The herding together of vast multitudes of indigent and filthy people, the awful effluvium arising from the decomposition of millions of oysters, and the eating of these when decomposing, would certainly predispose to cholera, but would not cause it. Nevertheless, it would seem to be at least as probable that true Asiatic cholera was generated on the sea coast about the Madura country, as that it sprung up spontaneously in the delta of the Ganges, under far less favourable circumstances for its origination than those described above by Father Martin in 1700. It would appear to me that in searching for the earliest seats of cholera, the sea coasts of India ought not to be entirely disregarded. It is by no means improbable that cholera has been for centuries, at least, both endemic and epidemic in more parts of India than Lower Bengal.

ARROWS AND ARROW-WOUNDS IN MANBHUM.

By S. ANDERSON, M.B., D.T.M. & H. (Camb.)
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THE bow and arrow have been in use from the earliest times. Among the ancients specially eminent in the use of the bow and arrow one may particularise the Thracians, Parthians and Numidians; among the moderns, the Arabians, Germans and Saracens.

In later ages the bow came to be employed in England, where the archers wore light armour, a short sword, and a quiver with 20 or more arrows. The archers universally belonged to the elite of the troops and received higher pay than the rest.

Archers are still included among the fighting-men of barbarous and semi-barbarous tribes and amongst these the natives of this district and indeed of Chota Nagpur generally are trained from their youth upwards to be expert shots. The Sonthals, Kols, Mundas, Uraons and Bhumijs are specially expert.

Archery is the art of shooting with the bow and arrow: this art either as a means of offence in war or of subsistence and amusement in time of peace may be traced in the history of every nation.

Amongst the natives the arrow is now chiefly used to go after big game, and is then, so far as one can learn, anointed with the same poisonous substances that are prepared for human quarry.

The bow used in this district is about four feet long and is made from a flat piece of a special kind of bamboo, whilst the string consists of a thin slice of bamboo requiring special care in its preparation and is adjusted to the bow by means of cording at both ends.

The arrow is made from a kind of grass, locally known as *Sar* (Saccharum Arundinaceum); it varies in length, the usual length used is 28 to 30 inches long, but sometimes shorter ones 26 to 28 inches long are employed: if the bow is tight, then a short arrow is put in, but if loose, a long one is used. The various types of head employed are shown in the accompanying diagram; these are usually about 3 inches long and are made from iron procured locally. A few have two feathers tied towards the end of the shaft in order to give the arrow a flatter trajectory. The direction and intensity of the wind seriously affects the aim of the archer. Except in a calm or in a very moderate wind the best marksman cannot shoot straight and when the wind is very boisterous, especially if it either be opposite or a side wind, it is impracticable to shoot far. The arrows are usually very neatly made and much care is taken in their manufacture; the majority of those employed in the chase and for the purpose of killing human being are not winged and this is explained by the fact that the arrow is not meant to kill but is simply a poison carrier; consequently they are generally fired at close range, though there are instances of people being hit at ranges varying from 150 to 250 yards.

The diagram depicts the various types of head in use in the district and the chief purpose for which each is employed will be indicated :—

(1) This head is used for killing birds and small game.

(2) This variety goes the straightest and furthest and is therefore used to shikar big game warfare.

(3) This variety is used for war; the object of the projection is that after entrance into the body the arrow cannot easily be pulled out.

(4) Is used as (2), but at closer range and flies very straight.

(5) This is a war head and is commonly used in the district for the purpose of murder; it does not produce a large wound.

(6) and (7) These heads are by far the ones in most common use in the district and vary in length and shape; they are used for killing tiger, panther, deer, &c., and are the chief variety used for the purpose of murder. They are mostly used at short range and produce a good sized wound.

The following are the chief methods of poisoning the arrow head :—

(1) By placing the tip of the head into rotten fish or meat or into the flesh of a much decomposed human body.

(2) By smearing the head with a mixture of nux vomica (Beng.—kechela) and Sulphide of arsenic (Beng.—harital).

(3) By smearing the tip and edges with snake venom or painting the whole head with the venom.

Actual size.

ARROWS AND ARROW WOUNDS IN MANBHUM.

By Major S. Anderson, M.B., I.M.S., D.T.M. & H. (Camb.),

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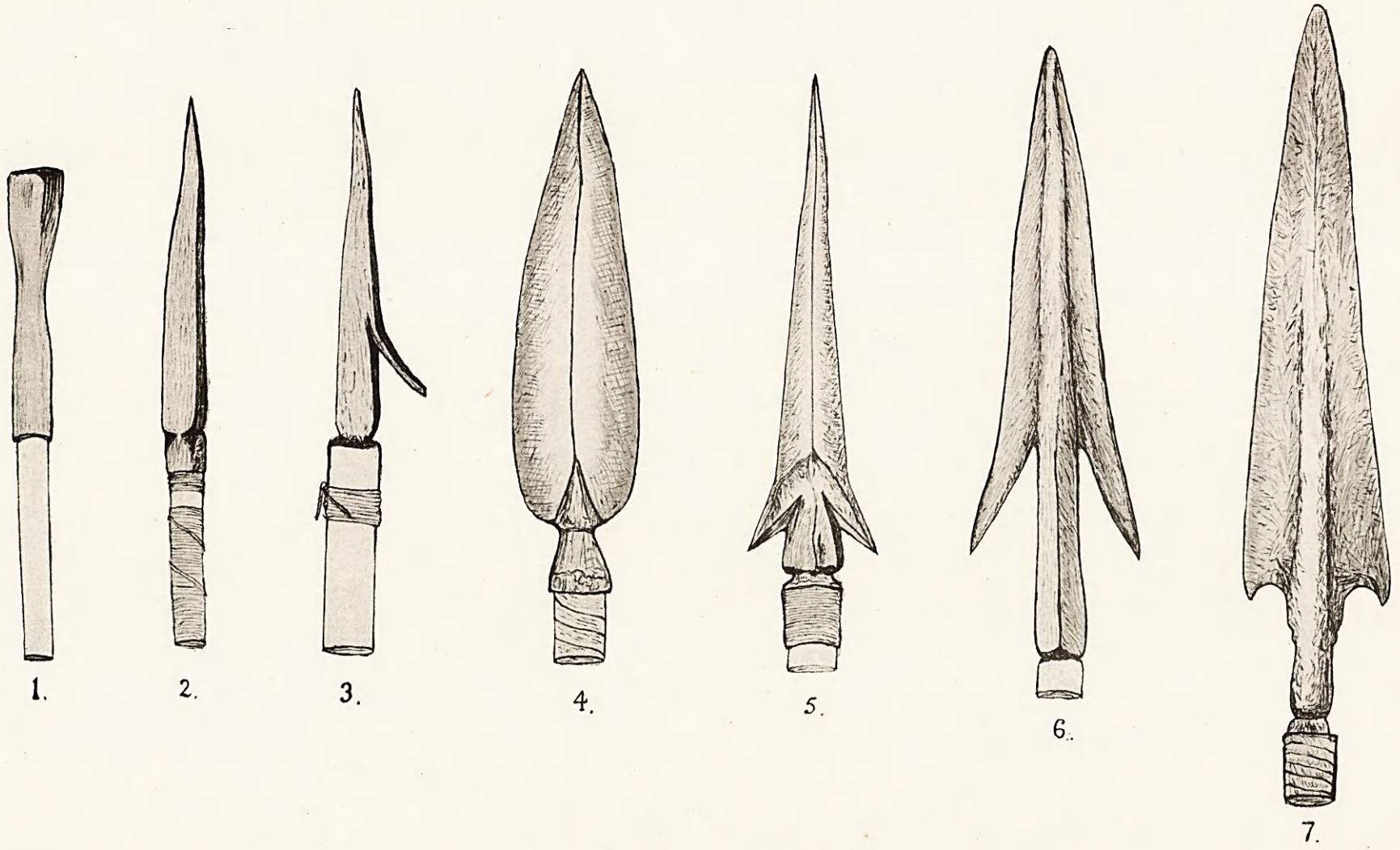

Types of arrow heads used in Manbhum.

(4) By placing the head into animal secretions in a state of decomposition or smearing the tip with tiger's blood, if obtainable.

(5) Certain tribes simply did the head into mud, whilst the arrows themselves are frequently laid on the ground and are almost certain to infect a wound produced by them with tetanus, a disease which is exceedingly common in tropical countries.

The following are notes of cases admitted to the Charitable Dispensary at Purulia :—

Case 1.—Dinoo Ghosh, Hindu, male, aged 58, of village Tintori, Bagmundi, cultivator, was admitted to hospital on the 27th August 1908, 36 hours after receiving an arrow wound. The arrow penetrated completely through the left thigh passing through all the soft structures behind the bone in a slanting direction, some 6¼ inches above the knee joint on its outer aspect. The arrow was immediately removed and was probably a poisoned one. The wound was swabbed freely with mercuric iodide in spirit lotion and afterwards with pure carbolic acid. His general health was bad, and he developed on the leg below the site of injury several small blebs, bullæ-like containing serous fluid, from which the micrococcus tetragenus was obtained. On the 5th October the foot and lower leg became gangrenous necessitating amputation through the upper third of the thigh, from which he rallied well. There was almost no rise of temperature after operation, but he resolutely refused to take food and died of voluntary starvation on the 29th November. It would appear that he became very discouraged as his enemy had not been punished by hanging as he had expected.

Case 2.—Govinda, Hindu, male, aged 35, was admitted to hospital on the morning of the 13th August 1909, some 14 hours after the injury.

On examination, an arrow was seen to be protruding from the abdomen in the right hypochondriac region; there was some discharge at the point of entrance, which had a distinctly fæcel odour, probably due to the presence of the bacillus coli communis.

After the usual surgical preparation the abdomen was opened by extending the wound upwards and downwards. All bleeding points having been secured and the edges of the wound retracted, the arrow head was felt in the hollow viscus of the stomach, entering it about 1½ inches above the pylorus and nearer to the great curvature. The stomach was brought out into the external wound and completely separated off from the surrounding viscera with gauze. The wound in the stomach wall was enlarged sufficiently to remove the arrow head and a careful search of the stomach was made for further injury. No other damage was ascertained, and so the wound in the stomach wall was freshened and sutured with fine silk and with a second row of Czerny-Lambert sutures and a purse string at either end. All the exposed viscera were lightly cleaned with sterile gauze and the stomach returned. The abdominal wall was closed in layers whilst the skin and subcutaneous tissue were left open and the wound healed well, only a small pocket abscess persisting, which ultimately healed, and he left hospital on the 12th September.

Case 3.—Bhupati Bhusan Mukerjee, Hindu, male, aged 25 years, was admitted to hospital on the 10th August 1909, 15 hours after the receipt of a wound produced by an arrow.

The arrow entered the skin 1½ inches above and to the left of the left nipple passing upwards inwards and a little backwards beneath the pectoral muscles, and passing beneath the clavicle pierced that bone about 1½ inches outside the left sternoclavicular joint. The whole of the metallic portion of the arrow was embedded in the muscles and subcutaneous tissue.

The arrow was removed without incising the skin, but with the assistance of two directors the groove of the directors being placed on either side over the tips of the barbs, the whole were removed together The wound was swabbed with mercuric iodide in spirit lotion, then carbolic acid was applied along its length and after washing with boric lotion, the wound was dried and a piece of gauze introduced

The patient was discharged well on the 18th September.

Case 4.—Hari Singh, Hindu male, aged 28 years, of village Nandia, was admitted to hospital on the 8th October 1909, with an arrow, protruding from the inner aspect of the left thigh above the knee joint.

The arrow entered the limb about an inch above the knee joint and passing upwards backwards end outwards, almost the whole of the metallic portion of the arrow was embedded in the soft structures, only about half an inch being seen outside. The arrow was removed and proved to be a barbed one, similar to No. 7 in the diagram. The wound was dressed as in Case 3 and healed well.

Case 5.—Debi Singh, Hindu, male, aged 55 years, was admitted also on the 8th October 1909.

There was a wound 1 inch long, about ¼ of an inch wide, and ⅜ of an inch deep situated 2 inches above the lower angle of the left scapula and directed upwards and inwards. This was said to have been produced by an arrow the head ef which was barbed.

The wound which was superficial was dressed as case 3, and healed easily.

Case 6.—Gooloo Mohata, Hindu male, aged 55 years, of village Mobonee, was admitted on the 9th October 1909, for an arrow wound of the right upper arm.

The head pierced the skin and deltoid muscle and being of the shape No. 4 in the diagram, it was easily removed by the patient himself. The wound was situated about 5 inches below the claviculo-acromial articulation and was directed from before backwards and upwards to a depth of 1½ inches; it was dressed similarly to that of case 3 and the wound healed in 4 days time.

Case 7.—Thakur Das Baistab, Hindu, male, aged 28 years, of village Babua, was admitted on 14th October 1909.

There was an incised wound about 1¼ inches long and about 1½ an inch wide and skin deep over the middle of the front and inner aspect of the right thigh; the wound was said to have been caused by an arrow. He was discharged cured on the 21st October.

Case 8.—Kanka Teli, Hindu male, aged 31 years, of village Choroida, was admitted on the 12th May 1910, with a penetrating wound of the abdomen. The wound was situated in the left hypochondriac region just below the costal margin; it was 1 inch long and ¾ of an inch wide and penetrated directly into the abdominal cavity.

The abdomen was opened and it was found that an arrow head similar to No. 6 in the diagram, had perforated the stomach walls and right through the splenic flexure of the colon; the case was a hopeless one and the man died of septic peritonitis the following day.

Case 9.—Sikhar Bhumij, Hindu male, aged 60, was admitted on the 22nd July 1910 for arrow wound.

The wound of entrance was situated on the outer aspect of the upper third of the right thigh and was ¾ of an inch long and ¼ of an inch wide; its direction was from without inwards beneath the muscles in front on the femur, the exit wound ½ an inch long and ¼ of an inch wide was situated on the upper and inner aspect of the leg. An abscess developed in the track, which was washed free of pus and the man was discharged well on the 1st October.

Case 10.—Dukhu Bhumij, Hindu male, aged 30, was also admitted on the 22nd July 1910 for an arrow wound. The wound of entrance, ¾ of an inch long and ¼ of an inch wide was situated on the upper and back part of the left leg and passing outwards and forwards through the muscles produced a wound ½ an inch long ¼ of an inch wide on the upper and outer aspect of the leg. The wound healed well after the usual treatment and he went out of hospital on the 31st August.

Post-mortem after arrow wounds, dated 17th March 1909.

(1) Gauhari Saudagur, aged 35 years, caste, Mahomedan.

The body was that of an adult male and was fairly well nourished and well developed. There is a scar about one inch long ¼ inch broad on the left side of the back 6 inches below the angle of the left scapula. Another scar about the size of a two-anna piece over the costal cartilage of the 7th rib at its junction with the costal arch.

On opening the abdomen an arrow head of shape No. 6, was found lying between the spleen and the fundus of the stomach directed almost horizontally, the point of the head pointing inwards and a little upwards. The arrow had penetrated the diaphragm and passed into the space between the fundus of the stomach and the spleen thus resting on the fundus close to the superior border and behind the transverse and splenic flexure of the colon. The portion of stomach on which the arrow head lay was gangrenous and perforated.

The peritoneal cavity contained about 4 pints of pus, altered blood clot and coagulated lymph. All the intestines were adherent and matted together, and the abdominal organs were covered with a fibrinous exudation and bands of adhesive lymph. The intestines were gangrenous in many places, more especially at the lower end of the ileum for a distance of 4½ feet. The spleen on section shewed two abscesses.

Opinion.—The deceased died from perforation of the stomach and septic peritonitis, the effect of the introduction of the arrow into the abdomen.

(2) Mangal Manjhi, aged 22 years, caste, Sonthal.

Date of examination—18th May 1909.

The boy was that of a well-developed and well-nourished man and arrived in an advanced stage of decomposition.

Amongst other injuries the chief one was a punctured wound 1 inch long and ¼ inch wide over the front and lower part of the neck, one inch from the median line and passing obliquely downwards and outwards behind the clavicle into the left pleural cavity. The left pleural cavity contained about 8 ozs. of blood and small clots.

The deceased died from shock and hæmorrhage, the result of the above and other injuries.

(3) Jabin Sinch, aged 28 years, caste, Bhumij.

Date of examination—8th August 1909.

The body was that of a well-developed and well-nourished man.

The following injuries were found:—

(1) A punctured wound about ½ an inch long and a ¼ of an inch wide, 2 inches below the left nipple in the 6th intercostal space directed inwards and backwards towards the right side, penetrating the back of the fundus of the stomach, diaphragm, lower and posterior surface of the pericardium, injuring also the lower and anterior surface of the left lung and the lower lobe of the right lung.

(2) Each of the pleural cavities contained about 1lb. of blood and clot.

(3) The peritoneal cavity contained about 6 ozs. of blood.

(4) The stomach contained about 1½lbs. of partly digested rice and blood.

All the organs were healthy.

The deceased died from shock and hæmorrhage supervening on the injuries above described, and were probably caused by the introduction of an arrow into the body.

(4) Mangal Sing, aged 40 years, caste, Bhumij.

Date of examination—17th November 1909.

The body was that of a stout healthy man; blood was issuing from the nostrils and there were blood stains over the face.

The following injuries were found:—

(1) A punctured wound on the left side of the chest 1 inch long, ⅛ broad in the 4th intercostal space, 2 inches from and internal to the left nipple.

(2) There is an opening in the chest wall ¾ of an inch long, ⅛ of an inch broad in the 4th intercostal space, corresponding to the site of the wound outside.

(3) The pericardium is torn at its anterior aspect for a distance of 1 inch.

(4) An arrow head was seen which penetrated the heart, almost 1 inch of the head projecting. On removal it was seen to have passed through the right ventricle, then through the left auricle the tip resting below and in front of the root of the left lung.

Death was due to shock and hæmorrage due to perforation of the heart.

(5) Kanka Teli, aged 31 years, who died in the Purulia Hospital (*vide* Case 8) on the 13th May 1910.

The body is that of a well-nourished and well-developed man.

There is a linear incision 5 inches long, the lower ⅔ of which is closed by four sutures, the upper ⅓ is open. An opening in the stomach and another in the upper end of the descending colon are sutured round the margin of the upper ⅓ of the linear incision.

There is a punctured wound about ¾ of an inch long and about ¼ of an inch wide on the posterior wall of the stomach opposite the anterior wound. The stomach mucous membrane is congested and inflamed and extravasation of blood is present around the wound.

There is another punctured wound about 1 inch long and about ¼ of an inch wide on the upper part of the descending colon of the large intestine near the gastric surface; extravasation of blood is present into the tissues around the wound.

The large intestine is congested and inflamed and contains blood stained mucus and fæces. The portions of stomach, intestines and omentum around the original wound are covered with a fibrinous exudation. The peritoneum around is inflamed. Deceased died of peritonitis and septicæmia caused by the above noted injuries.

(6) Budhu Bhumij, Hindu male, aged 35 years, was reported on the 11th July 1910.

The body was that of a well-developed and well-nourished man; R. M. absent; some yellowish fluid was issuing from the nostrils.

There was a penetrating wound about 1 inch long and about a ¼ of an inch wide between the 8th and 9th ribs on the left side at the anterior axillary border and penetrating into the abdominal cavity. The arrow in its passage into the body passed through the skin and superficial muscles, through the pleura, the diaphragm, the outer coats of the stomach, the omentum, and backwards and downwards through the transverse colon and into the pancreas.

Extravasation of blood was present into all the tissues around and through which the arrow passed. The peritoneal cavity contained about six pints of blood and small clots.

The lungs, liver, spleen and kidneys were all congested. The peritoneum around was inflamed and also the stomach mucous membrane around the injury; the stomach contained about 2 ozs. of curdled milk mixed with bile. The small and large intestines were somewhat congested.

Death was due to syncope from shock and hæmorrhage.

The injuries from arrow wounds, it will be noted, vary in severity from a mere skin scratch to the penetration and laceration of the various vital organs; it will also be noted that the prognosis in any particular case depends to a great extent on the part of the body struck, whilst the question of poison or organisms especially tetanus being introduced is a serious

factor in the case. The proverbial fatalism of the native as regards wounds should also be taken into account in the prognosis.

Where a wound is produced by a poisoned arrow, such wounds should always be pronounced as "dangerous," no matter how slight the injury may appear or the part of the body struck. It is also evident from the above cases that injuries severing the larger vessels, or passing through serous membranes, or penetrating a vital organ are of more serious import than those passing through the muscles of the limbs on account of their attendant complications.

It will be easily understood also that the closer an arrow is fired, the greater will be the degree of penetration and the resulting wounds will be proportionately serious. Fatal hæmorrhage may occur from the wounding of a deep artery or the viscera or internal organs may be so lacerated, that death is only a matter of time.

It is remarkable the tolerance which the body discloses to the entrance of a foreign body, such as an arrow head; I removed an arrow head from the body of Gauhari Saudagar, which to my knowledge was over a month in the peritoneal cavity.

The factor of the time at which a person comes under treatment after the receipt of the injury is also very important; the treament of a wound which has been caused by a poisonous arrow must be prompt, if the patient is to have any chance of recovery. In any case it may be taken as an axiom, that no surgically clean arrow ever leaves the bowstring and considering the number of poisoned arrows employed, the sooner the arrow is removed, the better. Delay is dangerous where arrow wounds are concerned, and it has been observed that the deeper an arrow wound is, the greater are the toxic effects. It can be readily understood that the deeper the head is, the greater the absorption and the longer it is likely to remain since remedial measures are more difficult to adopt where the wound is deep.

As might be expected, the symptoms accompanying an arrow wound vary, depending on whether the arrow is poisoned or not, and the nature of the poison. From the cases described it will be noted that simple wounds of the skin and subcutaneous tissue heal well when treated in a proper surgical manner.

From a description of the cases and the *post-mortem* reports, it may be concluded that the serious cases show a varying degree of severity and varying symptoms.

The first type of case is that in which death quickly overtakes the person struck, either from heart failure or internal hæmorrhage; the symptoms are those of collapse, with a slow and thready pulse, and dilated pupils showing no reaction and are thus easily recognised.

The second type of case is that in which some complication sets in some hours or days afterwards, many of the cases become septic and some become attacked with erysipelas or a true cellulitis. Œdema or in old people gangrene, speedily brings a fatal termination.

The third type of case is that in which spasms occur either due to tetanus or strychnine poisoning; the trismus, the tonic spasms, and late appearance of the symptoms point to tetanus.

The after-treatment of slight cases resolves itself into a general tonic line, with careful cleansing and dressing of the wound. If the case has come in with the arrow still *in situ*, it is necessary in all cases to remove it, even where the case is hopeless. Where the arrow has become transfixed in a limb or in the body, it should have the shaft cut off about 6 inches from the body surface. In a limb, it is often better to push the barb through to the other side and then cut off the head when the shaft will be easily removed.

Where the arrow head is a barbed one, and is just beneath the skin and surface muscles, the method adopted in case 3 may be employed. This consists in placing a director with a fairly large groove over each of the barbs, through the incision already present, when after a little manipulation, the whole may be removed together, or the arrow head may be slid along the grooves of the directors and gently pulled out.

Where there is obvious puncture of a large artery or its branches, it should be ligatured high up so as to prevent secondary hæmorrhage.

Where there are signs of erysipelas or cellulitis, the limb should be placed in a warm cyllin bath or be washed continuously from an irrigation apparatus with the solution. Where the cellulitis is pronounced, free and early incisions are necessary. In all such cases a free purge of grs. 5 of calomel combined with grs. 10 of sodæ bicarb should be administered followed by a saline. Quinine grs. 10 along with tinct. ferri perchlor. ms. 20 should be given three times a day. The patient's strength should also be conserved by giving a light nourishing diet, such as milk, soup, essence of chicken, etc. A stimulant also is necessary, and therefore 2 to 4 ozs. of brandy may be given daily. Anti-streptococcus serum should be injected early in these cases, two injections of 10 c.c.'s each on the first day or two, followed by an injection of 10 c.c.'s daily until improvement sets in.

In cases of hæmorrhage transfusion may be necessary, whilst in cases of heart poisoning, a hypodermic injection of a thirtieth of a grain of strychnine combined with a hundredth of a grain of digitaline, may be repeated every hour for three or four doses.

Cases of strychnine poisoning should be treated with the ordinary antidotes, and in cases where

tetanus is likely to set in early injections of anti-tetanic serum should be administered.

In the French Colonies the surgeons employ tannic acid in the treatment of arrow wounds where possible, a ligature is placed above the wound, which is then cleansed and brushed with pure carbolic. The ligature is then removed and bleeding encouraged; tannic acid is then packed into the wound and a dressing employed. I have had no experience of its use but mean to employ it in future, as it possibly acts by producing an inert compound and condenses or "tans" the albuminous and connective tissues constringing the local blood vessels and is therefore a powerful indirect styptic and constringent.

THE HEALTH OF A BENGAL DISTRICT.

BY H. SEN, M.B.

THE health of a district in a province may be taken to be an index of the health of the whole province. Lately, I got an opportunity of visiting Purnea. Short as my stay was, I made the best use, I possibly could, of my opportunities in studying the topographical and sanitary aspects of the district, the habits and manners of the people, their life and health, and the medical works so far instituted, therein. The district is situated in the sub-tropical region, occupying a portion of the Eastern Gangetic plain and bordering on the sub montane tract of the Himalayas. It is an uniform plain, very gently sloping from the north towards the south and partially from the north-east to the south-west. It is bounded on the north by the densely wooded Nepal Terai; on the south, by the Ganges and on the east and west by two of its tributaries. The soil is sandy with layers of clay deep down. It is watered by innumerable streams which bring down the washings of the southern slopes of the Himalayas, which are extremely fitful in their course, ever-changing their sallow beds, leaving enormous tracts of sand and extensive swamps especially towards the eastern half of the district. On both sides of the Mahananda which forms its eastern boundary, there are innumerable deep swamps some of which never dry up even in the summer; the sub-soil water here is always high, it easily gets water-logged during the rains when it looks like one sheet of water with the villages half submerged. Only wet crops are grows here, namely, jute and paddy. Towards the west and the south, the tracts, bordering on the Ganges and the Kusi, rise to a higher level than the low-line tracts towards the east; they are more sandy and dry, and the sub-soil water is lower in level. There are no particular swamps except where a dying river is seen coursing about. The soil is not fertile and water-logged enough to grow such wet crops as paddy and jute. It forms, however, a fine pasture land, where cattle from the neighbouring districts are led to graze. The extensive plains are dotted over here and there especially, where the villages stand with topes of mango, jack and other fruit-trees and thickets of fine feathery bamboos. There are no big forest trees but there are bushes and undergrowths at different places. The eastern part of the district looks extremely pretty with its waving fields of rice and jute, its mango topes and bamboo thickets, from among which peep out neatly but lowly built thatched huts. The pasture lands towards the west have a beauty of their own, wide, open and cheerful, with but few big trees here and there. From the north, the view of the dense forests along the Terai, so leafy, so green and the misty mountains further-away is extremely charming; but behind the charm lies hidden a deadly poison. At the extreme south the country looks like a piece of desert, very dry and very hot. The climate of the district is comparatively mild, the mean temperature is 62°F, in March 75° and in May 85°. The lowest mean minimum is 48° in January; the highest mean maximum is 95° in April. It has its extremes too. In 1909 it was 38° in winter, and 116° in summer. The winter is usually cold, the summer is seldom so hot. Its average rainfall is 71 inches; in January 13″, July 17″, the wettest month, August 15″ and September 13″, the two rainy months. Through the greater part of the year, the wind blows from the East. It makes the atmosphere damp but makes it pretty cool and comfortable. When it stops, however, and at the least exertion one breaks out into profuse perspiration. The air is humid. It never blows hot and dry. The population, in round number, is 18 lakhs of which ten lakhs are Hindus, and eight lakhs are Mahomedans. The majority of the people belong to the cultivating class. There are a few traders and merchants who do business in jute and rice chiefly. The district possesses an area of five thousand square miles, the population per square mile being below 400, comparatively a very thin population. The total revenue of the districts is twenty-two lakhs, eleven lakhs being realised from the land. There are three Sub-Divisions of which the one occupying the North and Eastern part—the Kishengunge is the most swampy, most wet, and water-logged and the best productive part of the district. It is densely populated and most unhealthy.

The district has a beauty and charm of its own but it is the deadliest district in Bengal and for the matter of that perhaps in India. I have known Jessore; it is the valley of death. There is no name by which to call Purnea; perhaps one may call it the very bottom of the valley of death.

I visited the Thakurgunge Hât on the 6th and examined 318 persons—men, women and children—Hindus, Mohamedans and Rajbansis, indiscriminately and I found that 311 of them were deeply affected with malaria—one had simple anæmia, 54 were pigmented, 133 had the spleen and 123 had both the spleen and pigmentation. Only 7 possessed what may be called health and close to cent. per cent. of the people were diseased. In the Panjpara Hât, I examined 169; except 3 all were saturated with malaria—104 had the spleen, 34 were pigmented, 26 were bloodless only—2 had the fever on them at the time. Here too cent. per cent was in the grip of the disease. In Poschim Dhantola—a village I found 27 out of 31 children examined had the spleen—or a percentage of about 90. In the same village out of 27 adult male 21 had the spleen—4 were pigmented, 1 had kidney affection and 1 cholera. Here the rate was 93%. At Bahadurgunge out of 142 examined in the Hât 124 were affected—a percentage of 90 nearly. At Kissengunge, 80% were affected. Out of 635, 215 had the spleen—263 had the spleen and bore also marks of pigmentation—27 were anæmic and 130 were unaffected. Compared with the others Kissengunge had better health. I visited other villages and everywhere I met with the same thing. As to the sanitary features of this part of the District—it may be said that the whole northern tract is one limitless swamp—the work of an ever-shifting river—giving only wet crops as rice and jute and where levelling the surface and draining the same can only mean destruction of the crops. The people live in lowly built huts surrounded by rice and paddy-fields. They are ill-clad and ill-protected.

I examined the children of the Islampore Upper Primary School and I found out of 39 boys and girls present 18 had the spleen and the rest were pale and anæmic showing that they too had imbibed the poison.

I found, however, a different state of things in the Sub-Jail at Kissengunge—a state of things akin to what I had noticed in the *Sadar* Jail. Here the health of the prisoners looked comparatively better than that of the free people. Out of 42 prisoners