

action is too long,—it is not to be tracked,—and so is renounced as impossible.

And yet, there is, in fact, an open, direct, unfailing communication between the inside and the outside of man's living body, that has been strangely overlooked in these medico-judicial inquiries. In the clinical surgery of the barrack-yard, can it be necessary to remind the practitioner, that to flog, as farriers flog, the torn and bleeding skin, is to lash and bruise the living blood itself? Beneath every stroke, along every wheal and furrow of the corded whip, fresh portions of blood are continually mantling up in readiness for the blow that is next to follow; and thus, after the measured infliction of half-an-hour's flogging, there is but little of what circulates through the system, that has not been in rude actual contact with the striking body. Under certain unfavourable conditions of constitution and atmosphere, it is impossible but that the general business of nutrition should be further impaired by this damaging in substance of its one necessary material. There is, it should never by surgeons be forgotten, in the living blood, a common universal medium, through which all structure, in all its parts, is at all times continuous, by which all function is made to correspond, and which shares, of necessity, under all circumstances of injury and violence, in the liabilities of every organ. Inflammation, which is but the expression and result of a faulty nutritive function, may thus, through a prejudice to the blood, be developed, in all its local varieties, by the injury of any structure, however distant from the part inflamed. In the terrible agency of flame and steam there is continual evidence of life in this way failing by transmission of fatal influences from the skin. Blood that has been charred or scalded on the surface of the body, becomes deadly in its effects of secondary abscess or perforating ulcer on the lungs and bowel. It is no argument against this belief of direct damage to the blood as resulting from severe injury to the skin, that internal organic lesion is not a constant result of such injury, or that the larger number of organized structures are enabled to maintain their healthy integrity of growth under such external injury, while others fail entirely, or in part, in their self-assimilating process of nutrition. For the assimilation of their various structures, all the living organs are dependent on the same common store of material, and under certain prejudices of the blood-current it is in reason to suppose that particular parts of the body may miss the principles necessary for their growth and function, while the general process of nutrition may elsewhere be sufficiently maintained. Thus, while the damaged skin is in full rapid progress, through suppuration, to repair, even days after the local cure has been complete, fatal disorganizing inflammations, having their origin in burn, bruise, or laceration, will be first developed in the great internal cavities of the body,—or tetanic spasms, which end only in death, will begin to harass the double locomotive structures. By modern physicians, these fatal evidences of the blood itself in fault, are dismissed, for the most part, from rational inquiry, under the vague phrases of "constitutional irritation," and "shock to the nervous system."

But, even without direct reference to the blood, as actually bruised and damaged by the lash, it should be remembered, in the physiology of military flogging, that the skin is an organ, at all times vital in the body,—a gland, discharging, like the lungs and kidney, a constant necessary function of excretion; and thus, by its diseases and injuries, indirectly influencing the whole animal economy.

This young soldier came to his death from laceration, by flogging of his back; from the effects, that is, induced by his punishment, through the blood, upon the vital processes of breathing and the circulation. This was made evident by organic lesion of the heart and lungs, seen and handled after death. He might have died, as many have died before him, from the same cause and at the same interval of time, with no further record of symptoms and appearances than would have been registered under the heads of "Fever" or of "Tetanus." Let no military surgeon undertake, by any physical inspection or inquiry, to guarantee the most healthy young recruit against the contingency of these fatal constitutional results from flogging in the barrack-yard, even though the number of lashes be regulated, for the future, by scores instead of hundreds, as in the good old times of the Georgian era. He would, at the best, be in a false, invidious position, both with his regiment and at head-quarters; and, indubitably, on an average of many floggings, public scandal would in some cases attach to his opinion, and, through it, to the entire medical profession. The endemic influences of the district, the busy, ever-varying agencies of the atmosphere, the hereditary constitution, the morale, the idiosyncrasy, of the sufferer, would occasionally baffle the most careful previous observations by the stethoscope or the spirometer.

Besides, it is intolerable that any member of the profession, whose special mission it is to comfort and to heal, should be made a party to the infliction of corporal punishment, on those who depend for help on him alone under the casualties of disease or accident. Until Mr. Warburton passed his bill for the secure and decent prosecution of our dissecting-room studies, the British anatomist was recognised by the legislature in no other way than as a subordinate supplemental officer to the public executioner. Let the soldier-surgeons of 1846 decline, one and all, with due military respect, the proffered appointment of medical referee for floggings to the regimental farriers or the drum-major:

London, August, 1846.

J. A. W.

INSTANCE OF POISONING BY ARSENIC.

By J. H. HOUGHTON, Esq., Surgeon to the Dudley Dispensary.

At a quarter-past eleven o'clock on the morning of the 15th of April, 1846, I was called to see Mrs. B—, in the absence of her medical attendant. I was immediately joined by two medical friends, and we found her in a state of considerable mental excitement, but free from symptoms usually attendant upon the ingestion of corrosive poison. She had not any thirst, pain, heat, or constriction of the throat or fauces; epigastric tenderness, vomiting, tormina, or abdominal pain, or discharge from the bowels. She had not any cerebral symptoms.

She told us, very collectedly, that about three-quarters of an hour previously she had taken half an ounce of arsenic, which she had that morning procured from a druggist in the town, and as it was found that she had been supplied with the poison, no time was lost in taking measures to expel the mineral, and counteract its effects as far as possible.

The stomach-pump was immediately applied, and in a short time the stomach was well washed out with water, and subsequently with soap-and-water. Albumen was then given freely, and afterwards doses of sulphate of zinc, which produced free vomiting. At twelve, the hydrated peroxide of iron* was given—a tablespoonful every five or ten minutes.

She was now put to bed, when she became composed, and almost free from pain, but had occasional gentle fits of vomiting, of a bilious character, this being the only symptom. Her pulse was rather feeble, and she soon seemed disposed to doze. This state continued till a little past two, when I left her for a time, with directions to continue the iron. Her medical attendant had been obliged to leave her a short time previously.

Shortly after I left the house, her bowels were moved with some tenesmus, by which she was kept on the night-chair for nearly half an hour. At a little before three, she was visited by Mr. Roberts, (who had also previously seen her,) who found her in a state of collapse. He promptly applied external stimulants, and gave her small quantities of brandy-and-water and ammonia. (The iron was now discontinued, and not resumed.)

From this state of depression she never properly rallied, but remained quiet, dozing during the time, but perfectly calm and collected, till twelve p.m., when she died. She presented no gastric symptom, except occasional mild vomiting; but whatever the stomach received was soon rejected; no tormina, tenesmus, or strangury; no cramp; and no cerebral or spinal symptom, to the last.

Post-mortem examination, fifty-seven hours after death.—The evidence for the inquest being so complete,—arsenic being found in large quantities by the usual tests in the ejected fluids,—and in deference to the wishes of her friends, the stomach only was examined. At the pyloric end, on the posterior surface of the organ, a bright-red patch, nearly the size of the palm of the hand, was observed. On the posterior part of the stomach several streaks, about half an inch wide, of a black colour, and running from above downwards, but slanting from the cardiac to the pyloric end of the stomach, were observed. The intervening parts of the surface of the mucous membrane had a natural appearance. Where the black colour was less intense, a pinkish blush could be observed through it; and on washing the black deposit away, which was effected with difficulty, the mucous membrane beneath was found to be considerably inflamed. This black deposit was left wherever the mucous membrane was inflamed, excepting on the red patch near the pylorus, and nowhere else. It was most copious

* Made by adding liq. ammonia to a strong solution of sulphate of iron, as long as any precipitate fell, collecting the precipitate, washing it, and finally gently heating it, to drive off the ammonia.

also where the inflammation was most severe. There was not any destruction of the mucous membrane in any part of the stomach; it contained about three-quarters of a pint of darkish-green fluid, of the consistence of thickish soup.

It may be here observed, that small red vascular patches were seen in the small intestines, in various parts, as they lay *in situ*. The contents of the stomach and part of the organ were reserved for analysis. The last sixteen ounces of fluid brought up by the stomach-pump were reserved for analysis, merely for experiment. The contents of the stomach, which were ejected by the sulphate of zinc, were also reserved.

On Friday afternoon, a little of the fluid, which seemed little more than coloured water, was added to a mixture of zinc and sulphuric acid, and the gas which escaped was burned by means of a jet. By holding a clean white china plate in the flame, a copious deposit of a bright metallic lustre was produced.

A portion of the same fluid (as it was) was placed in a test-tube, and to it was added some ammonio-nitrate of silver. A bright-yellow deposit resulted. To a portion of the same fluid was added the ammonio-sulphate of copper. A bright-green precipitate resulted.

April 20th.—To-day, after the inquest, a part of the contents of the stomach was boiled in distilled water, filtered through charcoal, and the fluid submitted to the ammonio-sulphate of copper and ammonio-nitrate of silver without any result in either case. Some of the fluid was then added to a mixture of zinc and sulphuric acid as above; for the first minute or two a slight metallic-looking deposit was formed, after which no deposit could be obtained after frequent careful trials. A very small quantity of the fluid was now added to the mixture, when the accustomed metallic deposit was freely procured again. A little of the fluid was again submitted to the tests above described, with the same results as on Friday.

Tuesday, April 21st.—The reason of the slight deposit obtained yesterday at the commencement of Marsh's test was now explained. The zinc which had been used on Friday was by mistake used yesterday, and probably a slight portion of arsenic had adhered to it, and soon passed off. The stomach was now sliced into small pieces, and mixed with the remains of fluid; to it was added a little distilled water, and one-tenth part of pure hydrochloric acid. The whole was boiled in an earthen vessel till the stomach was completely dissolved, and filtered through some old linen. The fluid being very thick was diluted with a little weak hydrochloric acid. A part of the fluid thus obtained was boiled again, and just before ebullition commenced, some thin, bright copper-plates were thrown into it, and boiled for half an hour. When the plates were removed, they had just the appearance of unwrought steel, as you see it in steel warehouses, not bright or shining. The plates were carefully dried before the fire, placed in a small tube, and submitted to a gentle red heat in a spirit lamp. A slight black deposit took place in the tube; but no crystals could be observed with a common lens.

The tube was now broken, and boiled in distilled water for some minutes; the fluid thus obtained was submitted to the ammoniated nitrate of silver, producing a very faint and equivocal yellow tinge; and to the ammonio-sulphate of copper, producing an equally faint and equivocal green tinge. The remains of the fluid were reserved for further examination.

30th.—One ounce of the residue of the fluid was now boiled with two drachms of pure hydrochloric acid, and to this one drachm of pure nitric acid was added: this was diluted with a little distilled water, and filtered through charcoal. A clear fluid with the slightest lemon tinge resulted. To a little of this fluid was added, first, the ammonio-sulphate of copper, producing a bright green precipitate; second, the ammoniated nitrate of silver, when a thick white precipitate, very much like white lead, was produced: this experiment was repeated, when the same white deposit resulted, streaked, however, with a clear yellow. Third, a stream of hydrosulphuric acid gas was passed through a portion of the fluid, when a very copious orange deposit resulted; the precipitate was collected and treated with black flax on a tube; some very minute specks, of a steel-like appearance, were observed in the tube, by a common lens. Fourth, some of the fluid was now added to a mixture of zinc and sulphuric acid, in a common bottle, and the gas which escaped burned through a jet; the accustomed shining deposit was freely procured on a white china plate; (the white deposit formed by the ammonio-nitrate of silver, which had been filtered and placed on one side, had now become almost blue.) Fifth, to some of the fluid was now added a few drops of pure nitric acid, and then an excess of nitrate of silver; a copious white precipitate resulted; this was strained

through filtering paper, and the clear fluid which resulted treated with ammonio-nitrate of silver, producing the accustomed yellow precipitate.

1st.—To some of the same fluid was now added a solution of prussiate of potash, when a bright, deep-blue precipitate resulted; this blue was dissolved by ammonia, but not by the strong acids.

2nd.—To some of the same fluid was added a solution of oxalic acid, when the whole became yellow, but without any deposit.

The present case of poisoning by arsenic appearing to present some points of interest, by the desire of her medical attendant it is submitted to the profession. The points of interest seem to me to be—

1. The fact of half-an-ounce of arsenic having been taken for nearly an hour, and having produced scarcely any symptom.

2. The effects of the antidote on the poison remaining in the stomach, after it had been carefully washed and emptied, as proved by analysis after death.

From the absence of symptoms, it might be doubted if arsenic had been taken at all, at least in the dose named, and, indeed, I expressed such a doubt before the stomach-pump was used, and in this opinion my friend Mr. Roberts, who was present, strongly concurred. I had, moreover, in my recollection, a case to which I had been called about twelve months previously, in which a woman, having had some quarrel with her husband, took some medicine which made her vomit freely, and then said that she had taken poison; she subsequently confessed the deception she had practised, and said that she had done it from a feeling of revenge. I was well aware, too, that Mrs. — was unhappy with her husband. At this time, however, I was not aware that Christison says, "in some cases, no symptoms of inflammation occur at all."

It was satisfactorily proved that she had that morning received half an ounce of arsenic, and she gave and reiterated such a circumstantial account of having taken it, that the fact could not be doubted.

The treatment was thus indicated solely by the account we received of the poison having been taken, and not by symptoms which it had produced, for, with the exception of some nervous excitement, no symptoms were present when she was first seen.

An hour had elapsed without any effect having been produced: this is a longer time than generally intervenes, though cases are recorded in which the poison had been dormant two, three, and even five hours. In these cases the patient had slept after taking the arsenic.

Pereira, quoting Christison, mentions three classes of symptoms following the ingestion of poisonous doses of arsenic:—

1. Acute poisoning, with symptoms of gastro-enteritis.

2. Acute poisoning, with narcotism, without symptoms of gastro-enteritis.

3. Acute poisoning, with symptoms of gastro-enteritis, followed by an affection of the cerebro-spinal system.

Now if this case belongs to either of these classes, it must be to the second, and it seems to me hardly to belong to that. Dr. Pereira continues, "In some cases the symptoms are those indicating disorder of the cerebro-spinal and vascular systems, abdominal pain, vomiting, and purging being nearly or altogether absent. The symptoms are usually faintness, perhaps syncope, convulsions, or paralysis; sometimes insensibility, and at others delirium, these symptoms constitute what is called narcotism." Speaking of the same class of cases, Christison says, "The most uniform and remarkable symptom is extreme faintness, amounting at times to deliquium; occasionally there is some stupor, or rather, oppression, and often slight convulsions."

Comparing the symptoms existing in this case with those just quoted, as characteristic of the second class of cases produced by arsenic, I think we can scarcely say that they belong to that class. The only symptoms of narcotism being drowsiness and a feeble pulse, it may, I think, be properly classed with a case by M. Labordes, quoted by Dr. Christison, in which the patient had no symptoms till forced to drink, when she vomited freely, but without uneasiness. In five hours she became drowsy, and died, complaining only of slight pain in the stomach. To this it seems to form an exact parallel.

2nd. The effects of the iron were very remarkable. With the exception of the "red patch" near the pylorus, every part of the mucous membrane which had been acted upon by the poison was thickly coated with iron, which it required considerable trouble to wash off with a sponge, as though the antidote had been attracted and firmly held by the poison, which, indeed, it had so completely combined with, as to be

incapable of detection upon repeated careful experiments. How is the absence of any deposit of iron on the one red patch to be explained, as on every other spot where the arsenic had caused inflammation the iron was thickly deposited, and most so where the inflammation was most intense? Was it that the "red patch" had been entirely freed from arsenic by the means used to dislodge it, and hence the iron was not attracted to it?

The absence of free arsenic in the stomach after death, and the evidence of abundance of it after means had been taken to set it free, are facts of the greatest practical importance. They form strong corroborative evidence of the value and efficacy of the iron as an antidote, and hold out the strongest inducement to administer it promptly and freely in cases where arsenic has been taken in poisonous doses.

Dudley, July, 1846.

REVIEWS.

Clinical Illustrations of the Diseases of India, &c. &c. By WILLIAM GEDDES, M.D. London: Smith and Elder. pp.492.

WHATEVER tends to preserve the health and lives of our brave soldiers in a foreign and uncongenial clime must be valuable. It is lamentable to find that the many valuable suggestions which from time to time have been offered by some of our most distinguished army surgeons in India have received so little attention at the Horse-Guards, or from the East-India Company. When it is considered that every soldier costs the Government a hundred pounds ere he can be landed in India, one would imagine, even in a financial point of view, that more might be done to preserve the British soldier. We have heard it wisely suggested by regimental surgeons in India, that the men are not *gradually* acclimated to warm countries; their *sudden* introduction to the arid plains or the malarious tracts of Hindostan, often in the hottest season of the year, is the cause of the most fearful mortality. It is no uncommon occurrence for a hundred men, women, and children, to be carried off out of a single regiment during one hot season. We believe that such a mortality occurred in that gallant regiment, the 3rd Dragoons, during its first hot season, at Cawnpore. In the 21st Fusiliers, the mortality was awful on their first arrival at Calcutta, where not less than seven officers died at Fort-William in about three months.

Now, it has been most wisely suggested that the British regiments should be introduced into India in the following way:—They should be landed at Bombay at the commencement of the cold season; marched up the country immediately, and first be stationed in the hills and the more healthy northern provinces; and then, in their turn, when gradually habituated to the habits of life and temperature of India, they should take their tour of the central and lower provinces. Of course this would not apply to every arm of the service, but a vast proportion of the infantry might be thus seasoned to India.

Dr. GEDDES has availed himself with great industry of the ample opportunities afforded him for observation and record respecting the diseases of the Madras European Regiment, during four years' medical charge of that corps:—

"At an early period, therefore, of his becoming their chief medical officer, he proposed to himself to become acquainted with the history of each individual under his charge, as far as the military and medical records of the regiment afforded him any information previous to his joining it; and careful notes were afterwards kept of their diseases, exhibiting the succession in which these followed each other, during the period in which he remained with the Madras European Regiment. From these materials, combined with some others necessary to elucidate certain circumstances connected with the disorders under consideration, the following work has been prepared."

The book will be valuable to every future practitioner as a means of knowing the success of certain methods of treating the diseases of India; and the student will find in it a minute description of those diseases which he is most likely to meet with should he be destined to serve in the East.

The work comprises six chapters,—on fevers, diseases of the head, thoracic, hepatic, and abdominal inflammations, and rheumatism. The author has given numerous statistical tables, which are arranged with accuracy, referring to age, ratio of mortality, admissions, classification of the country and previous occupations of the men, the temperature, the seasons. A great number of other carefully compiled tables will be found, on the prevalence of fevers at different seasons of the year, their types, the proportion of relapses, &c. &c.

It would seem, according to the author, that the proportion of deaths is greater amongst the Irish than the English, and that the Scotch are still more exempt from disease and death than the English. This may well be conceived, and runs in a direct parallel with the prudence and temperance of the three sister kingdoms:—

Table showing the Numbers of each Nation according to the Year of their First Seizure with Fever.

	Irish.	English.	Scotch.	Total.
1829	11	7	1	19
1830	106	80	8	194
1831	65	61	7	133
1832	17	10	2	29
	199	158	18	375

In the chapter on fevers there are several minute tables on the types and hours of accession of the paroxysms, on the duration and number of attacks, and on many other subjects which it would be impossible in these limits to describe.

The treatment of the diseases on which the author expatiates, does not appear to differ materially from that generally approved and followed by the best informed practitioners in the East.

There is one important fact—viz., that in the remittent fevers of India, at the moment when there is an apyrexial state, or a decline of the exacerbation, with a moisture of the cutaneous surface, and a diminution of the force and frequency of the pulse, at that moment should quinine be administered, precisely as in intermittent fever. The same practice has been recommended in Twining's work on "The Diseases of India," and is now almost invariably followed. One of the author's opinions is in favour of the identity of remittent and intermittent fever, a conclusion in which we perfectly concur, seeing that intermittents are continually merging into remittents, and *vice versâ*; and that the remedy which is specific in one form possesses the same power in checking the other. Dr. Geddes therefore groups these different types and forms under the general designation of "paroxysmal fever." He has quite anticipated our own notions on this point:—

"It is true that, in certain stages of some instances of remittent, symptoms become superadded which have no corresponding appearance in cases of intermittent; but they are the result of the violence, or, along with this, the duration of the disease; and their frequent occurrence, or otherwise, indicates the degree of severity in an epidemic attack, or, occasionally, the method of treatment employed. Believing, therefore, all these cases of a fever in paroxysms to be of the same nature, whether having a remission, or an intermission, between them, it is intended to apply the term Paroxysmal to these diseases in general; in contradistinction to that of Continued, as given to Synocha, and others. The words remittent and intermittent, as applied to subdivisions of Paroxysmal Fever, are understood, in their usual sense, as referring, in one case, to the existence of a remission only of the symptoms, and in the other, to that of an intermission between the paroxysms. Further distinctions are made, from the intervals at which the febrile paroxysms occur, into Quotidian, Tertian, and Quartan; and the second of these has, occasionally, two paroxysms within its interval, forming a double Tertian. All of these types are either remittent or intermittent; receiving the names of Quotidian, remittent or intermittent; Tertian or double Tertian, remittent or intermittent, and so on; or, in words, the symptoms of fever have either