

side air; the avoidance of chill in the morning before the sun is well up, and in the afternoon as he goes down; extreme moderation in diet particularly as regards meat; and the conscientious taking of moderate exercise.

What applies, in these remarks, to adults, applies doubly to children. Experience seems to show that it takes two or three months for the resident of the plains to become acclimatized to the Hills; and it is by no means improbable that the tropical skin takes some time to adapt itself to its altered surroundings, whether in the climate of the hills or of the temperate zone.

HILL-DIARRHŒA.

BY SURGEON-MAJOR J. BARRY, M. S.,

Chaubuttia.

AN epidemic of diarrhœa occurred in 1887 among the troops stationed at Chaubuttia. The latter is situated on the Kumaon hills at a mean elevation of 6,870 feet above the level of the sea.

The disease appeared towards the end of July, the weather at the time being what is usually known as "muggy," "oppressive," "depressing," and the atmosphere was loaded

with moisture. I regret to say that there were no meteorological instruments at the station.

The drinking water was turbid from surface impurities washed into it by the rains. In other respects there was nothing insanitary in the station; the soil was, I considered, exceptionally free from organic impurities other than decayed vegetable matter from the dense jungle.

The strength of the troops was 16 officers, 550 men, 17 women, and 40 children.

Between the 20th July and 10th August, 31 cases were treated for diarrhœa, and of these 15 were admitted into Hospital. The remainder, including 7 officers, received treatment outside. No women or children applied for medicine during the period, and the disease did not seem to prevail to any extent among the natives.

A case of cholera occurred on the 2nd August, and medicines were distributed among the barracks, and in this way numbers of men received treatment for diarrhœa whose cases were not recorded.

The following is a brief abstract of the cases that were admitted into Hospital at Chaubuttia. Of these 13 were returned under the heading epidemic diarrhœa:—

No. of Case.	Symptoms.	No. of days in Hospital.	Treatment.	REMARKS.
1	Malaise, flatulence hepatic fulness. Copious liquid, offensive, white frothy stools.	4 days.	Rest in bed; farinaceous diet; fomentations; Liq. Hydr. Perchlor. oz. $\frac{1}{2}$ ter in die.	On second evening, stools were formed and colour had returned.
2	Symptoms more severe. Slight fever also for 12 days. Suffered from diarrhœa 10 days before admission.	40 days.	Rest, diet, and fomentations as above. Quinine gr. v. in morning; Pil Plumbi c. opio gr. v. occasionally at night; Liq. Hyd. Perchlor. oz. $\frac{1}{2}$ ter in die.	Diarrhœa ceased in 11 days, but was kept in hospital and got a relapse on the 25th day. Disease again yielded to same treatment.
3	Similar to No. 1.	6 days.	Same as No. 1.	Stools natural in three days.
4	Same as No. 1.	6 days.	Chlorodyne first administered without effect—then Liq. Hyd. Perchlor. oz. $\frac{1}{2}$ ter in die.	Liq. Hyd. Perchlor. changed character of motion in two days.
5	Same as No. 1 with rheumatic pains superadded.	14 days.	Pil Plumbi c. opio gr. v occasionally at night; Liq. Hyd. Perchlor. oz. $\frac{1}{2}$ ter in die.	Diarrhœa lasted seven days. Subacute rheumatism prolonged his stay in Hospital.
6	Same symptoms. Diarrhœa for 8 days before admission.	8 days.	Same as No. 1.	As proper early treatment was neglected, Liq. Hyd. Perchlor. took some days to influence the motions.
7	Same as No. 1.	4 days.	Same as No. 1.	Same as No. 1.
8	Same symptoms. Suffered from diarrhœa for some days previous to admission.	9 days.	Pil Plumbi c. opio gr. v. occasionally at night; Liq. Hyd. Perchlor. oz. $\frac{1}{2}$ ter in die.	Same remarks as in No. 6.
9	Same as above.	5 days.	Same as No. 1.	Relapse 5 days after discharge from Hospital, but subsequently cured by same treatment in 16 days.
10	Same as No. 1.	4 days.	Same as No. 1, with Pil Plumbi c. opio gr. v. at night.	Same as No. 1.
11	Same as No. 1.	5 days.	Same as No. 1.	Diarrhœa only lasted two days.
12	Same as No. 1.	5 days.	Same as No. 1.	Diarrhœa cured in two days.
13	Same as No. 1.	9 days.	Same as No. 1.	Diarrhœa ceased on sixth day.
14	Same as No. 1.	8 days.	Same as No. 1, as diarrhœa was severe, for three days he received also Pil Plumbi c. opio gr. v. at night.	Diarrhœa lasted for five days.
15	Same as No. 1.	6 days.	Same as No. 1.	Diarrhœa ceased on third day.

From these cases I think it may be fairly assumed that the solution of perchloride of mercury exercised a marked effect upon this disease appearing to restore the biliary secretion, and to act as an antiseptic and perhaps germicide in the stomach and intestinal canal, checking putrefaction and flatus, and relieving the dyspeptic symptoms, both by its own chemical action on the food, as well as by increasing the flow of bile.

A memo. on the efficacy of this medicine in the treatment of hill-diarrhœa was published in the *Indian Medical Gazette* of July 1887 by Surgeon W. G. MacPherson, M. S. He gave six cases that occurred at Kasauli in 1886, and in which the "perchloride" seemed to have quite a specific effect. His cases, however, took place at the end of the rainy season when no epidemic influences were at work.

I was led to use the perchloride before I had seen Dr. MacPherson's views, having frequently employed it in infantile diarrhœa with offensive motions, as recommended by Dr. Millard (*British Medical Journal*, 1886, Vol. II, page 213).

In all the severe cases I found that careful dieting and perfect rest in bed were necessary in addition to the medical treatment.

I am indebted to Surgeon-Major Mally, M. S., Ranikhet, for the following—Diarrhœa of a like character prevailed among the troops at Ranikhet and the Standing Camp last year.

The strength at the time was 38 officers, 1,514 men, 88 women, 160 children.

The admissions into Hospital for diarrhœa were for—

	Officers.	Men.	Women.	Children.
June ...	1	21	1	4
July ...	1	30	"	1
August ...	"	28	"	3

Officers not on the sick list, who got medicine for this disease, were—June 8, July 12, August 13.

Most of the cases occurred during the cholera period, viz., between the 17th July and 15th August, and a considerable number of men got medicine outside as at Chaubuttia. There were 12 cases of cholera among the men and 8 deaths. Ranikhet and the Standing Camp are about four miles distant from Chaubuttia; greatest elevation of the former 6,303, and of the latter 5,963, feet.

Ætiology of Hill-Diarrhœa.

I propose to divide the causes as follows:—

Predisposing causes	{	(a) Elevation.
		(b) Sex and age.
		(c) Insanitary surroundings.
Exciting causes	... {	(d) Epidemic influences.
		(e) Chills.
		(f) Excesses in food and drink.

(a) ELEVATION.

It appears to be well established that the influence of altitude alone will cause such derangement of the digestive organs generally as will account for a certain amount of hill-diarrhœa, consequent on frequent changes of temperature and liability to chills. Dr. Crombie wrote an able report on the epidemic that occurred at Simla in 1880 (*Indian Medical Gazette*, December 1880), and mentions the predisposing cause to be elevation, producing a reduction of atmospheric pressure and causing embarrassment of the functions of the liver. He lays a good deal of stress on the comparative exemption of the houses at the lower levels of Simla (6,500 feet) from hill-diarrhœa. This does not coincide with the experience here last year, the disease being as prevalent at the Standing Camp as at Chaubuttia, with a difference in altitude of 900 feet. From this it would appear that the endemic area of hill-diarrhœa is not yet fixed.

(b) SEX AND AGE.

Women appear to suffer less than men, and children to be almost exempt from the disease. This may in some measure be due to the part taken by the liver. The latter seems to be freer from every disease in women and children than men, and hepatitis is, I believe, extremely rare among children. In the latter, this organ is of large size, more elastic, and healthier and better able to carry on the vicarious functions it is called upon to perform, when the action of the skin is interfered with, *vide* (e), "chills." Finally, women and children from their modes of living are much less exposed to weather influences than men.

(c) INSANITARY SURROUNDINGS.

It is well known that in camps after prolonged occupation, or if the soil become defiled under any circumstances, diarrhœa is one of the first affections that shows itself.

The example of the effect of improved sanitation in England in preventing cholera from becoming epidemic, although quarantine has been done away with, is too well known to need laying stress upon.

(d) EPIDEMIC INFLUENCES.

During epidemic seasons the weather is usually oppressive, and there is a high degree of humidity. The period ushering in the rains is generally the time at which these influences are most active. The soil previously heated and dry now receives moisture, which is so essential to putrefaction, and, if it happen to be defiled with organic matter, unhealthy emanations are given off and pass into the air. At such times there is a greater disposition to putrefactive fermentation in wound discharges, meat turns bad quickly, and milk sour, and

it is possible that in hill-diarrhœa, as pointed out by Sir W. Aitken in reference to cholera, putrefactive fermentation may be more readily set up in the albuminous contents of the alimentary canal.

At some future time, I dare say, we shall know more of the nature of these influences.

Exciting causes.

(e) CHILLS.

Chills seem to me to be the chief exciting cause of this affection, caught by exposure to wettings or profuse perspirations (as happened at Chaubuttia last year), while the atmosphere is damp, and the temperature abnormally high and subject to frequent variations, the skin being bathed in perspiration on the slightest exertion. The effect is to interfere with the action of the skin and lungs, but more especially the former; and throwing extra work upon the liver and intestines; the two latter act vicariously to endeavour to restore the balance, but, being themselves in exposed parts of the body and affected by the same conditions, they are unequal to the task. The result is at first the pouring out of vitiated secretions causing ordinary diarrhœa. The liver eventually becomes embarrassed, and ceases to secrete bile. The latter being nature's antiseptic, decomposition of the food takes place giving rise to flatulence, and perpetuating the diarrhœa; the decomposition being perhaps favoured by the atmospheric influences already mentioned.

(f) EXCESSES IN FOOD AND DRINK.

It is unnecessary to enlarge upon this usual cause of diarrhœa.

CONCLUSION.

In conclusion I beg to say that I merely advance these theories with a hope that they may give rise to further investigations as to the nature, causes, and treatment of this affection.

It is becoming an important subject owing to the increasing numbers of people and troops coming to the "Hills" every year. In a large station it might be attended with serious consequences. In Simla, in 1880, an epidemic of hill-diarrhœa occurred; from 50 to 75 per cent. of the adult population were attacked, and it was computed, that 75 per cent. of the cases occurred within a week.* I am of opinion that had cholera been epidemic that year, the most serious results might have been the consequence, the former disease developing into the latter. This, of course, is a conjecture, but I believe that the same influences regulate the intensity of the two diseases; the chief of these is sanitation.

Perhaps the ensuing rainy season may afford opportunities for further study of this affection.

CHAUBUTTIA,

5th May 1888.

* The sanitary condition of the place was at the time very defective.

DISEASE OF THE SUPRA RENAL CAPSULES
OR PERNICIOUS ANÆMIA.

By KAILAS CHUNDRA BOSE, L. M. S.

THIS grave form of mischief comes most insidiously upon people otherwise healthy, with symptoms so slight on its first appearance that the patient generally passes them unnoticed, until his attention is either called by his friends or relatives to a change or alteration in his complexion or he himself finds a change in it. He then becomes anxious and applies to a doctor for his opinion, which, when unfavorable, is apt to be rejected, and the patient goes on cheerfully attending to his business, when, perhaps, only symptoms of acid dyspepsia exist. The patient now complains of slight vertigo, languor and lassitude, loathsomeness in doing his daily work. His appetite fails, his heart burns, and he feels sick after food. There may be slight diarrhœa towards morning. His eyes become nearly white; pigmentary changes become distinctly visible over the eye-lids and the orbits, and his general complexion becomes darker than usual. In some cases I have seen the temperature at this stage of illness go slightly above normal; the patient feels dejected in spirits, he spits up constantly and brings up his food; his pulse becomes quick and feeble; sometimes an anæmic murmur is heard over the base, or only a hæmic bruit over the left jugular vein. He feels giddy and often complains of palpitation on slight exertion; he becomes peevish, and is always apt to find fault with his cook. The pigmentary changes become more and more visible; in some cases I have seen the palms of the hands and occasionally the plantar aspects of the feet turning black; the axillary space, the knees and groins soon become dark. The patient is gradually confined to his bed. The temperature rises slightly during evening; œdema of the feet becomes visible, and the patient soon dies exhausted in spite of all sorts of treatment.

Amongst 30 cases under my observation only two were females, the rest being males above 18 years of age. The disease, in my opinion, is mostly confined to people of the North-Western Provinces, for amongst this heavy number there was only one Bengali gentleman, who fell a victim to the direful disease. The poor and laboring classes are almost exempted from the attack; the middle class suffers more than the opulent and happy.

Almost all of my patients were of active habits, living under bad hygienic conditions in overcrowded rooms; the elements of their food being poor and wretched; maize, wheat, dal, potatoes and ghee were the only articles of their diet; the only animal food with which they occasionally indulged during their great festival days was boiled milk. As a rule, they would cook their food in metallic pots and uten-