

NOTES ON ENTERIC FEVER PREVENTION IN INDIA.

BY LIEUTENANT-COLONEL F. W. C. JONES.

Royal Army Medical Corps.

It is with much diffidence that I approach the well-worn theme of enteric fever prevention, and, incidentally, of other filth diseases in cantonments and on manœuvres in India. Experts have written much on the subject. To use efficiently the knowledge given by them to those of our Corps who are daily engaged in the fight against these diseases is no easy matter. Very definite lines are often not laid down to act upon, and, indeed, sometimes the suggestions made in the laboratory are quite impracticable for us working men. But without the knowledge so gained we should be fighting the air. In this connection our thanks are due for the very helpful articles which appear from time to time in our Journal.

What we want is a system of general sanitation which is practicable, and gives good results. Easily said! Well, show us one. My answer is that we have been working in Nasirabad for the last two and a half years on definite lines, and with a definite object in view.

We have been led in this station to regard fly infection as the principal cause of the unenviable prevalence of enteric fever. Reference to the table on p. 25 will show the occurrence of this disease for the last twelve years. Up to the end of June of this year (1906), there have been two cases and no deaths. I will now tell the tale of our fight.

My personal knowledge of this station dates from early in April, 1903, when an epidemic of enteric fever was raging. A battalion landed from Cairo, and arrived at the station in February of the same year, and was at once attacked. It would be beside our present purpose to go into the outbreak in detail. It is, perhaps, sufficient to say that practically all the cases were of local origin. A young regiment newly landed in India is not likely to grasp at once all the details of Indian sanitation, and this was no exception. Many necessary precautions were not taken. The milk supply was open to suspicion. The water was boiled in Larymore boilers, but was not very efficiently guarded afterwards. Doubtless many other sanitary sins were committed. But these have been committed before with more or less impunity. Our

investigations into the cause of the sudden outbreak ended in the way so familiar to Army surgeons in India. My predecessor in command of the Station Hospital had called special attention to the enormous number of flies present in this station immediately before and during the outbreak. He also brought to notice that these flies were being imported on the carts from the filth pits. On my arrival there were swarms of these pests, but not nearly so many, so I was informed, as there had been. This was probably due in part to an order that all filth carts were to ply at night, and in part to the advance of the hot weather drying up other fly-breeding grounds. Energetic measures were taken to close all possible ways of infection that could be thought of. The epidemic ceased, but cases kept on occurring to the end of the year in spite of all our efforts. Flies were with us. We feared them, and yet were more or less powerless to fight them.

On December 8th, 1903, the cantonment authorities started the system of filth trenching recommended by Lieutenant-Colonel H. B. Thornhill, C.I.E., Indian Army Inspecting Officer of Cantonments in India. I had the advantage of an interview with Colonel Thornhill. He pressed his views with the vigour of an enthusiast. A sceptic then, I have since become a convert and on ardent disciple. I can say the same for the officers of the Royal Army Medical Corps working under me here—Captain W. H. Odum and Lieutenant A. L. Otway. This system differs very essentially from the Allahabad system as detailed in Lieutenant-Colonel R. Caldwell's recent work on Military Hygiene. Even if efficiently worked, the Allahabad system, according to Colonel Caldwell's account, results in the breeding of a large number of flies. Each pit is a fly incubator. This when properly worked; how much more so when not so well carried out, as in this and other stations that I know. From frequent personal inspections of our filth pits before the introduction of Colonel Thornhill's plan, I can vouch that they were seething with maggots and covered with thousands of flies. Ravens and "shorks" abounded, and evidently found suitable food. As in the Allahabad system, Colonel Thornhill allows a trench 16 by 5 by 1 feet for each Crowley cart, but he directs that each trench should be dug out to its full depth of 1 foot. The earth is thrown to one side, and thoroughly pulverised. Enough trenches to receive the contents of the carts are dug a day in advance, and measured by an inspector with iron rods.

Let us now follow the course of a filth cart. Here might be

noted how "kutchas" these carts are. Probably owing to want of funds an inferior cart is built. The lids hardly ever fit properly, and in spite of a layer of earth in the pan the contents frequently slop over. It might be a little more costly, but surely it would be more satisfactory to have efficient lids which could be fastened down by a strong lever. But to our story. The cart is driven up and the buffalo or bullock unyoked opposite and close to a trench. The cart is then man-handled until the wheels rest on the clear edge of the trench. Previous to its arrival 2 inches of earth are sprinkled, with a circular movement of the spade, evenly over the bottom of the trench. The contents of the cart are tilted in. Powdered earth is then thrown into the cart, and the inside is given an earth bath, and is thoroughly scraped with a wooden scraper. The cart is then taken to a similar trench and washed over it with water inside and out. Colonel Thornhill's original plan was to wash four carts in a trench of the same size as a filth trench, but we find it more convenient to wash one cart in a trench one quarter of the size. The depth is always 1 foot. The carts can be placed right over a trench of this size and cleaned with practically no surface pollution of the ground. After the cart has been taken away from the trench into which its contents have been emptied, the sweepers cover the excreta with the powdered earth, throwing it in with a circular movement. At about 5 inches from the bottom of the trench a semi-solid mud is thus formed on which the remaining 7 inches of powdered earth rests and form a dry covering. The immediate results of this system are marvellous. There is no smell. You can walk to leeward of a freshly filled line of trenches and not know they are there. When the earth is properly powdered no flies are bred; this one can see at once by their absence. Indeed, when inspecting the trenches, if we see flies we know that something is wrong, and begin to hunt for larvæ in the more recent pits. The flies are bred when the earth is improperly powdered. The clods, with air chambers round, act as ladders for flies to go up and down. When the work is scamped the same result follows. To carry out this system efficiently, removal of filth must be carried on by day.

Though we started Colonel Thornhill's system in December, 1903, it was not until three or four months later that it was in perfect working order. To begin with, a sufficient number of diggers could not be obtained, and consequently the trenches were only 12 by 5 by 1 feet. Flies diminished greatly, but not to the same extent as after the work was carried out completely. We

look upon flies as a danger signal. Ravens and "shorks" at the pits are also danger signals. With a large native bazaar close to, it is impossible at present to prevent the breeding of flies. We find them after wet weather in the roads and wherever cattle are kept. But while we cannot prevent flies breeding altogether, we can prevent breeding the flies which chiefly matter, namely, those in the filth pits.

With the economical side of Colonel Thornhill's plan we have nothing to do at present. He claims that with a good rainfall it is a fruitful source of income to the cantonments. The trenched ground is, of course, cropped before being again used for trenching.

STATEMENT SHOWING ADMISSIONS AND DEATHS FOR ENTERIC FEVER, ETC.,
FOR THE PAST TWELVE YEARS.

Year	Strength	ENTERIC FEVER		RAINFALL	Remarks
		Number of admissions	Number of deaths	Inches	
1894	755	15	3	Not available	
1895	881	21	7	22.1	
1896	765	29	12	13.6	
1897	698	25	12	18.5	
1898	668	28	11	15.2	
1899	838	42	10	7.5	Famine year.
1900	781	56	21	14.3	
1901	681	33	7	17.8	
1902	370	18	5	10.9	Notesmall number of troops.
1903	673	82	16	17.5	
1904	780	17	4	15.6	Colonel Thornhill's system started December, 1903, inefficiently, and efficiently in April, 1904.
1905	926	4	Nil.	4.5	Famine year.

Believing, as we do, that flies are the chief carriers of enteric fever in India, any plan which gets rid of them is worthy of consideration. Incineration is an ideal system, but if earth can be fertilised, and the desired end gained at the same time, cheaply, a plan such as Colonel Thornhill's is more likely to meet with acceptance by the authorities who hold the purse strings.

In 1899 Larymore boilers, for the provision of sterilised water to troops, were brought into use in India. Therefore a comparison of the number of enteric fever cases should be made from that date when consulting the above table. The rainfall has been introduced into the table to show how little effect its deficiency or

excess had on the number of cases of enteric fever. Why should it? Under the old trenching system the water necessary for fly-breeding was brought to trenches in the filth carts and emptied there. We do not hold that enteric fever cannot be carried by water. We, of course, know it often is. What we say is, that the care in obtaining a good water supply for European troops all over India should have led to more satisfactory results if water is the chief means of conveying the disease. It has practically eliminated cholera. Why not enteric fever? To our minds the statement that all loopholes for water infection have not been closed does not carry conviction. Nay, it practically accuses us and our professional brethren of want of zeal. To some grosser cause, as a rule, must be attributed enteric fever in India. If possible, it is better to attack the main cause of the disease at its source, and not to leave it to regimental officers and individuals to fight the germs when already in their barracks. These second lines of defence are necessary, however, and we keep them up. Acting on the faith that is in us, we have been working here for two and a half years to prevent fly infection. Though we remember the *post hoc, propter hoc* argument, we appeal to the table given, and we earnestly hope that the results are due to our endeavours. We work with a clear idea of what we want. No flies, little or no enteric fever.

By fly infection we mean the pollution of milk, water (?), food, &c., &c., by flies from infected excreta. The trench-ground at Nasirabad is on the opposite side to the prevailing wind, and from one to two miles from barracks. The soil is sandy, but very fertile when watered.

I have not mentioned dust because I do not think it is a cause of infection in this station. Our dust storms occur usually in the hot weather, when enteric fever is not particularly prevalent. Also, it would take a very robust germ to stand the drying powers of a Rajputana hot weather sun. Further, the country on the side of the prevailing wind is open and uncontaminated.

Many strong drafts from home have come to the station since our new system was started. Also the regiments have been changed.

In our manœuvres in this brigade we have been working with the same end in view, *i.e.*, the prevention of fly infection as far as possible. I venture to append our camp instructions marked A. They were adopted at the Mhow divisional manœuvres in 1904-5 for all troops, and were in use at our short manœuvres here during the winter 1905-6.

Readers of our Journal will notice that much of the matter in these instructions has been taken from a very helpful article by Lieutenant-Colonel H. S. McGill (vol. iii., No. 5). He will, I hope, be pleased to know that his suggestions have been put into practice and found most useful. Mr. Ernest E. Austen's article in vol. ii., No. 6, is also very instructive.

There is a word, I believe, with a very unpleasant sound, and more unpleasant meaning. The word is kakophagy, or excrement-eating. I presume no one wishes to be a kakophagist; yet we are so in spite of ourselves, if flies bred in filth pits alight on our food just before we eat it. I found this line of reasoning very useful with high caste native officers and men on manoeuvres. They at first looked upon our sanitary measures as being only meant to worry. I got several of them together, and, to the best of my ability, explained that men who took no precautions in camp to prevent the breeding of flies, must, of necessity, be kakophagists. This appealed to them most strongly, and I had no further trouble.

I must apologise for inflicting this article on my professional brethren, but I believe that it expresses the opinion of a large number of our officers in India.

The reading of Major Norman Faichnie's article in the Journal for May, 1906, prompted me to take up the cudgels on behalf of the fly-infection school, and to give reasons for our belief. Will not fly infection alone almost account for enteric fever contracted on trek in the late war in South Africa? Some who read this may remember that horrible place Blinkwater, to the north of Middelburg in the Eastern Transvaal, with all its abominations. The running stream of clear, and apparently pure, water would not, I believe, account for the cases of enteric fever contracted in that awful place. Flies in thousands were there bred in uncovered latrine pits, in unburied offal, in dead horses and mules. Many of us who were shut up in Ladysmith will attribute much of the enteric fever there to fly infection.

I append A and B, Sanitary Recommendations, issued to commanding officers, and C, Advice to Young Soldiers in India. Copies of the latter are hung up in every barrack-room. These form our second line of defence should germ-bearing flies enter the barracks.

APPENDIX A.

SANITARY NOTES AND RECOMMENDATIONS FOR MARCHING AND MANOEUVRES.

Diseases.—The chief diseases to be guarded against on the march or in camp in the winter are:—

- (1) Enteric fever—from foul water and milk, and fly infection of food.

(2) Diarrhoea and dysentery—from foul and muddy water, bad food, chill.

(3) Malarial fever attacks—frequently from chill in those already infected by the parasite.

(4) Bronchitis and pneumonia—chill, especially from standing in a cold wind in wet clothes.

(5) Cholera and plague—the former from contaminated water and food, and the latter from infection.

Clothing.—Men should wear flannel next the skin, and always have a great coat ready to put on after marching, while waiting for the baggage to come up. They should always put on a dry pair of socks when the march is over after washing or drying the feet. Before marching they should soap the feet well, or rub them with grease. Blisters should have a needle passed through the bleb to let the fluid out. The skin should not be cut off. The men should be supplied with three blankets and a waterproof sheet each.

Water.—The allowance required daily for each man is three gallons—half for washing and half for drinking and cooking. In a running stream the water intake for men must be above that for washing and for animals. A guard or policemen should be put over the drinking water, and it is advisable that this guard should proceed with the advanced party. A space of twenty yards radius round the drinking water supply should be kept clear of tents, cooking places and animals. A water party under a N.C.O. should be sent on in advance (for infantry the evening before) to have water ready boiled and cool for the troops on arrival in camp. For storage one large McNamara tank will suffice for a battery and two for a battalion of infantry. The water can be boiled in these tanks. All water should be kept at the boil for half an hour. Water bottles and mule tanks should be filled from this supply of boiled water and from no other source. Two covered zinc water buckets (now in use in barracks) should be taken with each battery, and six with a battalion of infantry, to be used in distribution. Ropes and buckets (zinc or leather) will be required to draw water from the wells.

Cooking.—Cookhouse water and refuse must not be thrown about. This attracts flies. Two pits 2 feet in diameter and 2 feet deep, and with the bottom earth loosened 6 inches more, should be dug 20 yards away from each company cookhouse. One of these is for water and one for garbage. Dry earth must be thrown in each several times a day, and on leaving camp a layer of litter 4 inches deep should be burnt on each, and the pit then well covered in with earth.

Refuse.—Refuse (other than cookhouse garbage) should be collected several times a day (in sacks if possible), and taken well to the lee of the camp and burned; but see below for standing camps. In these a pit 4 feet deep and 4 feet across should be dug and the refuse thrown in it and burnt.

Latrines and Urinals.—These should be marked by flags for Europeans and natives. They should be at least a hundred yards away from the nearest cookhouse or cooking-place, slaughterery, or bakery. They should be of the following size for camps used for one day only: 20 feet long, 2 feet wide at the top and 2 feet deep, makes a trench large enough for 100 men. Three trenches as above, but 50 feet long each, will suffice for a battalion. If the camp is occupied for longer than one day all trenches should be 4 feet deep. This applies to cookhouse pits and pits for refuse (which should then be dug). A pit 2 feet broad and 2 feet deep, with the soil loosened for six inches more, should be dug at the end of each latrine for use as a urinal. Dry earth should be thrown into the latrine pits several times a day. In standing camps a layer of rubbish 4 inches deep should be burnt in each latrine and urinal once a day. This should also be always done by the party left to close the latrines, even if the camp has only been occupied for one day; this to prevent flies being bred. In standing camps all latrines must be filled in when the excreta reaches to 2 feet from the top. In camps only used for one day earth must be piled up for a foot over them when closed. Men should be prevented from urinating in and near the camp except in the urinals.

Stable Litter.—This should be partly used for burning in the filth pits, the remainder being collected and burnt outside the camp.

Slaughterery.—The slaughterery should be at least 100 yards away from the camp and latrines. All offal should be burnt or buried in pits 2 feet deep (4 feet in standing camp). The same precautions should be taken as for latrine pits.

Dead Animals.—Carcases of dead animals should be buried if possible after the entrails have been taken out. Failing this the entrails should be taken out and a grass fire lighted inside the bodies. The entrails should be buried.

Food.—Men should have tea or coffee and bread or biscuit before marching. Milk must be boiled for half an hour, and then protected from flies and dust.

General Recommendations.—All villages should be placed “out of bounds,” and no unauthorised natives allowed to enter camp.

APPENDIX B.

SECOND LINE OF DEFENCE—SANITARY RECOMMENDATIONS.

(1) *Water.*—It must be recognised that our present supply is liable to contamination at the intake, and therefore must be looked on with suspicion. Cantonment well-water is almost certainly badly polluted in every case. To try to make and keep our drinking water pure after being taken from the taps:—

First.—After the Larymore boiler is filled no native should have anything at all to do with the water. All work should be done by soldier.

Second.—The tap water must be boiled in the Larymore boiler, the whistle going for ten minutes.

The boiler should be cleaned inside once a week with a scrubbing brush on a long handle by a European. The brush must be used for no other purpose and kept by the non-commissioned officer in charge of water supply. If further cleaning is required clean ashes should be used. Under no circumstances should sand or earth be used for this purpose. The Larymore boiler should be filled from a tap over it. Until this can be arranged the boiler should be filled by open buckets. Under no circumstances should the same buckets be used for filling the boilers and then distributing the boiled water. This is a very dangerous practice.

Third.—The water should be carried in covered buckets from the boiler to the large zinc receptacles (McNamara). These should be locked. The covered buckets should be rinsed out with boiled water daily before use and scrubbed once a week with clean ashes and a small brush. This brush must, of course, be under charge of the non-commissioned officer in charge. The zinc receptacles should be scrubbed out with the same brush, and clean ashes and boiling water once a fortnight. As these vessels (buckets and receptacles) are for storing boiled water, it is obvious that only boiled or boiling water should be used in cleaning them. Tap water should never be used.

The brush should be put in boiling water before use. The man who cleans the buckets and receptacles should wash his hands and arms with soap and hot water before he commences his work of cleaning. Each large zinc receptacle for storing water should be provided with two white drill covers reaching to four inches below the top. A string should be run round the edge so that the cover can be drawn tight round the receptacle. This is to keep out dirt. One cover for use and one to wash. Water in the receptacles should be pinked with permanganate of potash.¹

Fourth.—The water from the zinc receptacles should be drawn off and stored in "surahis" (scale, one "surahi" for every six men at least) with narrow necks and a tin cover to each. Wide mouthed "chatties" into which a man can get his hand should never be used for storage of water; they are a great source of danger. The date of issue might be painted on each "surahi," and every month all "surahis" should be broken.

These instructions carried out carefully in every detail should ensure that a man can always get a drink of pure water. Those who drink other water run a very good chance of getting enteric fever. Water is dangerous when: (a) It is not boiled; (b) though boiled it is afterwards fouled with dust; (c) though boiled it is afterwards fouled with flies; (d) though boiled it is afterwards fouled with dirty hands; (e) though boiled it is afterwards fouled with dirty vessels.

¹ Mere pinking does not make impure water pure. It only delays bacterial growth.

Beer adulterated with impure water is very dangerous.

Boiled water is pure water, so that any microbe infecting it has a fair field. It finds no enemies, and can grow freely. Therefore we must keep our pure water free from infection. It must be remembered that the ground near barracks, &c., is foul, and probably infected with the enteric microbe, this microbe being passed in the urine as well as by the bowels. The microbe is only waiting an opportunity to poison us, and is probably always with us; we can keep it out easily if we will only take care. The cholera germ only visits us occasionally, but everything in these recommendations applies to it also.

(2) *Milk*.—All milk is open to suspicion, even if the cows are milked in our compounds. It must be boiled before use. For soldiers this should be done in barracks. No native should be allowed to sell milk in the barracks unless it has been boiled under European supervision, and placed by a European in a clean can and locked. This can should be first scalded out with boiling water. After boiling, milk must be kept carefully covered to prevent fly and dust contamination.

(3) *Cookhouses*.—Cookhouse floors should be sprinkled once daily with phenol in boiled water (a tea-cupful to a gallon) and the floor kept clean by brushing. This work should be done by the cooks. The cooks should each have three suits of white clothes and three white caps. They should always change their clothes and wash their hands with soap and water outside the cookhouse before commencing work. Basin, soap and clean towels should be provided for this purpose. Their own clothes should be kept outside the cookhouse. No one should be allowed to sleep in a cookhouse. Flies should be kept out, but if large numbers get in they should be killed by sulphur fumes (sulphur $\frac{1}{2}$ lb. to be burnt in a cookhouse after closing all openings). Cooking pots, &c., should be cleaned when necessary with clean ashes and coir. It is advisable to have special tin boxes for cleaning utensils. Sand or earth should never be used. Clean "jharans" should always be available. No sweeper should be allowed to enter a cookhouse on any pretext. Proper covered receptacles for liquid and solid refuse separately should be kept outside each cookhouse. No water refuse of any kind should be thrown on the ground outside. The soldier in charge should be responsible that these instructions are carried out.

(4) *Barracks, &c.*—Barracks, canteens, coffee shops, R.A.T.A. rooms, &c., should be swept out only by soldiers. No sweeper should be allowed inside them. Dining tables and the floors round them should be washed and kept scrupulously clean. Flies come to dirt, and flies are dangerous. No water should be allowed to accumulate or become stagnant. If mosquitoes abound, a report should be made. Mosquitoes (*Anopheles*) cause malarial fevers, and they can be easily got rid of. They and other mosquitoes breed in undisturbed water. Let in all the air and light possible.

(5) *Soda Water Machines: First.*—Ensure pure water by boiling and then passing through a Pasteur or Berkefeld filter. The fittings of the various parts of the filter must be most carefully attended to. The candles should be boiled in water for half an hour every week.

Second.—Wash the bottles in boiled and pinked water which must be changed every day. Pinking alone does not mean safety.

Third.—Syrups must be carefully guarded from contamination by flies.

If flies swarm burn sulphur with closed doors, &c. (of course, no one remains in a room when sulphur is being burnt).

(6) *Bazaar.*—Soldiers are most earnestly recommended neither to eat nor drink in the bazaar.

(7) *Sanitary Supervision.*—Apart from the ordinary sanitary supervision by company officers, I advise that one man per company and one for officers' compounds should be told off under the sergeant in charge of sanitation to see the foregoing instructions carried out. This sanitary corps might also act as a "mosquito brigade," being instructed in the work by a medical officer.¹

APPENDIX C.

SECOND LINE OF DEFENCE—ADVICE TO YOUNG SOLDIERS IN INDIA.

With Care You can keep your Health in India in Spite of the Unhealthy Season.

The chief diseases you must avoid if you would keep healthy are enteric fever, heatstroke, diarrhœa, dysentery, and abscess of the liver, ague and other malarial fevers, cholera, venereal diseases, and alcoholism.

November, December, January, February, and March are nearly always cool and very healthy months, in which you can go out freely all day long, and do hard work. April, May, and June are very hot. During these months you must be careful not to get heatstroke. July, August, and September are rainy months, and in October the rain puddles, &c., are drying up. During these four months you must guard against ague, and other malarial fevers, diarrhœa, dysentery, and liver diseases.

Enteric fever is always lurking about waiting to attack us if we are careless, and its favourite haunt is the native bazaar. Cholera only visits us sometimes. Fight it as you would enteric fever. Venereal diseases and drink are unfortunately always with us, and ruin the health of more men than all the rest of the diseases put together. Numbers of our old soldiers are in lunatic asylums at home from the effects of syphilis and drink.

(1) *Enteric Fever.*—Never drink bazaar-made drinks. Never eat bazaar-made sweetmeats. Never drink milk unless you know it has been

¹ This detailing of a sufficient number of men for sanitary work only, I look upon as a matter of urgency, and I recommend it most strongly.

boiled. Be careful that the water you drink is pure. Look upon flies as carriers of the disease.

(2) *Heatstroke*.—You may get “knocked over” by the sun by day or by the heat at night. Always wear your helmet during the day. Sleep outside at night away from buildings. Never drink beer before going to bed, and never drink too much beer in the hot weather. A quart of beer in the day is enough for anyone during the hot season. More at this time of year is poison. A man who gets drunk in the hot weather plays with his life.

(3) *Diarrhœa, Dysentery, and Liver Disease*.—The first two are chiefly caused by drinking foul water or other liquid, by eating unripe or bad fruit, and especially “bulged” tinned food, and by chill during the rains. Therefore, only eat and drink what you are sure is safe and good, and avoid chill. Do not sit or loaf about in wet or damp clothes. Change at once when you come in wet with rain, or sweat, and do not get cool in your wet things, or lie down half naked. Under all circumstances keep your stomach covered, and take care your covering does not come off during the night. Abscess of the liver usually is a result of dysentery, and is provoked by chill, or drink, or both. Wear flannel next your skin. Cotton shirts when damp are dangerous; they cause chills.

(4) *Ague and other Malarial Fevers*.—Prevalent during and immediately after the rains, and caused by mosquito bites. Help the “mosquito brigade” all you can, by bringing stagnant water in or near barracks to notice, and specially if you find any mosquito larvæ in the water, or what you think may be larvæ (*i.e.*, young mosquitoes in the fish stage). Avoid chills. Sleep under properly-constructed mosquito-curtains if you can. If you get fever come to hospital at once and get quinine. It will not always be necessary to admit you to hospital. Quinine will stop your fever.

(5) *Cholera*.—When this disease is about only drink boiled water or tea. Boiling kills the germs of cholera and of enteric fever. Do not eat fruit. Do not eat or drink anything in the bazaar. Do not take to drink. Anything which upsets your inside makes you liable to get cholera, and a drunken man’s stomach is a splendid breeding-ground for the germs. Do not be afraid to report sick for the slightest diarrhœa. A dose of medicine in time may save you from an attack of cholera. Live carefully, and work and play as usual.

(6) *Venereal*.—Do not get it. Is the game worth the candle? How would you like to face your people at home covered with a syphilitic rash, and perhaps your nose sunken in? Or, if you marry later on, think, you may have a wife or child reproaching you for the foul disease you have passed on to them. Remember no one who risks contagion is safe, no matter how much he may think he has made himself so. There is no necessity to give way. You can be continent and a far finer soldier than the strongest man who cannot control his passions.

(7) *Drink.*—This and venereal go hand in hand. Alcohol is not a necessity, and too much beer is rank poison. You cannot use more than 2 ounces of alcohol in your body. Each pint of beer contains 1 ounce of alcohol. Therefore a man who drinks more than a quart of beer in the day drinks to excess. He drinks a slow poison. This poison may cause delirium tremens, or abscess of the liver, or kidney disease, or, later on in life, general paralysis and insanity.

Hints to Those Who want to go out "Jungling."

(1) Always sleep off the ground if possible. (2) During and immediately after the rainy months take 3 grains of quinine first thing every morning, also sleep under properly-made mosquito-curtains if you can. (3) Avoid chills; keep your coat on when heated, and standing or sitting about; wear a flannel shirt. (4) Boil your drinking water or drink weak tea. (5) Wear a good sun-hat, and in the hot weather a spine-pad outside your coat. (6) Teetotal when shooting; anyhow, never drink alcohol before the sun goes down.