

through Purulia and the first village above mentioned. How the disease was first imported to Chutia defied all investigations. The houses there stand on either side of the road in one continuous line, and there is a tank at one extremity of the village which is largely made use of by the people for drinking purposes. Strange enough all the houses were affected at this tank side, and the disease was defined by an abrupt line from the other portion of the village, where the inhabitants drank water from another source. The house to house inquiry elicited the fact that the limitation was as abrupt, as the difference in the water-supply was marked. After the occurrence of one case, the patient's soiled clothes were washed in the very same tank out of which they drank.

At Dorandah, a certain portion of a village was almost decimated, and they had their drinking water from the stagnant bed of a river, where they used to wash themselves and their clothes also. Putting a stop to that practice and forbidding the use of the tainted water, checked the disease as quickly as it had appeared. At Ranchee I traced the first case to a set of bearers who had just come from Raneegunge. One of them died of cholera 2 days afterwards, and his clothes were similarly washed in the water used for drinking, and then several other cases broke out in the same neighbourhood. Gradually the disease spread into three different portions of the station and was there confined. The progress of cholera in this district was from east to west, whilst the direction of the wind was steadily from west to east. During the height of the visitation, the air was dry and hot, the thermometer standing at 100°, and the disease subsided without any change in the weather, the subsoil water level steadily sinking from 15 to 18 feet from the surface. The disease has again, since the setting in of the monsoons, broken out in those portions of the town where it had existed in the dry weather. In fact, it is confined to those three portions above alluded to, with a pertinacity that may be well called endemic. It should be mentioned that the drinking water in Ranchee is obtained from wells, most of which are mere excavations in the ground. The evacuations are thrown in the side drains without any disinfection; and that they are, under such circumstances, likely to be washed with the rains into the wells by surface or subsoil drainage is a very probable, although unproved fact. At all events, the limitation of the disease to certain houses, its progress in opposition to the direction of the wind, several deaths in one family and the complete immunity enjoyed by others living only a few yards distant, point to the existence of a poison arising from some local cause, and not from the atmosphere.

NITRITE OF AMYL IN AGUE, &c.

By W. E. SAUNDERS, Surgeon, A.M.D., Indore.

So few cases have come under my observation since writing a paper on the above subject, which appeared in the April number of the *Indian Medical Gazette*, that it seems hardly worth while publishing them: but as no one else has recorded any, those below may perhaps be of some interest; and others, who have not yet had faith enough to try the remedy, may be induced to do so now.

The drug itself is inexpensive, and goes a long way; it would require a large number of cases to get through an ounce during the year, and its price is only about one quarter that of quinine. I now use nitrite of amyl mixed with an equal part of oil of coriander, to render it less volatile, and at the same time to cover what is, to my sense of smell, a most disagreeable odour. I find it acts better in this way, owing, no doubt, to a more gradual and complete action, much less being lost during inhalation.

It certainly is the most powerful diaphoretic I have ever seen; and I now use it in all cases of fever to produce diaphoresis, which it does, as a rule, in a few minutes.

The following is a short summary of the cases of which I have notes:—

CASE I. *Private W. T., 108th Regiment.*—This man had attacks of ague daily for three days previously, and came to hospital in the cold stage, at 7-30 A.M. Nitrite Amyl m ij , administered on lint. The man was free from all traces of the attack in a few minutes—no hot stage followed, and he has had no recurrence since.

CASE II. *Gr. G. S., R. H. A.*—Suffered much from fever, came to hospital in the cold stage of ague at 1 P.M. Had also severe headache and purging. Nitrite Amyl m i administered. The sweating stage came on in 7 minutes. Recovered then, case lost sight of afterwards.

CASE III. *Private T. C., 108th Regiment.*—Came to hospital in the cold stage of ague with diarrhoea. Nitrite Amyl m ij administered. He was in a profuse perspiration in a quarter of an hour. Diarrhoea ceased without treatment.

CASE IV. *Private B. B., 108th Regiment.*—Came to hospital at 5 P.M. in the hot stage of ague; he had the cold stage in Barracks. Nitrite Amyl m ij administered. Sweating came on in 3 minutes, and in 7 minutes he was free from fever. Quinine in grs. v . doses ordered for a few days: no return of fever.

CASE V. *Private W. B., 108th Regiment.*—Came up at 1 P.M. in the hot stage of ague with vomiting and purging. Nitrite Amyl m ij administered, sweating commenced in three-quarters of an hour. Purging and vomiting ceased after an effervescent draught. This case happened in the middle of the hot weather and I attribute the duration of it to the difficulty of giving so volatile a drug with a temperature of 106° Fahr. in the shade. He took a few doses of quinine and had no return of fever. It would have been better to have repeated the dose in this case.

CASE VI. *Gr. S., R. A.*—This man had suffered much from fever for months past, with spleen and liver complications. Came under my treatment in the cold stage of ague. Nitrite Amyl m ij administered; all passed off; no hot stage followed. Fever returned several times, after taking large quantities of quinine, and was always checked with Nitrite Amyl, but not so readily. This was too long standing a case to benefit much by it.

CASE VII. *Mr. T. C.*—Came for treatment about 7 P.M., in the cold stage of ague. Nitrite Amyl m ij administered. Sweating came on in 7 minutes. He lay down for half an hour to get cool and then walked home well. He next morning took a dose of quinine, and has had but one attack of fever without the cold stage since. Previous to this he had fever every day for one month, during which time he took large quantities of quinine.

CASE VIII. *Private L., 108th Regiment.*—Has had fever for some time past; came up in hot state at 3 P.M. Nitrite Amyl mixed with ol. coriander m iij inhaled. Sweating stage came on in 20 minutes, and he was quite well under the hour. m iv should have been given.

CASE IX. *Private C., 108th Regiment. Same as Case III.*—He came up in hot stage. Nitrite Amyl and ol. coriander mixture m iv inhaled. Sweating came on in 7 minutes, quite cool in 20 minutes.

These are not picked cases; I give them just as they occur in my note-book, and the few not recorded were so similar to the most successful ones that a repetition of them would have been useless. After reading the above no one will, I think, deny that we have in this new form of treatment something far superior to the one generally adopted, *viz.*, diaphoretic mixture and quinine.

I do not mean to say that quinine should not be used in these cases, for there is ample proof that it tends to check the return of the attacks, and removes to some extent the septic condition of the blood induced by the malarial poison whatever its nature be; and this more especially if small doses of opium be combined with it.

In no case did the Amyl fail to remove the attack in about one-third the usual time, and in most cases the fever did not again return. The method of administration I adopt is this:—

Four drops of the mixture, or two of Amyl, are poured on a small piece of lint, which is given into the hands of the patient, and he is told to inhale it freely. He soon becomes flushed, and his pulse and respiration are much accelerated; and when he feels warm all over the inhalation is discontinued, as the symptoms continue to increase for a short time afterwards. A profuse perspiration now sets in, which speedily ends the attack; in some cases, however, the cold stage merely passed off without any hot or sweating stage.

If any one failed to materially benefit his patients by this remedy, I should be inclined to believe that the drug was impure, or that the inhalation had not been properly effected. It is to be hoped that others will record the result of their experiences.

ON HAIR GRAFTING.

By T. E. B. BROWN, M.D., *Principal, Medical School, Lahore.*

The treatment of extensive ulcers of the skin, by grafting small portions of the cutis on the granulations, has now been used for several years, and is a valuable assistance to the surgeon in many cases. But the cutting out of the grafts always causes some pain to the patient, and if the sore is so extensive as to require several operations, he will often be disgusted with the treatment, and will leave the hospital only partly cured.

A modification of this plan has been suggested in a medical paper in which the hairs only of the skin were extracted, and the soft cuticle which forms their root-sheaths was implanted on the granulations, as it was found that this was often sufficient to induce the formation of skin over the ulcer. This treatment was tried at the Mayo Hospital; but it was soon found that the longer hairs acted as levers and often tilted the roots from the granulations, while the smaller ones were very difficult to place properly. I therefore determined to take only the coarser hairs of the beard and eyebrows, which were seized with a dissecting forceps, and drawn out without pain by a sudden jerk; in most cases a very evident root-sheath was seen on the end of each hair. This was then pushed into the granulations of the ulcer, and the shaft of the hair was cut through by a sharp pair of scissors, leaving the root imbedded. In most cases it was sufficient to dress the wound with simple ointment or carbolic acid oil, and in a few days, if the hair kept in its place, cicatrization commenced in the spot where the root was. After this the hair always dropped out, and the process was repeated in another part of the ulcer. The patients never objected to the treatment.

CASES.—A Musulman, aged 22, came to the hospital on February 28th, suffering from a sloughing ulcer of the right ankle, said to have been caused by a blow, but the ulcer had evidently been badly treated. When he was admitted it measured $7\frac{1}{2}$ inches in length by $5\frac{1}{4}$ in breadth, and it was of a triangular shape, the apex directed towards the heel. Hair-grafting was performed on four separate occasions, and on the 12th of March the wound was reduced in size to a sore 2 inches long by $1\frac{1}{2}$ wide, and this would probably have been entirely covered by new skin, but the patient was unable to remain longer in hospital.

In another case a European had received a severe burn, which resulted in an ulcer of an oval shape outside the ankle of the right leg, measuring in its longest diameter $2\frac{1}{2}$ inches; the same process was used and resulted in a perfect cure in a fortnight.

A third case occurred in a Hindoo, who had a sloughing ulcer on the dorsum of the foot, measuring $4\frac{1}{2}$ inches by 3. This was said to have originated in the bite of a snake, probably a non-poisonous one, but the sore evidently had been badly treated.

Hair-grafting, as above described, was used on six different occasions without causing any pain or distress, and the wound rapidly healed.

NOTES ON ENTERIC FEVER.

By F. R. HOGG, M.D., *Surgeon-Major, A.M.D.*

IN 1873, a battery of Horse Artillery, fresh from home, suffered severely at Meerut, where the sub-soil level from 14 feet in September 1869, rose in 1870 to 13 feet; in 1871-1872 to 12; in 1873 to 11; and in 1874 to 9 feet 6 inches: the proximity of the Ganges canal, and certain questions connected with drainage and irrigation were blamed by some, yet denied by others. In 1872, cholera appearing at its usual date, August 20th, was complicated with fever and dengue. On a march from Futtyghur to Meerut, a detachment of the 85th contracted enteric at Koorja, on a camping ground near a crowded fever-stricken village; the well water was near the surface, the sub-soil saturated, undrained, and the extensive neighbouring jheels at times resembled arms of the sea.

Between December 1874 and the middle of January 1875, about 19 cases of undoubted enteric occurred with 4 deaths. When encamped at Koorja, whilst returning from Agra in March 1876, personal enquiries and observations led to the conclusion that the fever was typho-malarial. With one exception, all the affected men of the 85th were over 25 years of age, all had been four years in the country, two never out of it—quite contrary to accepted experience, for it is the young unseasoned, weakly, scrofulous new arrivals, who as a rule at particular stations, under certain conditions, meteorological amongst others, start enteric, which is apt to cling to regiments until the poison is starved out, through want of victims. In addition to climate there are to be considered, irrespective of the water theory, matters connected with barracks, food, bedding, clothing (helmets, abdominal belts), bodily cleanliness, drills, fatigue, recreation; and, although the disease is started by faulty conservancy, by faecal exhalations, it requires a suitable soil for birth, progress, and extension. Very little is known about malaria, or how far the silting up of the beds of rivers, the construction of barriers to the flow of water, as railway embankments, and irrigation by means of canals, affect the health of the inhabitants. Seasoned sojourners exposed to typho-malarial influences escape enteric, yet every year are debilitated by ague. No month in certain years would appear clear of enteric, but the admissions are highest in September, and low from November onwards: about the last ten days in August 1873, were notable, because almost every station, over several enormous areas in India, returned cases. The fatal age is 22, and the worst subjects often are light-haired, pink-faced, fragile lads, who in the hot weather suffer more seriously than in the cold. Sportsmen, exposing themselves to the sun, or wading through malarious jheels appear very susceptible. Whether the disease be imported or start afresh, the results are the same, just as one case recovers, another crops up; but fortunately in the opinion of many, the deaths have been reduced to a minimum by the cold bath or wet sheet treatment.

The water level at Meerut in 1875 stood, I believe, the same as in 1874, but cases of fever were singularly few, a mild visitation of cholera appearing instead. For years, the existence of typhoid fever in India has been denied, until closer clinical, thermometrical, and pathological observations silenced the sceptics. Every year susceptible young men come to India, and some drafts suffer, whilst others escape; but the great point is to deal very gently with new comers, who, strangers to the climate, are easily enervated by heat. The water at Meerut has always been considered excellent, and the McNamara filters are constantly looked after. Lads who go to the hills directly on arrival in India, may, on return to the plains the next year, develop enteric; or they may suffer mildly at the hills. At one of the Lawrence Asylum schools in the Himalayas, 5 children died of enteric in 1875.

In the plains, a case of enteric, after long struggling, diverted into fatal cholera. In a military epidemic in Germany, the