walls, filled with an elaborated or secreted matter and molecules, and analogous to those seen in the embryo textures, have taken the place of the transparent, coherent, strong and elastic, cellular and fibrous textures. All that need be affirmed is, that corpuscles or cells, apparently identical with those which form the elements of, and are excreted by, the morbid texture, circulate abundantly in the blood, and may be seen adhering to, and altering the character of, nutrient vessels; and these facts, established by observation and experiment, are sufficient to explain the origin of the elements which effect the structural changes.

But before this conclusion can be admitted as the basis of the pathology of scrofulous diseases, it is necessary that its foundation on natural laws be substantiated by further investigation.

(To be continued.)

OBSERVATIONS ON HERNIA, AND ITS TREATMENT BY OPIUM.

By BUTLER LANE, M.D., M.R.C.S.E., &c. &c.

Among the most serious emergencies of surgical practice may be reckoned cases of strangulated hernia. This is especially the case in country practice, where there may be lack of counsel to impart confidence in action, and where life may depend on the judgment and energy of a single professional individual. Even in the metropolis, where abundant experience and operative skill are available, it must be acknowledged, that such cases often occasion considerable embarrassment. It has always been an object of surgical science to supersede the necessity of operation, in cases of strangulated hernia; other objectionable circumstances besides the danger, place the operation in question among the foremost of the *opprobria medicæ*. I am therefore induced to direct the attention of the profession to a method of treatment, which has been attended with such marked success in two consecutive instances, as to convince me that it deserves a fair and extensive trial in the arena of hospital practice.

The plan I am about to advocate, consists in narcotising the patient by the free and continuous administration of opium. Where or with whom this method of treatment originated, I know not, but I shall be happy to surrender the merit of suggestion to any just claimant. When I adopted the practice in the first instance, I had a vague idea of having seen the use of opium in hernia mentioned in some periodical, and my memory did not serve me farther; but from considerations, hereafter to be mentioned, it seemed to me feasible in affording some prospect of relief.

The first case to which I shall refer, was one of oblique inguinal hernia, occurring in a female, about 45 years of age. The previous history was somewhat obscure, but it seemed probable that slight protrusion and incarceration, (probably omental in its nature,) had existed for some time previous to the present period.

She was under the care of Messrs. Shelley and Stilwell, of Epsom, to whom I am indebted for most of the following particulars; and when I saw her with those gentlemen, unequivocal symptoms of strangulation of the hernial tumour had existed at least three days. The swelling had enlarged considerably, there was much abdominal pain and tenderness, obstinate constipation, constant nausea, and copious vomiting of decidedly stercoraceous character. The symptoms had suddenly supervened, and gradually increased in intensity. In the first instance, the stomach had retained large doses of cathartic medicine, castor oil, and calomel, though without any aperient effect, but now everything was rejected as soon as swallowed. All the usual medical means available had been unsuccessfully resorted to, and the taxis had been carefully and repeatedly applied. The tumour had now become exceedingly tender, the countenance assumed an anxious expression, and the pulse was accelerated. There could be no doubt that the operation was desirable, and that without delay, but to persuade the woman to submit to it was impracticable. I again employed the taxis unavailingly. A cathartic enema was then ordered, and any farther procedure was remitted till the following morning, when we hoped by other means to induce the woman to undergo the necessary operation.

When I again met Mr. Shelley and Mr. Stilwell, we found all the symptoms had increased in urgency, and the vital prostration was become more obvious. Our patient, however, was no less refractory and obstinate than heretofore. Her danger was imminent, and in fact, death seemed almost inevitable. The state of depression rendered a tobacco enema objectionable; it was, however, agreed to try it, but though its sedative influence was fearfully powerful, yet it did not seem to afford any advantage, no fecal evacuation being obtained, and the stercoraceous vomiting and other symptoms continuing as before. As a last resource, I then suggested the administration of opium, in doses of one grain every hour, which was agreed to, though with but little anticipation of effectual relief.

I saw the woman next day with Mr. Stilwell, and was agreeably surprised at the change which had taken place. Twelve doses of opium had been administered and she was fairly under its influence, having the appearance of a helpless state of intoxication. She had slept much, and when roused, her answers and conversation were very incoherent. The pulse had increased in power, and diminished in frequency. No complaint was made of abdominal pain, and there was much less tenderness in the umbilical region and the site of the tumour. The sickness had ceased and food had been taken and retained. The improvement was permanent and progressive. A simple enema was

administered that evening, and brought away much fecal matter. In the course of the day the tumour became spontaneously much reduced in size; for some time subsequently a small swelling remained in the groin, and whether it ever disappeared completely I am unaware.

The second case occurred in the practice of my friend and partner, Mr. Allan, of Epsom, and I am chiefly indebted to him for the particulars. A woman, aged 70, suffering severely with a catarrhal attack, presented symptoms of obstruction of the bowels, and on examination a femoral hernia was discovered in the left groin. She said she had first perceived the swelling two or three months previously, and it had seemed within the last few days to increase materially from the violence of the cough. The taxis and other remedial means were unavailingly resorted to, and the symptoms had existed 48 hours when Mr. Allan requested me to see the patient with him, that we might determine as to the operation. At that period I found the tumour the size of a large walnut, free from heat or pain, neither was there any abdominal tenderness. The tongue was somewhat furred and dry, but there was no great heat of skin; the pulse did not exceed 84, was regular and not deficient in tone. The woman's chief complaint was of intense nausea and violent sickness, coming on with the paroxysms of coughing; any movement or attempt to change her position would also occasion it, and on taking any nourishment, it was immediately rejected; with the continued vomiting stercoraceous matter followed in abundance. I applied the taxis some time, and with considerable force, but unsuccessfully. There could be no doubt as to the nature of the case, and the ultimate necessity for an operation seemed inevitable, but as the constitutional symptoms were not urgent, and the operation was strenuously objected to by the husband, we agreed to some farther delay. A large enema with castor oil was administered, and, beyond a little gruel, no nourishment was to be attempted.

No favourable change had resulted the following morning,—night had afforded no repose, and the retching and vomiting had been almost incessant. The enema had for the most part been retained some hours, but its evacuation had been unaccompanied by fecal matter. The constitutional depression was more manifest, the pulse had become accelerated, and some pain and tenderness were experienced both in the abdomen and in the tumour. Mr. Allan proposed that the tobacco enema should be used, and in the event of its failure, that the operation should be had recourse to without farther delay. Bearing in mind the success which had attended opiate treatment on the former occasion, I suggested its adoption in the present instance, as there was still great aversion to the operation on the part of the patient and her husband. Mr. Allan acceding to my proposal, one

grain of opium in the form of pill was administered every hour.

When we met the following morning eight doses had been taken, and the narcotic influence was manifest, though the medicine was evidently well borne. The pain and vomiting had ceased, but the bulk of the tumour was not diminished, nor had the bowels been moved.

After the administration of four more doses the tumour was found to have diminished to one half its former size, the patient still continuing free from pain and sickness. A large injection of gruel with castor oil was then thrown up the rectum, and ample evacuation of feces soon took place. The relief was permanent. A small swelling remained in the groin, and still continues, probably containing a portion of incarcerated omentum. In the words of Mr. Allan, "*Thus was this patient saved the risk and pain of a serious operation, by a remedy, every dose of which brought relief and comfort.*"

I shall now venture on a few brief observations in reference to the *modus operandi* of opium in hernia, and my opinions on this subject have emanated rather from a long continued investigation of the action of the various narcotics and sedatives, than from a mere wish to clothe the above isolated facts with an appropriate and well-seeming theory.

The pathological elements of strangulated hernia are two-fold:—on the one hand those connected with the protruded bowel, and on the other those depending on the muscular and tendinous tissues which surround the opening through which the intestine protrudes. That the tendinous structure can only exert a passive influence is generally allowed, and that *permanent* spasm can under ordinary circumstances affect the fibres of the voluntary muscles, or even those which are instinctive or spinal-motor, would not on reflection seem probable; and yet on this latter assumption have all the theories of hernial strangulation been chiefly founded as far as I am cognizant thereof. Now, in a pathological point of view, beyond the visceral extrusion, through a narrow and unyielding opening, I believe the active cause of hernial strangulation to be essentially connected with the intestine itself. Suppose a portion of intestine forced into a cavity of which the neck is somewhat constricted. Now, we know that the general effect of superficial pressure on any portion of the body will occasion a greater obstacle to the venous part of the circulation than to the arterial. The balance of action of the two circulating media being disturbed, the afflux will incline to exceed the efflux, until such time as circulation is completely arrested, when gangrene must take place. In accordance with what I have stated above, any medical attempt to relax the external muscular structures would be unavailing; but on the other hand, if we can relax and

reduce the bulk of the intestinal substance, we might then hope for advantage. Now, let us look at the influence of the various sedatives, and see how far any one of them may be expected to conduce to the desired end. Warm baths and bleeding may lower the general system, and relax the muscular structures, but the result of their employment do not sufficiently indicate a decided bearing on the local morbid state. Antimony exerts a special depressing cerebral influence; it diminishes the power of the heart, and lowers respiratory action; it also affects the contractility of the voluntary muscles, but it does not diminish the peristaltic contraction of the intestines in the first instance, neither does it *immediately* influence the capillaries; moreover, it is objectionable on account of exciting irritation in the mucous membrane of the alimentary canal. Belladonna exerts its chief influence on the voluntary muscles; so likewise does tobacco, which in its cerebral influence will subsequently determine to the heart; over that centre of the circulation, digitalis appears to exert a direct control, but it has no peculiar action on the capillaries. Aconite, on the other hand, seems to have a special relation to the sensitive power, and to exert no direct influence over contractile or motor structures. The diminution or even destruction of organic sensibility appears to result from the action of prussic acid, so as to destroy the connection between action and re-action. Now opium is essentially one of the most powerful sedatives we possess, although undoubtedly stimulation may be primarily consequent on its administration under peculiar circumstances. Its action is very general. When freely administered it relaxes all the contractile tissues, and primarily and essentially those which are involuntary. It soon reduces the force of the circulation, and though at first it may tend to produce a state of capillary congestion, yet as soon as the balance of action between the centre and periphery of the circulation is restored somewhat, the capillaries of the surface and of the membranous viscera will be deficient in their usual contents, and lose their natural irritability. Now, with emptied and inactive capillaries, and relaxed contractile fibre, is it not to be expected that the hernial tumour would become reduced in bulk, motionless, insensible, and flaccid?—the intestinal structure is in fact utterly paralysed, and the state which has caused strangulation being removed, as well as the undue internal pressure by which it was originally caused, may we not fairly hope for the spontaneous reduction of the protruded viscus, even as it seemed to occur in the instances which I have adduced?

Experimental enquiry supports the opinion I have advanced respecting the medicinal influence of opium. If the heart, while yet pulsating, be removed from the body of an animal, the muscular contraction will immediately cease on applying a solution of opium, and the same is the case with the vermicular motion

of a portion of intestine. The velocity of the capillary circulation is found to diminish on the application of opium; and where a person is under the poisonous influence of the drug, I need scarcely remark that blisters and sinapisms will fail to produce the slightest irritant effect, so completely is organic sensibility destroyed. In conclusion I may remark, that in my experience, the safest and most effectual method of bringing the constitution under the influence of opium, in ordinary cases, is by the repeated and frequent administration of moderate doses; and I am therefore inclined to advocate the same plan in hernia, care being taken to carry the administration to a sufficient extent.

Since writing the above, the influence of æthereal inhalation, in cases of hernia, has come to my knowledge; whether the medicinal action thereof is superior to that of opium remains to be seen; but be that as it may, the lately recorded facts support my view of the pathology of hernia. Mr. Tuson's case, published in the *Medical Gazette*, is especially remarkable. On the abdomen being opened, large masses of intestine escaped, but on æther being used, the bowel returned spontaneously, apparently collapsing rather than contracting under the medicinal influence.

ON ÆTHER-INHALATION IN TETANUS, WITH A CASE.

By W. H. RANKING, M.D., Norwich.

A careful analysis of the recorded experience of the æthereal inhalation in surgical cases cannot fail to convince any unprejudiced person that a discovery has been made, no matter by whom, which is not surpassed in the annals of the healing art. We now know tolerably well what are the circumstances under which it may be exhibited in surgical practice, and when it should be withheld, but of its effects in medical practice we are comparatively ignorant. It has been suggested, amongst other diseases, that tetanus is one in which the stupifying agency of æther would be of great service, but with the exception of myself, I believe as yet no one has had practical demonstration of its effects.* These effects were, as the subjoined case will indicate, not only not beneficial, but to all appearance injurious.

In a disease so uniformly fatal as tetanus, I regard experimentalism, even in the teeth of physiological deduction, as pardonable, otherwise I should not have ventured upon the inhalation of æther in the present case, for I am induced to believe, from a careful noting of the operation of the agent, that it has no power,

* Since the above was written, two trials of æther in tetanus have been recorded,—one in this country, one in France. In the former some slight relief was thought to have been afforded; in the second death was indubitably precipitated by its use.