the reverse of widespread, but in my tract I have explained its advantages, and suggested that it should be applied to every returning traveller, that his clothes should not be washed until they have been exposed in the sun to dry, that he should be allowed to bring none but dry food back with him into the village, &c.

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