PROVINCIAL MEDICAL & SURGICAL JOURNAL.

No. 8. VOL. I.]

LONDON, SATURDAY, NOV. 20, 1841-2.

PRICE SIXPENCE.
[STAMPED EDITION SEVENPENCE.]

COURSE OF LECTURES ON PHYSIOLOGY AND SURGERY.

By JOHN HUNTER, F.R.S.

(From the Manuscript of Dr. Thomas Shute.)

LECTURE XIV. POISONS, (*continued.*)

THE natural animal poisons are given to animals for defensive and offensive purposes. For the formation of these they have organized parts, secreting and containing the fluid. The secretory and containing parts are not susceptible of the stimulus, although the other parts of the animal probably are, therefore it may be possible for the animal to kill itself with its own poison, which is said of the scorpion when surrounded by fire.

Animal poisons may be divided into two kinds, the natural and morbid.

Natural poisons act immediately; if they did not, they would be unfit for the purposes which they are intended to serve, that is, the defence of the animal.

Morbid poisons usually lie some time inactive. For natural poisons to have any effect, it is necessary that they come in contact and be inserted into a part. For if an opening is not made, they cannot act; therefore the opening and insertion of the fluid are generally made at the same time.

If the poison is laid on a part covered by cuticle, it will have no effect.

The natural poisons are received in two ways: by insertion and contact.

They are situated in some one part usually; but there is an animal called the Blubber or Meduca, which is said to poison from every part wherever it is touched. This animal poisons without any wound, merely by contact. It is the same with the ant, which poisons merely by the fluids coming in contact with the skin. The action of natural animal poisons seems in some degree to depend on the quantity inserted; for animals of the same species that are small do not poison so powerfully as those which are large.

Changes produced by the action of Natural Poisons.

The first symptom is pain in the part. The parts surrounding the wound swell very much from the extravasation of fluids; this extravasation arises from the sympathy of the surrounding parts with the wound. The blood sometimes extravasates, which causes the parts to appear livid. It is evident that this tumefaction arises from poisonous effects, and not from the wound; for the leech makes a much larger wound than some poisonous

No. 60,

insects, and yet we have no surrounding tumefaction.

The next effect is absorption, which may be traced by a red line from the inflammation of the lymphatics; the nearest lymphatic gland becomes swelled; this is succeeded by a cold shivering, then a hot fit, convulsions, and death. The lymphatics and glands may sometimes inflame from sympathy. There is a general swelling of the body, and a livid appearance, the blood becoming of a very dark colour. These wounds seldom suppurate; if they do, the patients generally live; but they are commonly killed by the effects of the poison before suppuration begins. The matter from the wound is not the same as the poison; if it was, it would be impossible ever to recover. The poisons spoken of are from the viper, scorpion, centipes, spider, wasp, and bee.

The bug and gnat poison as they suck their food. This is an extraordinary circumstance. I am inclined to think, however, that they do not suck red blood, but the extravasated fluids.

On the Morbid Poisons.

The morbid poisons have been known in the world but of late date comparatively; some of them arose, perhaps, from accident, others continually arise spontaneously in the constitution, as cancer and hydrophobia. Most of the morbid poisons have arisen within the date of history.

The number of poisons has been very much increased of late years, and new ones are arising continually. It is possible that in time these poisons may become so numerous, that the human race may be entirely destroyed by them. But it may happen that the human constitution may undergo such a change as not to be susceptible of many of these stimuli. The decline of the old poisons, or specifics being found for them, may prevent their extensive mischief. Some which arise spontaneously are not confined to their own animal, as the hydrophobia, which every animal appears capable of receiving, though its spontaneous origin is only, perhaps, in the dog. The other morbid poisons appear to be confined to the human race. Some affect the constitution, others only a part. Some are received by effluvia, and are so diffused that one person may affect a whole continent. Others by contact, as the venereal, which, from its manner of being received, spreads almost as rapidly as those by effluvia. The smallest quantity of these poisons affects the constitution as much as the greatest, because they have the power of converting the fluids into similar poisons with themselves. The morbid poisons are not so active as the natural. Their quantity does not appear to increase the disease.

Many of them cure themselves, otherwise they never could be cured, because we have no specific. The small-pox terminates by pustules which contain the variolous matter; if the constitution

was susceptible of this stimulus a second time, the absorption of the matter would produce it again, and after it had gone through the same stages, it would be again absorbed, and thus continue for ever. They arise from a morbid action, and not from a putrefaction of the fluids. They are communicated in the form of vapour or a fluid.

They may be divided into two classes.

The first class is local, such as do not poison the constitution, but the surrounding parts keep running into the same disease; this class admits of two divisions—the first, such as are capable of infecting any part, as cancer; the second are those which only affect the skin, as the itch.

The second class may be divided into two; the first affecting the constitution by contact, as the plague; the second by effluvia, as the jail fever. When the constitution is affected by particular poisons, its mode of action is, perhaps, the same in all; that is, however different the poison may be, the action of the constitution at first will be the same. The beginning of all fevers is the same. When it has gone through the constitution, it will produce its particular or specific effects afterwards, as the eruption in the small-pox, chicken-pox, &c.

THE ITCH.

This is a poison of the first class of the first division. It is always confined to the part where it is applied, producing specific ulcers and specific matter. The common people are most subject to this disease, probably from want of cleanliness. Cleanliness prevents it; if it did not, surgeons and physicians of hospitals would have it continually. When people of a certain rank get it, it is generally universal, from their receiving it by lying in sheets not perfectly clean. Common people generally receive it first in their hands, which if they washed frequently would prevent it.

Sometimes a child will give it to a family.

From its being so much among the poor, and those who are particularly dirty, it has been supposed to arise from nastiness. Among such it is most frequent, because when they receive the matter, it is not prevented from taking effect by being washed off. When the skin is washed soon after it has received the matter, there is no danger of its infecting; therefore it is perfectly safe to handle persons with the itch, if the hands are washed soon after.

It is supposed to arise from animalculæ: such may have been found in the matter, but they are not the cause of the complaint, for I have repeatedly examined the matter with microscopes, but never could see any.

The disease may be communicated by applying it to a sore. There are many parts which will not, perhaps, admit of it. It generally occurs where the cuticle is thinnest. This may be from two reasons: one is, that the thickness of the cuticle may prevent its taking place; the other, that such parts being projecting, the matter may be rubbed off. It therefore is generally between the fingers and in the flexion of joints. Although it is a specific disease and a poison, it may be cured in several ways, and by medicine whose actions are not at all similar. It is not so with respect to other specific diseases. Mercury will cure it, though not always. Frictions sometimes will not cure it, although a girdle frequently will. Solution of corrosive sub-

limite frequently cures; and it is said the same of hellebore. Sulphur made into an ointment is the greatest specific. But by becoming volatile it smells very disagreeably. When taken internally, it will cure; but then it must be taken in so large a quantity as for the sweat to smell of it. It frequently purges, but opium may be joined with it to prevent this from happening.

LECTURE XV.

THE VENEREAL DISEASE.

This disease is compound, sometimes affecting the constitution, at other times locally. The poison is only known by its effects. It is impossible to say in what manner it will poison. It may be either by chancre or clap. It is always communicated in the form of pus; vapour will not communicate it. It must always be applied in a fluid state, or rendered so by the part to which it is applied. It arises with inflammation, and can only be communicated by matter containing the poison. When it is applied to a sound part, the latter cannot communicate the disease until it forms poded pus.

It affects the body in two ways, locally and constitutionally. Of the local there are two kinds; one without ulceration, the other with the clap and the chancre.

The effects of these are the same, the difference only arising from the nature of the parts. One part (as the urethra) can form matter without ulceration, being a secreting surface; the other cannot, until it has ulcerated. The irritation increases the secretion to throw off the offending matter; but it cannot wash it off when poisonous, because it is producing the same. That is, the irritation being specific, the inflammation produced is specific, consequently the matter is of the same kind.

The application of matter to a sore is another way of receiving it; this at first makes a kind of clap, by increasing the secretion, and afterwards it becomes chancreous. But the continued application of this matter does not perhaps keep up the disease, it being of a similar disposition. Its mode of action being specific, it will go through its different stages before it terminates. Some specific diseases have no termination.

Applying it to a wound would be a more certain method of infecting the part,* as in the small-pox and hydrophobia. When applied to all internal surfaces, it will there produce a clap. On opening such, the part appears blood-shot, the lacunæ filled with matter, but no ulceration. It produces a clap on all sine-cuticular surfaces. Whether there are any parts particularly susceptible of the disease is not certain. In a chancre the virus can only be removed by escharotics.

The second, locally affecting a part, is when the matter is applied to the skin, it ulcerates, and produces a chancre. In both, the matter has the same properties, either of them being capable of producing both. If applied to a wound, it produces a chancre; if to a secreting surface, a clap.

* When applied to a part that is suppurating, as an ulcer, it is very liable to be washed off. An ulcer, however, appears a more easy part for absorption to take place at than a wound, which may be observed from what happens in other poisons, as the small-pox from circulation.

It appears extraordinary that the two forms should not be joined in the same person. That is, as the matter of a clap is in continual contact with the glans, why it should not produce a chancre, and *vice versâ*? Sometimes a chancre will appear after a clap, and *vice versâ*; but then probably they have both been received from the original giver, only appearing at different periods of time. When the disease has set down on one part, it seems to prevent its taking place in another.

It is capable of being taken into the constitution from the internal surface, and from an ulcer. I have proved the last fact by experiments which I have frequently made; and in some cases I have found it taken into the constitution without producing any local effect at first. But probably it does not contaminate the fluids, nor any of the secretions, and can only contaminate those fluids which are secreted from a sore, which is venereal. It is sometimes said that the milk will infect a child, but that I do not believe, unless there are ulcers. Nor can the breath infect.

§ This venereal poison cannot infect any one, probably, when received in the stomach, it being there digested.

A gentleman who had some very virulent chancres, used to wash his penis in a cup of milk with a bit of lint, which he left at the bottom of the cup. A little boy in the house once stole the milk and drank it; whether he swallowed the lint was not known. No notice was taken of this, but the boy was secretly watched for some years, and he never had any venereal symptom.

Another gentleman who had a very virulent clap and chordee, used to keep by his bed-side a basin of milk and water, for the purpose of washing and cooling the part. During this time he had a girl to sleep with him, who used to have a basin of tea to drink in the night; by mistake she drank the milk and water instead of the tea, and did not discover it till four hours after; I was sent for, and I gave her ipecacuan, which vomited her in two hours. Nothing was brought up but a small quantity of slimy fluid, the milk having been digested. The foetus is not infected in utero, nor will the blood of a poxed patient infect by inoculation.

This disease never interferes with any other, that is, never degenerates into another. When it is in the constitution, it produces many local effects; ulcers of its own kind, but perhaps the matter of these is not venereal. Although this disease never interferes with others, yet other causes will frequently produce similar appearances.

The three stages of this disease never interfere with one another; nor do they in the cure. The cure of one is not retarded by the presence of another; therefore, if a patient is clapped who was before poxed, either of these may be cured separately from the other; the pox not increasing the clap, or interfering in the least with it in the cure; and it is the same if there should be a clap and chancre. The presence of one seems to prevent the irritation of the other, otherwise, perhaps, we should never have a clap without its discharge producing chancres, nor chancres without their producing a clap, as the matter from them may easily insinuate itself into the urethra.

The venereal disease keeps perfectly distinct from all others, never degenerating into another disease;

yet many of its symptoms are so like the symptoms of other diseases, that it is impossible almost to say what the disease may be; therefore, to judge properly, a great number of circumstances must be considered. Some irritating matter placed on the urethra will produce a clap, and upon the skin a chancre, though not venereal: the matter by being absorbed may produce blotches. Rheumatism will cause pain in the bones, swelling of periosteum, fascia, &c., similar to venereal.

The venereal inflammation is a specific inflammation, and is, like others of a specific kind, always circumscribed. It is the same in the small-pox, the surrounding inflammation of the pustules never extending far, except in the confluent, which then becomes another disease. The virus is carried into the constitution by absorption; which may be from a sound surface, an inflamed surface, or an ulcer: it is not absorbed from a wound until that wound ulcerates, becoming a chancre. The matter when lodged on the skin produces local inflammation, and nature, to get rid of the irritating matter, recedes, that is, ulcerates, and endeavours to wash off the offending matter by suppuration. Suppuration can only be performed by first ulcerating on those surfaces which are not secretory. Those ulcers which are produced from the virus in the constitution are probably not venereal; that is, the pus from them is not, perhaps, capable of communicating the disease.

VIRULENT GONORRHOEA.

When the virus is situated on a secreting surface, it can only last a certain time, it wears itself out; this is not peculiar to this disease, it is the same with many others. The ague often cures itself by time, the constitution at last not being capable of affection from that stimulus.

A part being continually teased with one stimulus in time, by habit, loses the power of being affected by it. Thus it is, that all claps, without one exception, will in time cure themselves. This irritation, when produced in a part, cannot be increased by the application of new matter; if it could, its own matter would increase it, that being infectious; nor can the duration of the disease be prolonged by the addition of new matter; therefore it is impossible to get clap upon clap, although a man were connected with an infected woman every day.

Nor is it probable that the patient is capable of infection immediately after he has got rid of the disease, the parts not being then susceptible of that stimulus; and if he was from that time to continue his connexion with infected women, he would probably never be susceptible of the disease. But if he should discontinue such connexion for some time, the parts would again become susceptible of the stimulus, and he would catch the disease. When the disease is set down on a part, it cannot be increased by its own matter, or the addition of fresh virus: nothing can increase the discharge, but that which can increase the disposition of the part to be irritated by the virus. A sore cannot be stimulated by its own matter; the matter being of the same disposition as the sore, therefore it is unnecessary to wipe away the matter; that being as good as any application. The poxed matter of a chancre cannot irritate that ulcer, nor even the application of poxed matter from another person; nor could such application

retard its healing. A man who is constantly on the town will, perhaps, receive no injury for years, yet if he should go into the country, leaving off that habit for some time, and afterwards return to the town, probably the first injured woman he has connexion with would infect him.

The symptoms of a recent case are more violent than those which proceed from a pox. The recent inflammation of the urethra will be almost intolerable, whereas the inflammations on the skin from venereal eruptions are frequently so mild, as to remain in small copper-coloured spots for months, without coming to suppuration. If it were possible to keep a bubo in a state between resolution and suppuration for a length of time, it would possibly become so habituated to that state as never afterwards to be resolved.

The vagina does not seem so susceptible of the stimulus as the urethra. A married man met with a girl whom he had formerly kept; he had connexion with her, and she clapped him. He put her and himself under my care; during her cure he had frequent commerce with her, and continued such connexion for three or four months, at the end of which time she went into keeping with another, and the consequence was that she clapped the second person, although she did not appear to have any disease remaining. She put herself again under my care, but neglected to do as I directed; her keeper was cured by another. They continued their intercourse with each other for near twelve months, without any appearance of disease, when she again met with her first lover by accident, and clapped him again. This shows that the vagina is not stimulated so much as the urethra, and that the habitual stimulus does not produce the disease; but that the discontinuance of such habit restores the parts to their former irritability, and that they then become susceptible of the stimulus.

This case shows how great a length of time the disease will continue after all inflammation has ceased.

This inflammation seldom extends further than the parts which received the infection. Most specific inflammations are very circumscribed. The surrounding parts sympathize very little with specific inflammations. Common inflammation is generally more diffused.

When the virus is in the constitution, its irritation is eternal; there never was an instance of the disease wearing itself out; that is, of the constitution losing its susceptibility of irritation from habit. The consequence will be according to the constitution, and not the matter. When the disease is in the constitution, there are some parts more susceptible of the disease than others; whether this depends on the situation of the parts or their nature, is not quite certain. The parts most susceptible appear to be the skin, tonsils, inside of the mouth, nose, and throat. The next in degree of susceptibility are the periosteum, fascia, and bones. Those parts which are most exposed to heat and cold appear most susceptible of the stimulus. Cold has very powerful effects on the body, disposing it to receive the stimulus. When the poison is weak, it then attacks the most exposed parts; when it is stronger, it then attacks the deeper-seated parts, but in these it always attacks that part which is nearest the surface, therefore we always have the node on the tibia upon the fore part. It may be said that the fore-

part of the tibia cannot be actually colder than the back part; that may be true, but still from its situation it will be easier acted upon by the cold, and that will make it more susceptible. Although the periosteum on the fore part of the tibia may be equally warm with that on the back part, it may be sooner affected from its more readily sympathizing with the skin. I have made some experiments which show that deep-seated parts will become some degrees actually colder from the external application of cold. It is not the situation alone of a part which causes it to receive the stimulus; if so, we probably should have nodes often on the ankles, from their being situated so near the surface, which does not happen. This happens because the hardest parts of bones are only attacked with this disease; but then, the periosteum is not exempt from the disease, and that, from its nearness to the skin on the ankle, would probably be attacked. This can only be accounted for by supposing that the periosteum covering a soft bone differs from that which covers a hard part; the appearances of both are the same; the difference may arise from their taking on the same disposition as the part they cover. Climates influence the constitution very much in this disease. In warm climates it attacks the superficies, and seldom the deeper-seated parts. Whether the blotches on the skin arise from an attempt of the constitution to remove the disease, is not known. All sine-cuticular surfaces, that is, internal surfaces, may be clapped, as the inside of the nose, eyelids, ears, anus, &c. A man has had a clap in his eyes from washing them with his urine when he was clapped.

CASES

FROM THE EARLY NOTE-BOOKS OF THE LATE
SIR ASTLEY COOPER, BART.

EXTRACTED WITH PERMISSION OF B. D. COOPER, ESQ. F.R.S.

No. XIII.

HÆMORRHAGE FROM THE NOSE.

I OPENED the body of —, who had died of hæmorrhage at the nose. Attempts had been made to stop the bleeding, but without effect; and on the third day after the commencement of the attack, she died.

Upon examination after death, much coagulated blood was found in the nose. The bleeding had arisen from the membrane under the inferior turbinated bone, in which there was a small ulceration about the size of a pin's head, surrounded by inflammation.

INJURY OF HEAD, WITH LOSS OF CEREBRAL SUBSTANCE.

A highwayman fired a pistol into his left orbit, and the ball, after passing through the brain, came out through the coronal suture on the left side. He did not fall, nor was he senseless, but was able to walk to his ward in Guy's Hospital, into which he was admitted.

He lost a very considerable quantity of blood from the temporal artery. The accident happened about four o'clock A.M.