affected, the stomach no longer called for its wanted supply, the heart's action was impaired, and the system, no longer sustained by the requisite supply, sunk exhausted under the combined influence of continued disease, and impaired assimilation from the diminished supply of nervous energy to the secreting and circulating organs. The asthenic inflammation had not produced the usual products in the usual way, but it had, in an equally effectual manner, destroyed the life of the patient. Had we employed more active measures, we should certainly have shortened the life of our patient, much less have arrested the low form of morbid action which led to the fatal result. The suppuration in the arachnoid membrane occurs more frequently after low forms of meningitis, just as empyema more frequently results from low forms of pleuritis, where the ordinarily conservative lymph has been diluted by an unusual proportion of serum in the effused liquor sanguinis, in an unsound or feeble constitution. In the case under review, the asthenic character of the morbid action was evident throughout the whole progress of the case, and was so well marked as to forbid the idea of free depletion.

The hernia cerebri occurring after the paralysis would tend to favour the views of Stanley (*Med.-Chir. Trans.*, vol. viii, part 2, p. 29), and others, that the protrusion of cerebral matter through an opening in the cranium is always produced by direct pressure on the brain, the result of an infringement of the space allotted to it in the cavity of the cranium. The paralysis was doubtless due to the pressure on the brain from the effused pus, and hence the brain was directly pushed upwards through the opening in the skull to compensate for the increased bulk of the cranial contents; and then, and not till then, did the hernia cerebri commence. We did not feel ourselves justified in applying any other than the most moderate pressure in this case, as we considered the protrusion an effort of nature to compensate for the pressure on some other part of the brain, and the man, on its first appearance, saved us the trouble of considering the question of its removal by the knife, when left unwatched for a moment, by removing it with his fingers in his constant attempts (so often witnessed in injuries of the head) to handle and disturb the injured part. Neither the removal of the protruding and sloughing brain by the patient's fingers, or afterwards by the forceps, nor the moderate pressure applied, seemed to influence, in the slightest degree, the amount of paralysis.

The absence of all disturbance of the respiratory functions is worthy of notice. No stertor, nor dyspnoea of any kind was present to indicate pressure on the respiratory nerves, or on their origin.

If we consider the extensive mischief in the membranes, and the complete hemiplegia thereby induced, it is certainly singular that the intellect should have been so little impaired, and that during the whole progress of the case coma never should have been fairly developed.

After the paralytic seizure there was still ground for hope, as the loss of power seemed gradually to diminish; and as long as support was fairly taken, the patient appeared to gain strength, and improve in intelligence. He sank at last from exhaustion, and the death, which occurred five weeks after the accident, seems to have been from syncope, and not from asphyxia.

ROYAL FREE HOSPITAL.

ULCER OF THE STOMACH IN THE AGED: ILLUSTRATED BY CASES.

By WILLIAM BRINTON, M.D., Physician to the Hospital.

IN opposition to the generally received opinion, I have elsewhere* shown, by an analysis of more than a thousand necropsies of this disease, that it specially, though not exclusively, affects the periods of middle and advancing life. Arranging 226 cases in decades of years, and comparing their respective numbers with the proportionate numbers of

persons living at the same ages, I have deduced that "the liability to gastric ulcer gradually rises, from what is almost a zero at the age of ten, to a high rate, which it maintains through the period of middle life; at the end of which period it again ascends, to reach its maximum at the extreme age of ninety." This proposition I might illustrate by citing several cases which have occurred in my own practice, but shall content myself with adducing one or two that have lately come under my notice.

First let me say, that I think it right to exclude from this group of senile ulcers of the stomach those instances in which the lesion has, to all appearance, merely been retained from the date of its first occurrence in middle life. Practically, such cases are very rare: unless interrupted by a temporary cicatrization, the ulcer is generally so far fatal that the person who is the subject of it dies at the beginning of old age, exhausted by the scanty and imperfect nutrition its presence implies. And, pathologically, I am convinced that it is important to recollect the tendency of old age, as such, to cause—that is, to originate, as well as to perpetuate and protract—this lesion. Whether this causation be direct or indirect, there can be little doubt that it is far more effective and frequent than any other which our present information entitles us to deduce: while it may be united in one vague but tolerably trustworthy formula—impairment of nutrition—with that apparent influence of fever, ague, and mercury, in the production of gastric ulcer, which scattered cases that have come under my notice quite entitle me to conjecture.

CASE I. M. W., aged 71 years, by occupation a nurse, was admitted an Out-patient on the 16th of October, 1855. She had married young; had had one child; and had always menstruated regularly up to the age of sixty, when she ceased to do so, after a continuous flux of about nine weeks' duration.

At the age of 66, her previously excellent health was disturbed by the access of various dyspeptic symptoms, chiefly of pain in the epigastric region after meals, with frequent attacks of diarrhoea. These symptoms continued, with varying intermissions, for about four years, when the pain in the epigastrium, hitherto only attended by nausea, began to be associated with vomiting: at first only at long intervals of time, afterwards more frequently. Two months after the first attack of vomiting, there was added to the epigastric pain a similar sensation between the shoulder-blades. For the last few months before her application at the hospital, all these symptoms had greatly increased: the pain and vomiting were constant; the former very severe; and the diarrhoea frequently amounted to five or six stools daily, which were sometimes of a deep purple or black colour for many days together.

On examination, the pain in the epigastrium was found to occupy its ordinary position, about an inch and a half below the apex of the ensiform bone of the sternum; and appeared to have its ordinary character of a dull burning sensation, accompanied by great soreness or tenderness to external pressure. The pain in the back was situated at about the level of the ninth dorsal vertebra, ranging almost from beneath the lower angle of the left scapula to the centre of the spinal column. The pain in both these situations was relieved by the recumbent posture. The only perceptible affection of the *decubitus* was, that she dare not lie on the left side, on account of the severe pain and sense of pulsation which this attitude invariably brought on. The pulsation, which she described as a beating, did not appear to be due to any increase or irregularity of the cardiac contractions, but rather to an increased perception of them. Scarcely any article of food could be taken without bringing on the pain and vomiting, but warm tea was especially provocative of both. With all these gastric symptoms, the pulse maintained a tolerable force, and no very remarkable frequency (about 80 per minute). But her face had a look of exhausting physical pain and depression, that was quite distinct from the ordinary expression of old age.

The treatment first adopted consisted in the administra-

* British and Foreign Medico-Chirurgical Review, Jan, 1859.

tion of the Nitrate of bismuth and Compound powder of Kino, in doses of ten and four grains respectively, thrice daily; and in the prescription of the same diet* as that described for the cases already reported in this JOURNAL. Hot fomentations were also ordered to be applied to the epigastrium during the paroxysms of pain.

October 23rd. She is already remarkably improved. She states that the powders gave almost immediate relief to the pain from the time of her first taking them. The vomiting, which was also at once very much diminished, now scarcely occurs more than once every other day, and is then almost limited to one or two retchings. The bowels are now confined instead of relaxed. I ordered her to continue the same diet and drugs; and to take five grains of the Compound rhubarb pill as an aperient occasionally.

November 13th. For the last fortnight, she has had no vomiting whatever, and little or no pain. The bowels are still rather inclined to be constipated, and require ten (instead of five) grains of the rhubarb pill to act upon them. She has kept steadily to the milk and farinaceous diet, which has lately been extended from arrow-root and ground rice to wheaten flour and bread, boiled in milk. But she is afraid to leave off her customary pint of beer daily; and as she is quite certain that it has always been well borne by the stomach, I am obliged to concede this point, only stipulating that she should observe the same rule, as to the small quantity to be taken at once, which I had laid down for the rest of her diet. I ordered ten grains of the Citrate of iron, in an ounce of water, thrice daily, instead of the powders.

November 28th. She has cautiously taken a little tender boiled mutton without any return of the pain or sickness.

January 8th, 1856. She has remarkably improved in appearance; so that she now looks quite as healthy as many people at the age of seventy. No pain, nausea, or vomiting, since the last report.

April 4. She has attended regularly at intervals since my last report. Remains, according to her own account, quite well. But, on being closely pressed, she owns that she is still unable to lie on the left side, on account of the pulsation still perceptible to her in this attitude; and that she has once or twice had slight diarrhoea, accompanied by twinges, or rather feelings of uneasiness in the epigastrium, in the course of the last three months, which the powders she has kept by her have instantly relieved. Still her own impression evidently is that she is cured; and her improved appearance quite confirms this view of her case.

REMARKS. Although the symptoms of this case seem somewhat less acute than they often are, still they do not offer any essential distinction from those seen in the younger subject of the same malady. It may, at first sight, appear strange that the constitution of a person of the age of seventy should have been able to bear up against such protracted and constant vomiting. But the frequency of this act is by no means always in exact proportion to its completeness. In other words, even where vomiting follows almost every meal that is taken, it often ceases as soon as it has relieved the stomach of a part of its contents: a fact which sufficiently indicates the importance of limiting the quantity of food taken by the patient at any one time to something less than will give rise to this unnatural and fatiguing act.

There seemed no sufficient grounds for any conjecture as to the exact seat of the ulcer in the stomach. The situation of the dorsal pain appeared rather to indicate that the lesion occupied that part of the organ which lies to the left of the spinal column. The extreme uneasiness and pain that attended the decubitus on this side pointed to the same conjecture. But such an effect of this posture is so frequent, while the ulcer of the cardiac pouch is so rare (less than 2 per cent. of these lesions), that one can scarcely avoid believing that the mere dragging of the dependent cardiac pouch in this posture, or the weight of the

liver above it, can aggravate the pain of an ulcer in the lesser curvature—the commonest site of the lesion. The ulcer of the cardiac pouch, too, appears to be associated with an extension of the epigastric pain into the left hypochondrium:—an extension of which no trace could be verified in this instance. Hence the only conjecture that offered itself referred the ulcer to the neighbourhood of the smaller curvature (preferably its posterior surface); near its left extremity, and not very close to the oesophageal opening.

The information elicited from the patient at her last visit perhaps entitled me to doubt, not only the permanence of her recovery, but even the complete cicatrization or closure of the ulcer. Virtually, it was evident that the case might fairly be regarded as a cure; especially after the stomach had been tested by a convalescence of six months, and latterly, by much greater freedom of diet than was at all warrantable. But, in the absence of specific information as to how far this particular ulcer had cicatrised, I felt bound to remember the intermissions of all symptoms that sometimes occur in the progress of cases in which the subsequent course of events, and the necropsy, together indicate that the ulcer has never healed. In short, the temporary suspension of symptoms, under appropriate diet and remedies, does not by any means prove the ulcer to have closed; and in this instance it was chiefly the length of time that had elapsed since the disappearance of all the symptoms which entitled me to hope cicatrization had really occurred.*

In one respect, the treatment of these cases of senile gastric ulcer offers us a difficulty that is frequently almost insurmountable. It is that, while the locality of the disease requires the simplest food, the state of the constitution in these patients, and often their previous habits of life, absolutely demand the administration of some stimulus. Only by careful trial can we often determine what stimulus to give. Where, as in this case, beer can be borne, it is unreasonable to forbid it; although it is generally most hurtful, especially when taken with a meal. On the whole, weak cold brandy and water is the form of alcohol most frequently borne. Where all wine or spirit is inadmissible, it is best to make use of opium with the same view. In the solid form, as a small pill, and in doses of a quantity and frequency adjusted so as not to disturb the brain, it is often the best stimulant we can give. Where opium disagrees, the Indian hemp will occasionally subserve a similar purpose, though I have not found its effects very certain or uniform.

Somewhat similar to the above is another case, which came under my notice a few weeks ago.

CASE II. C. H., a woman of about 60 years of age, had married at 24, had had one or two children, and several miscarriages; subsequently to which, she menstruated regularly up to the age of 42. About four years before applying at the Hospital, she began to suffer from a sense of weight and pressure in the epigastrium. This soon increased in severity, and was associated with nausea, and with pain between the lower angles of the scapulæ. The pain generally came on immediately after eating; and was never delayed beyond fifteen or twenty minutes from this time. It was relieved by lying down, and especially by lying on the right side. But in the worst paroxysms it was most eased by the patient's taking a sitting posture, at the same time that the body was bowed forwards. About a year after the appearance of this pain, she experienced two or three weeks of unusually severe suffering, at the end of which period she noticed that her stools contained blood: in the first instance about half a pint, part of which was clotted. About a year ago, vomiting began to form a frequent symptom: and the pain extended downward from the epigastrium towards the umbilicus. But the vomiting and the hæmorrhage have never yet coincided, so as to give rise to hæmatemesis: though, only the day before I last saw her, after two or three hours of severe pain and

* A milk and farinaceous diet in very small, but frequent, meals.

+ British and Foreign Review, January 1856, p. 168.

* To-day (April 20th) I have again seen M. W. She remains quite well: and can lie on the left side with scarcely a trace of the pulsation alluded to. No gastric uneasiness or diarrhoea since last report.

trembling, she had expelled a copious stool, mixed with at least half a pint of clotted blood.*

I may end this brief report by alluding to one characteristic of the gastric ulcer in the aged, which is too important to pass unnoticed: namely, its comparatively little risk of perforation. In the pathological Essay I have already cited, I have adduced reasons for the conclusion, that the general liability to perforation undergoes a constant decrease as life advances, even although the liability to the ulcer itself is just as constantly on the increase. "The amount of these converse alterations of risk, we may regard as equal; and as being such, that from the age of 30 to that of 70, the risk of gastric ulcer gradually rises to double, while the risk of perforation from gastric ulcer gradually sinks to one-half, its former amount."

To this estimate I may add one which was inadvertently omitted in the Essay referred to, and which better illustrates the liability of the ulcer to perforate at different ages. Comparing the numbers of ulcers and of perforations in the two sexes indifferently, it would seem that, between the ages of 10 and 30, the proportion of perforations is that of two in every five ulcers; from 30 to 50, one in six; from 50 to 70, one in ten; and from 70 to 90, one in twenty-one ulcers only.

Brook Street, Grosvenor Square, April 29th, 1886.

BRISTOL GENERAL HOSPITAL.

CASE OF EXCISION OF THE KNEE-JOINT: RECOVERY.

By R. W. COE, Esq., F.R.C.S.E., Surgeon to the Hospital.

[Read at the Meeting of the Bath and Bristol Branch, April 24th, 1886.]

CASE. Edward Carter, aged 6 years, the child of a labouring man living at Hilsley, was admitted, January 22nd, 1886, into the Bristol General Hospital, under my care, for an affection of the right knee: he was of a light complexion, with fair hair and blue eyes, and presented a decidedly strumous appearance.

I gleaned the following history from his mother:—Early in last June the boy was exposed to violent rain, and got very wet; but as soon as he reached home he was stripped, and placed in a warm bed. On the following evening, he complained of great pain in the toes of his right foot, saying they ached very much. By the next morning, the whole limb was swollen. She then took him to consult a gentleman at Upton. I could make but little more from the mother's account, but that the limb continued swollen, especially about the knee; that the boy used to keep the leg extended, and shrieked violently when it was touched; and that about two months prior to my seeing the child, a small opening had formed, which discharged matter.

On examining the joint, I found it distended with fluid, but not very painful; and on its lower and inner aspect, immediately over the internal tuberosity of the tibia, was a small opening, which led deeply down into the head of the tibia, close to the joint, but not communicating with it. The boy was sent to bed, the limb was placed on a straight splint, and wet lint covered with oiled silk applied to the joint. He went on, with little change, until the beginning of February, when the joint became more swollen and painful, with a good deal of constitutional disturbance. With the concurrence of my colleagues, I determined to attempt to gouge out the diseased portion of the head of the tibia, and failing that, to excise the joint.

February 9th. The child being placed under the influence of chloroform, I had him taken into the operating theatre; I then made two incisions, each beginning at the

orifice of the sinus, and carried the one downwards and outwards, the other downwards and inwards, so as to form a triangular flap with the base below: this I raised from the bone, and I was then enabled to examine the condition of the parts more thoroughly than I had previously succeeded in doing, when I found that the channel in the bone led right across the head of the tibia backwards and outwards to its posterior part, and ran so near the joint as to render it quite impossible to succeed in removing the diseased bone without injury to the joint itself; in fact, it was just a question whether or no the constitutional disturbance might not be owing to a minute opening already established. It must be borne in mind also, as a reason for foregoing any further proceeding in this direction, that the opening itself of this sinus was situated almost immediately beneath the reflection of the synovial membrane over the outer edge of the internal semilunar cartilage, so that I was very trammelled as regards the room I could obtain. My incisions were necessarily obliged to be in a downward direction, to avoid opening the joint. The course to be pursued was then left to my own discretion, when I determined to at once excise the joint, reasoning in this manner:—

The existing irritation is very great, and probably due to a communication having been established between the sinus and the joint, and may possibly (however produced) prove fatal, if recourse be only had to palliatory measures. Even if these should succeed in subduing the present disturbance, the boy will be liable at any moment to a recurrence of the attack, besides having, under the most favourable circumstances, to bear up against a chronic disease of the bone and joint, which, let it terminate as happily as it may, will in all probability produce an ankylosed knee-joint; and this only after a lapse of months, perhaps years, besides being conjoined with much suffering; whilst by laying open the joint and excising the diseased bone, I shall at once relieve the existing irritation, and by removing its cause shall prevent its recurrence.

In performing the operation, I departed in some degree from the ordinary plans. I made a semilunar incision, beginning at the outer side of the joint, and carried it round above the patella to the inside; there was thus a semilunar flap formed, which fell down over the head of the tibia. The joint was acutely inflamed, the loose synovial membrane much thickened, and a considerable quantity of coagulated lymph lay in the various recesses, as it were, of the joint. On passing a probe through the sinus it made its appearance in the joint, underneath the back part of the external semilunar cartilage. I then removed half an inch or a little more of the femur, and a quarter of an inch of the tibia; when there was exposed the track of the sinus, and a small cavity filled with soft gelatiniform granulations. Instead of taking off so much of the tibia as to include all this on the resection, I gouged out the diseased part, leaving, as far as I could judge, nothing but healthy tissue behind; as this would have left a cavity, in which the secretions would have collected, and probably hindered union taking place, I cut a triangular piece out of the inner side of the head of the tibia in the situation of the original opening, and thus established a channel by which the secretions, if any, could drain away. After paring away the synovial membrane from the back part of the patella, the trochlea, and back part of the condyles of the femur, the parts were brought together by sutures, and the limb placed on a splint made purposely for it.

Feb. 10th. The splint was found not to answer, and he was moved on to an ordinary swinging splint.

His subsequent history may be summed up in a few words. For two days he was profoundly affected by the shock of the operation: he lay quite still with a pale pinched-up face and rapid weak pulse, with little or no inclination for food. On the third day he began to brighten up, and then progressed towards recovery very rapidly, hardly presenting a single drawback.

I had occasion about three weeks after the operation to let out a collection of healthy pus, which had formed in

* An instance was lately brought under my notice, in which a gentleman, of about 80 years of age, who had been healthy through the previous part of his life, but had for the last two years suffered from symptoms regarded as dyspeptic, died suddenly of copious hæmatemesis. The necropsy showed that the bleeding came from an artery (probably the coronary) eroded by an ulcer of the stomach.