vaguely, even as (for the most part) it is mapped out in veterinary works, to see what instruction their history must contain could it once be thoroughly made out.

A searching investigation into them would open up analogies that could not fail to be of the deepest interest in their bearing on the great group of kindred maladies which are so fatal to man. It is not too much to say that many a vexed problem relating to these last would here find a ready solution. It is, in fact, only by thus extending the survey that it is possible to obtain a just and comprehensive view of the nature and mode of propagation of that great and remarkable brood of morbific agents, which are the material cause of contagious diseases, and which, low as they are in the order of created things—as yet undefined in nature, but specific in essence—are so destructive to men and animals alike.

As related to animals, such an inquiry is the more inviting, because its prosecution offers facilities from which we are debarred in our own case. In studying the epidemics which infest sheep and oxen, *experiment*—that great instrument of modern research—might often be brought into play; in forms, too, in which experiment is most sure of its aim, most easy to interpret, and least likely to mislead. The light which it has already thrown on the history of the particular disease which is the subject of this paper is a good example, both of the extent and nature of the elucidation it is capable of affording.

By this and other means so employed, we might, in no long time, succeed in investing our knowledge of whole provinces of disease with much of that precision which is the charm of the physical sciences, and medicine's greatest want. By the same means, we should gradually be accumulating data whereby to make the work of prevention sure, and thus help towards that great consummation to which we may even now confidently look,—the ultimate deliverance of man from that vast brood of contagious diseases, which seem to mock his power—whose very existence is a humiliation to him, and which, under the form of slighter visitations or of wide-spread pestilence, bring every year so many millions to the grave by a cruel and untimely death.

P.S. About a fortnight after the foregoing paper was read, I received from Dr. Markham an extract from the *American Medical Times* of July 19th, 1862, containing a review of a paper on Malignant Pustule in the United States, by Dr. A. N. Bell, physician to Brooklyn City Hospital—the paper being a reprint from the *Transactions* of the New York State Medical Society. I have not seen the paper itself; but judging from the review, there would appear to be an almost complete coincidence between the conclusions at which Dr. Bell has arrived, both as regards the origin of the disease and its mode of propagation, and those put forward by myself. As these conclusions were come to in entire independence of one another, the fact may be taken as a strong presumption in favour of their soundness. The following is Dr. Bell's description of the affection:—

"It first appears in the form of a painful swelling, which after a lapse of time, varying from one to three days, rarely more, developes upon its central part, a small reddish or purple spot, accompanied with itching. In the course of twelve or fifteen hours more this spot changes into a bleb or vesicle, not usually larger than the head of a pin, containing a reddish brown or a yellowish fluid. Owing to the continued itching, the vesicle is ordinarily ruptured soon after its appearance; if otherwise, it dries up in about thirty-six hours, leaving the exposed derma dry, and generally of a livid colour. Itching now ceases; and after a time, varying from a few hours to a day, the centre of this discoloured and denuded surface begins to grow hard, and become surrounded by an inflamed areola covered with numerous small vesicles similar to the vesicle which first appeared. The middle of this areola is depressed, and the colour varies from yellow to black. It is now hard in the centre, and more painful than at any other stage. It is, however, a remarkable feature of malignant pustule that severe pain is generally absent; and this character, so different from all other acute inflammations of the skin, is a valuable negative diagnostic of the disease. During the next twenty-four or forty-eight hours the subcutaneous tissue becomes involved; the tumour strikes deeper, and rapidly extends; yet it is so indurated as to be easily circumscribed, and its confines determined without difficulty. Meanwhile the central point, now of brown or livid hue, exceedingly hard and insensible, becomes gangrenous. If the disease ceases to make further progress, an inflamed circle of vivid redness now surrounds the gangrenous portion; the tumefaction which had before rapidly extended diminishes, and the patient experiences something like an agreeable warmth, accompanied by a pulsatory motion of the affected part. The pulse, which had before grown irritable and feeble, revives; strength increases; and if there has been some degree of fever, accompanied with nausea, as occasionally happens, it is resolved into a gentle perspiration, and the nausea ceases. Suppuration now sets in between the living and the dead parts of the pustule, and the detachment of the gangrenous portion leaves a suppurating surface of variable extent in different cases. Should the disease, on the contrary, tend to an unfavourable issue, generally no suppuration takes place; the gangrene spreads rapidly from the centre to the circumference of the tumour; the pulse becomes smaller and more contracted; the patient complains of extreme lassitude with an inability to sleep, is attacked with fainting fits, and becomes passive as to the result; there is disinclination to take food or medicine, or to have anything done, and there is a total loss of appetite; the tongue is dry and brown; the features shrink; the skin is parched; the eyes are glassy; cardialgia and low delirium premonish the fatal termination."

It is impossible not to recognise, at once, in this description the same disease as that which is the subject of this paper, and the identity of both with the malignant pustule of the continental writers.

Illustrations OF HOSPITAL PRACTICE:

METROPOLITAN AND PROVINCIAL.

PETERBOROUGH INFIRMARY AND DISPENSARY.

INDURATION OF THE STERNO-MASTOID MUSCLE IN AN INFANT.

(Under the care of, and reported by, THOMAS JAMES WALKER, M.D.)

IN the number of the BRITISH MEDICAL JOURNAL for December 6th, is a notice of a paper by Dr. Melchiori in the *Omodei Annali*, in which he calls attention to the occurrence of an induration in the sterno-mastoid muscle, sometimes found in young children, and of which four cases had come under his notice; and in the *Lancet* for January 3rd, are published three cases of this affection, which had been treated at the Royal Infirmary for Children, by Dr. Wilks, who does not appear to have seen the remarks in the BRITISH MEDICAL JOURNAL of a month before, as he says that he can find no reference to this malady in books. Dr. Wilks's cases were treated on the theory that the induration of the muscle might depend upon syphilis, and the patients got well. In

the following case, as in Dr. Melchiori's, the treatment was expectant.

John Knighton, aged one month, was brought to the Infirmary on June 30th, 1862, in consequence partly of an attack of diarrhœa, attended with loss of appetite, etc., and partly because the mother wished to know if anything could be done for the neck, on the right side of which she had perceived a lump since the birth of the child. On examination, the sterno-mastoid muscle of the right side was found indurated, feeling as noted at the time like an osseous arch, stretching from the mastoid process to the clavicle. The head of the child was turned a little towards the healthy side.

The mother of the child was a strumous subject, but there was no suspicion of syphilis.

Simple remedies were prescribed for the diarrhœa, and friction with the hand dipped in a little flour was recommended for the neck, more, however, as a placebo, than with the expectation of any benefit, as at that time I had seen no notice of a similar case, and regarded it as a congenital deformity, likely to be persistent.

At the end of three weeks, the diarrhœa being well, and the swelling apparently but little better, the mother was told to show the child when a month had elapsed; she did so on August 19th, when the rigidity had much diminished; and on September 23rd, no trace of it remained.

CALCULUS OF THE BLADDER, DISCHARGED IN FRAGMENTS BY THE URETHRA WITHOUT ANY CRUSHING OPERATION.

(Under the care of, and reported by, T. J. WALKER, M.D.)

The following example of that rare occurrence, spontaneous disruption of a stone, is rather curious than instructive, and is somewhat inexplicable; its publication may lead to some attempts at explanation, or may call forth descriptions of similar cases.

Job Heyward, aged 14 years, admitted into the Infirmary June 10, 1862, has for six or seven years suffered from urinary disorder, and had been an out-patient of the Peterborough and Stamford Infirmaries. He was formerly sounded for stone without any being detected; but within the last two or three years had passed several small calculi *per urethram*. Bloody urine had also been voided on several occasions. About a fortnight before admission, the patient was attacked with severe pain, extending from the loins round the abdomen, and down the thighs. He passed bloody urine at first; but afterwards was unable to get rid of any, and the bladder becoming rapidly distended, he applied to Mr. F. Southam, of Wansford, his usual medical attendant, who has kindly furnished the following particulars of the case while under his care. On first seeing him, on June 31st, the bladder was distended, and at about two inches from the meatus of the urethra was impacted a calculus, which was removed, and found to be of about the size of a small horse-bean; it appeared to be an irregular fragment of a large calculus. A mixture containing liquor potassæ was ordered to be taken twice a day. About three days afterwards, the patient was again very ill, and unable to pass urine; the bladder was distended, and on three occasions Mr. Southam introduced the catheter and emptied the bladder, portions of calculus passing away through the instrument. Subsequently, to this the calculous *débris* accumulated in the urethra, as it did while the patient was in the Infirmary, and Mr. Southam removed a considerable quantity with a director. The alkali was discontinued and citric acid given in its place, and the warm bath was daily used. It was not until June 7th, that the swelling of the penis and prepuce took place; no instrument was introduced into the bladder, except the catheter, and the scoop of a director alone was used to remove the fragments from the urethra.

Upon admission, the bladder was found greatly distended, and the urine constantly passing *guttatim*. The penis was very œdematous and the prepuce contorted; a sound was introduced into the urethra, but met with an obstruction about five inches from the meatus; no grating was felt, nor was the click of the instrument against a calculus felt; no stone could be felt by pressing the finger on the perinæum.

In the evening the boy passed a considerable quantity of urine while in a warm bath, and later passed some at stool.

June 11th. The patient had slept well; the distension of the bladder was greatly relieved; the urethra was felt to contain calculous matter for about two or three inches from the meatus, and with an urethra-scoop several fragments, irregular in form and evidently portions of a large stone, were removed. Some of the pieces had lodged within the prepuce, the œdema causing phimosis, and the remainder evidently being unable to pass the narrow meatus.

June 12th. The urethra, which seemed completely cleared yesterday, was now again filled with calculi, each act of micturition pushing fresh fragments forward. Several fragments were removed, some larger than a pea, and two entire calculi of rounded form, quite different from the other fragments, were also removed, these were about the size of peas. There was now no distension of the bladder, and the patient appeared to be doing well in every respect.

June 13th. A fresh accumulation was found in the urethra, and removed. The weight of the whole, collected since the admission of the patient into the Infirmary, was forty-four grains, and the masses were rather bulky for their weight. The penis was no longer œdematous, though the prepuce was still swollen.

June 25th. The patient now passed urine with perfect freedom, and for some days no trace of gravel had appeared. He therefore left the hospital, and on July 5th was discharged, perfectly free from any symptoms indicating calculus or other disease of the urinary organs, and he remains quite well at the present time.

The whole of the calculus passed from his admission into the Infirmary to the time of his discharge, weighed fifty-five grains, and the *débris* removed before the patient's admission into the hospital, and, unfortunately, thrown away, is estimated by Mr. Southam to have been at least equal in quantity to that.

The composition of the calculus was almost pure uric acid, there being scarcely a trace of phosphates. In most cases of spontaneous disruption, the calculus has, I believe, been phosphatic. The fragments were irregular and angular in shape, and varied in size from pieces as large as a small horse bean, to others about the size of a cardamom seed.

Certainly in this case neither of the so-called explanations of other cases of disruption, such as the clashing of two stones together, nor the contraction of a hypertrophied bladder, will clear up the mystery as to the cause of the breaking down of the stone; and there is no evidence of any change in the character of the urine, or other reason for the unusual termination of this case of calculus. Had Mr. Southam not been clear that the stone which he removed from the urethra on the first day that he saw the patient, was a fragment of the calculus which was broken up, a feasible supposition might have been that a small separate calculus, having become impacted in the urethra, caused retention, and that the retained urine becoming ammoniacal acted upon the uric acid calculus.

The urethra of the boy was capacious up to the meatus, but this was so contracted that the fragments were not removed without some difficulty; and when the œdema and phimosis passed off, it was seen that there had been some enlargement of the orifice, by a slight laceration. There being but slight constitutional disturbance throughout, the bladder never being much distended after the use of the warm bath on the day of admission,

and the concretions admitting of removal by the urethra-scoop, there seemed no indication for any severer measures than those adopted.

COMPOUND COMMINUTED FRACTURE OF BOTH FEET, AND EIGHT SCALP-WOUNDS OF GREATER OR LESS SEVERITY, EXPOSING THE BONES OF THE CRANIUM. AMPUTATION OF BOTH LEGS ABOVE ANKLE.

(Under the care of, and reported by, T. J. WALKER, M.D.)

The following case is an example of recovery from injuries which, at first sight, would seem almost necessarily fatal; and also appears to indicate the great propriety of —occasionally, at all events, if not always, when the circumstances of the case permit it—amputating above the ankle, in preference to selecting a higher portion of the limb.

David G., aged 29, fireman on the Great Eastern Railway, was admitted Nov. 11th, 1862. He was standing on the plate in front of his engine, which was in slow motion, and fell off, with his feet on one rail and his head on the other. Both feet were crushed under the wheel of the engine; while the guard in front of the other wheel probably struck the head, pushed it on a little way, and struck it again, making a fresh wound each time. On admission, the patient was semiconscious, and evidently labouring under the effects of the shock and of the hæmorrhage, which had been considerable, from the scalp-wounds. Although there was a flap of skin about four inches square, struck off the back of the skull, laying bare the occipital and parietal bones, besides other scalp-wounds, no fracture could be detected.

The soft parts, as well as the bones, being too much injured to give any chance of performing Syme's operation at the ankle-joint, amputation of both limbs was performed about two inches above the ankle, the posterior flap being slightly the longer of the two. The hair was removed from the head, and wet cloths applied. The patient was very restless after the effect of the chloroform passed off, occasionally violently delirious, constantly kicking his stumps about, and thus causing continual oozing of blood.

November 14th. The restlessness and delirium had continued unabated up to last night; but this day he was more calm. He had had much thirst, drinking eagerly of beef-tea and milk. The pulse had been usually about 100. The whole scalp was evidently very tender.

November 15th. He slept soundly for three hours last night, and to-day had regained consciousness. The tenderness of the scalp was diminished.

November 17th. The wounds looked well. He ate and slept well. Pulse 116.

November 22nd. The stumps were granulating; there was but very little union. Small portions of the muscles, which appeared bruised at the time of the operation, were sloughing. Last night there was constant delirium for about two hours, and to-day the pulse was 120. He was ordered wine.

November 26th. He continued to be delirious in the night; he was especially so last night. Pulse 120.

November 28th. He had had no delirium for the last two nights. Pulse 90.

January 11th. He had progressed favourably to the present time, and was now, less than nine weeks from his accident, walking about on two wooden legs made with a socket which admits the stump, the weight of the body resting on a rim of leather, surrounding the leg below the knee.

The recovery of the cerebral faculties seems complete; no change in memory, disposition, or intellect being observable.

That this patient did not succumb under the severe injuries he received and the treatment requisite, must, of course, have depended on his own vital power; but great as this must have been, it is hardly probable that he would have survived the double amputation at a higher part of the leg, the operation more usually preferred, but which leaves a much larger wound, and in proportion also as it is nearer the trunk than that adopted, is attended with greater shock.

The operation above the ankle is in itself much less formidable than that below the knee; and the stump left after the former operation is at least equally, if not more convenient, than that left after the latter, if a leg constructed as those worn by this patient is adopted. I would, therefore, in all cases where Syme's amputation is impracticable, consider the possibility of the operation above the ankle.

METROPOLITAN FREE HOSPITAL.

OVARIOTOMY IN A WOMAN AGED SIXTY-FIVE: RECOVERY.

(Under the care of J. HUTCHINSON, Esq.)

[*From Notes by* DR. WARNER, *House-Surgeon.*]

THE patient in the following case is probably the oldest on whom the operation of ovariotomy has yet been performed: we may also add that she makes the fourth recovery after ovariotomy, in succession, at this Hospital. Mr. Hutchinson pointed out to those present at the time of the operation that although the woman's age, counting her years, was 65, yet in constitution she was at least ten years younger. There seemed every probability that, if relieved of her disease, she might enjoy active life for many years to come. Her own strong wish for the operation must also, he remarked, be allowed its weight. She was a monthly nurse, and until the tumour had formed, had been in constant employment. For the last six months the size and weight of the tumour had wholly incapacitated her for any engagements. She was losing flesh and strength, and if not relieved of her disease, there was nothing before her but an illness, more or less slowly tending towards death, and involving throughout its course deprivation of almost all her accustomed sources of enjoyment. He had therefore felt that the mere fact of the patient's age was not one which ought to induce him to decline the operation. He directed attention to an œdematous state of the integuments of the abdomen, and in some degree of the lower extremities, stating that the urine had been examined and found to be free from albumen. The œdema had much diminished during the fortnight that the woman had been in the Hospital. He expressed his opinion that the tumour was polycystic, and had unusually thick walls. He did not expect to encounter any firm adhesions, as there was no history of peritonitic tenderness until quite recently. The following are the facts of the case.

S. B., aged 65, looking much younger than she really was, had been sent, in order to the performance of ovariotomy, to Mr. Hutchinson, by Dr. Sutton, under whose observation she had been at times for three years. Dr. Sutton first discovered the tumour three years before. It was then very small, and at first it increased slowly, and caused no inconvenience; latterly, it had grown much more rapidly; the woman's health had also much failed. She was a widow, and had borne five children. The abdomen measured forty-five inches in circumference, and was everywhere dull excepting in the right loin. The integuments, especially of the hypogastrium, were œdematous, and the prominence of the tumour was much greatest in the hypogastric region. Fluctuation could be elicited, but it was indistinct, and as if transmitted through very thick structures. The uterus was ascertained by vaginal examination to be high up, and quite normal.