engage the entangled soft parts; but in two of these cases no inconvenience resulted, the parts gradually accommodating themselves to their new condition. The other is still under treatment. I have before me the notes of these cases, and also of those in Lazarus and Cornelius wards here; but I will not weary you with reading a long and minute detail of the symptoms of these patients, as I do not wish my clinical lectures to supersede the necessity for clinical instruction in the wards, but merely to detail practical points more minutely than we can do in our formal surgical lectures, and also to fill up the *hiatus* in our clinical instruction in the ward, which time will not allow us to do at the bed-side.

With regard to the general rules for the treatment of compound fracture; in the first place, you cannot place it in any position you think best, as is the case with single fracture, but invariably in such a manner that you can reach the wound to dress it, without there being any necessity to move the limb. If a portion of bone protrude, and this portion be denuded of its periosteum, saw it off rather than replace it, for it will most probably exfoliate and retard the process of reparation. Then, as to the dressing of the wound—it is a common practice to cover it with a pledget of lint steeped in blood, but I object to this, for when this has dried, it not only forms a hard dressing which is very irritating to the skin, but you cannot see what is going on, and suppuration is very apt to take place beneath the dressing without much pain, and without the knowledge of either patient or surgeon. I think it better, therefore, merely to cover the wound with a piece of lint covered with some simple un-irritating dressing, and then apply over this a strip of adhesive plaster, with a small aperture in its centre to allow of the discharge of any matter that may form. The pus is thus allowed to escape, and you avoid the consequences of its burrowing amongst the subjacent tissues. In the young I prefer the saturnine to the evaporating lotions, for the reasons I before stated—in the old, warm fomentations and poultices. The local treatment is thus the same as in severe lacerations—you first try to effect adhesion, and if you fail in this, promote healthy suppuration.

The constitutional treatment consists at first in lessening irritation, and afterwards in supporting the system. Bleeding may be necessary in strong subjects living in the country, but is, for the most part, totally inadmissible in those whom we have to treat in the London hospitals. Opium is always more or less beneficial, and this, with due attention to the state of the various secretions and strict regulation of diet, is all to which I need direct your attention.

Next week I shall speak of burns and scalds, a subject which we can at all times illustrate by cases in the wards.

REMARKS ON THE EXHIBITION OF SULPHATE OF ALUMINA AND POTASS.

BY

MARTIN HAMILTON LYNCH, M.D.

LATELY LECTURER ON THE PRACTICE OF PHYSIC IN THE NEWCASTLE SCHOOL OF MEDICINE.

A LETTER recently appeared in the Provincial Medical and Surgical Journal, from Dr. N. Grat-

tan, in which that gentleman expresses his opinion of the great value of alum given in 15 grain doses, in combination with dilute sulphuric acid, as a remedy not only in profuse menorrhagia, but also in the hæmorrhage of abortion; and relates, in illustration, two cases of abortion in the sixth and twelfth weeks, which had been followed by hæmorrhage, and thus successfully treated. Instances of this form of uterine hæmorrhage are seldom met with, so severe as these alluded to by Dr. Grattan, who, I cannot avoid thinking, attributes too much importance to alum as a means of checking a hæmorrhage, which, when it is formidable and resists the ordinary treatment by rest and refrigerants, would be more promptly and certainly controlled by the plug. At the same time, however, my experience leads me to consider that, in cases of alarming hæmorrhage, alum, administered in conjunction with sulphuric acid, is a medicine of much more efficacy than is generally imagined, provided it be taken in much larger doses than it is usual to prescribe.

In January 1837, a gentleman, aged 37 years, who had been for five months affected with hæmaturia, came under my care. The usual treatment was pursued; he was bled and repeatedly cupped, and *uva ursæ*, turpentine, and *pareira brava* were successively but in vain administered during several months. In consultation, on the 3 grains of the acetate of lead were ordered to be taken in a draught every eight hours, with 3 drops of laudanum and a drachm of vinegar. This treatment was persevered in for some days, when the occurrence of the ordinary symptoms produced by the deleterious action of lead, compelled the discontinuance of the draughts. The patient was reduced to an extreme degree of debility by the long continuance of hæmaturia, and his exhaustion and sufferings were much increased by the constipation, hiccup, colic, and tremors, produced by the lead. For several days he was so despondent that he refused to submit to treatment, but ultimately consented to take a laxative electuary and the following draught:

R Sulphatis aluminæ et potassæ, gr. xv.

Acidi sulphurici diluti, gtt. xxx.

Sulphatis magnesiæ ʒj.

Infus: rosæ, ʒj.

Fiat haustus, ter quotidie sumendus.

The quantity of alum was gradually increased from 15 to 45 grains, and the draught containing this latter quantity was continued for six days; under this treatment the patient's appetite increased, his general health improved rapidly, and the urine became clear. A relapse, however, took place; the urine again became bloody, but was quickly restored to a healthy state during the use of the draught, containing 45 grains of alum.*

During the use of the draughts a curious change was observed to take place in the urine, which became almost black; as this alteration of colour had never before occurred, I am inclined to infer that it was produced by the absorption into the circulation and elimination by the kidneys of the free sulphuric acid, and of that contained in the supersalt and the combination of this acid with the colouring matter of the blood diffused through the urine, for although (through the previous progress of the case) the urine had always decidedly red-

dened litmus paper, this dark colour had not been produced.

Encouraged by the apparent energy of the remedy in this case, and the absence of any unpleasant symptoms from its employment, I have several times prescribed it in the hæmorrhages in doses of 45 or 50 grains, combined with 30 or 40 drops of dilute sulphuric acid, and a drachm or $\frac{3}{4}$ ss. of sulphate of magnesia and $\frac{3}{4}$ ss. or $\frac{3}{4}$ j. of water.

These draughts themselves have been almost always sufficient to produce a laxative effect on the bowels, but when this has not been the result of the exhibition, I order some mild purgative occasionally during their administration. Cullen, in his *Materia Medica*, observes that half a drachm of alum produces vomiting, but I have never seen this effect follow doses of 50 grains given three or four times daily, as in the preceding draughts. Perhaps, however, alum *alone* may excite vomiting, for it is not impossible that the sulphate of magnesia may prevent vomiting in the same way that Gregory's powder, colocynth pill, or compound rhubarb pill, or any mild purgative repeatedly administered in moderate doses, prevent or diminish sea-sickness, viz. by maintaining the natural peristaltic action of the intestines.

Alum is one of the safest of our astringents, but in cases of alarming hæmorrhage, acetate of lead in doses of 2 or 3 grains, repeated every six or eight hours, is usually prescribed, being considered a more efficient remedy. The acetate thus given is really a more powerful remedial agent than alum administered in the ordinary doses, the maximum of which never exceeds 20 grains; but in the large doses I am in the habit of ordering it, alum is little, if at all, inferior in energy to the acetate of lead, and has this advantage, moreover, that it may be taken with perfect safety by individuals who would be placed in the greatest jeopardy by the free exhibition of lead: for I cannot divest my mind of a suspicion that acetate of lead in 3 grain doses is more frequently productive of disagreeable consequences than is generally supposed. I am aware that such instances have not found their way into the journals, but that they not unfrequently occur I am disposed to infer, from having met with two such cases in my own practice.

Let us imagine a case of formidable hæmorrhage, which has, perhaps, recurred frequently for weeks or months, which is produced by, or complicated with organic disease, and is attended with great general debility and long existing anæmia. If alum be equally efficacious with the acetate of lead, would it not be a much more appropriate remedy in such cases?

Formerly* alum was given internally in gonorrhæa; the great benefit derived from its use in a case of hæmaturia treated by Mr. Guthrie in the Westminster Hospital, in mine, and in one which my friend Sir John Fife, at my suggestion, treated with alum in large doses, lead me to conclude that this substance is deserving of trial in gonorrhæa also, in which it may prove a convenient remedy when fever, inflammation, or irritability of the stomach forbid the employment of the turpentine.

The question may be asked, how much farther may the dose of alum be safely pushed? It is difficult to determine this point precisely, but there are some facts on record which throw light upon it.

Six gros (6 drachms, $26\frac{1}{2}$ grs.) of alum dissolved in water, will kill a large-sized dog, if the œsophagus be tied. (Devergie.)

The symptoms produced by alum administered to dogs in pretty large doses, without tying the œsophagus, are vomiting, in some cases one or more fecal evacuations, debility, thirst, and refusal of food. (Orfila and Devergie.)

The appearances observed after death in dogs, are thickening or softening of the mucous membrane of the stomach, with remarkable vascularity. (Orfila and Devergie.)

Hence it may be inferred, that a sufficiently large dose of alum administered to man will produce gastritis. Orfila thinks that man will bear a much larger dose than the strongest dog, but Devergie is opposed to this view, "because the human stomach has more numerous sympathies than that of the dog;" and the same author says, that the quantity administered by Messrs. Kapeler and Gendrin,* in lead colic, 3 gros. (little less than 3 dr.) per day, could not be safely prescribed for a person in health, or one affected with a different disease.

The possibility, then, of gastric inflammation being produced, suggests caution in raising the dose beyond 50 or 60 grains, repeated three or four times daily; but another source of danger has been pointed out by Messrs. Bouchardat and Couriard. These physicians published, in the first volume of the *Annales d'Hygiène*, &c. for 1837, two cases of poisoning by sulphuric acid, which were marked by some unusual symptoms and morbid appearances. The second case is so curious, and bears so directly upon the subject of this communication, that I may be permitted to give an abridged account of its most important features, more especially as it has been noticed, if my memory serves me correctly, in one English journal only.

"On the 10th of October, 1835, G—, a young woman aged 27, a domestic servant, was admitted into the Hôtel Dieu, suffering from illness, by which she had been seized the day before, when, according to her own assertion, she took some medicine. Symptoms: deglutition difficult; tongue and entire mucous membrane of the mouth highly inflamed; pulse frequent and small; in the stomach a sensation of heat, which, however, is not very intense; pregnancy evident, but resolutely denied by the patient. On the following day, (Tuesday,) difficulty of deglutition much diminished; pulse feeble; extremities cold; during the night of Tuesday, violent cramps in the lower extremities; loss of sensation in the right leg, which inferiorly is quite cold, and presents the marbled appearance of congestion. Wednesday: The patient is quieter, and swallows almost without difficulty; complains less of the throat and stomach, but her pulse has gradually become weaker, and her right leg is cold, and completely insensible even when pinched violently; during

* Dr. Graves, the distinguished physician and professor of Dublin, is in the habit of giving alum in much larger doses than is usual in this country, and thinks its efficacy may be much increased by administering it in those large doses. I have no means of ascertaining the doses prescribed by Dr. G.

* In a few instances Kapeler has, in lead colic, given alum in the quantity of six gros in twenty-four hours, and occasionally given three gros in one dose, without doing any mischief. — *Arch. Gen. de Med.* 1832.

the night gradual extinction of the circulation, death without pain. The necropsis was ordered by the juge d'instruction, and conducted by Messrs. Bouchardat, Caillard, and Emery.

(REPORT.)

The mucous membrane of the œsophagus presents a yellow colour, intermixed with black, and is covered with a yellow fluid, which so strongly adheres to it, as to be liable to be mistaken for a false membrane; the mucous membrane can be readily detached for an extent of an inch to an inch and a half, and is thicker than natural.

In the stomach,—five ounces of a liquid resembling that covering the œsophagus; this fluid lines the mucous membrane of the stomach, which organ, viewed internally after the removal of the fluid, exhibits a marbled appearance, yellow and black, and at a few points the mucous membrane is easily detachable. On scraping the stomach at the pyloric orifice, and in its neighbourhood, that viscus is found to be “charbonnée.”

The heart is of the ordinary size, and contains about 3 ounces of coagulated blood; the aorta is almost filled with coagula; the femoral artery of the right side is almost obliterated by firm coagula.

The uterus contains a six months' fœtus.

The fluid contained in a phial, (which, the patient asserted, contained the remains of the medicine she had taken,) was analyzed, and proved to be sulphuric acid, diluted with an equal portion of water. In the analysis of the coagula, a trace of the sulphate of baryta was precipitated, and the smell of sulphurous acid perceived. Messrs. Bouchardat and Couriard considered that death could be ascribed to no other cause than the coagulation of the blood by the acid, which they supposed to have been absorbed. This opinion was founded on the symptoms and morbid appearances, but particularly upon the coagulation of the blood, and loss of sensation, for they very properly deemed the analysis of the coagula inconclusive.

I have not translated the word *charbonnée*, which might be rendered by the words “charred” or “black.” Messrs. Bouchardat and Couriard, it would appear from the context, intended to express that the stomach in the neighbourhood of the pyloric orifice was really carbonized or charred, but they must have been mistaken; the tissues probably resembled charcoal in colour; it is hardly possible that so moist an animal substance could have been naturally charred; and this view is borne out by the mildness of the symptoms, and the absence of corrosion in any part of the organ, which merely showed in other parts the consequences of moderate inflammation. In fact, these physicians forget that acids absorbed into the vessels and capillaries render the tissues of an organ black, by the formation of a peculiar compound with the colouring matter of the blood, the same substance that was formed in the case of hæmaturia which I have referred to. The black colour produced in this way is very often mistaken for certain morbid appearances, as congestion or gangrene, a mistake which should be carefully avoided, destroying, as it does almost entirely, the value of the clinical reports in which it occurs. I may observe, that the account of the appearances noticed in the dissection of the body of the late Sir Astley Cooper affords an instance in which

this error was avoided, for the able men who conducted the examination, state that the black colour observed in the stomach should be attributed to the absorption of some of the natural gastric acids, and their action on the blood.

This case, and another contained in the same paper, coupled with the appearance observed in the case of hæmaturia, seem certainly to afford some grounds for the opinion entertained by Messrs. Bouchardat and Couriard, that the absorption of acids may effect such changes in the blood as to cause death by the interruption of the circulation, and that this may take place when the patient, owing to the dilute state of the acid, would escape being carried off by any of the causes previously acknowledged, namely—1st. Acute inflammation of the stomach, or of the stomach and abdominal viscera; 2d. Sudden sinking from the shock to the nervous system; 3rd. Chronic inflammation of the stomach and œsophagus; 4th. Inflammation of œsophagus and larynx, with obstruction of either.

A correct understanding of the nature of the changes produced by the acids on the blood, is not only interesting in connexion with the physiological agency of these substances, but is necessary, in order to avoid serious mistakes in estimating the nature and value of certain appearances in the dead body. I shall therefore give, from Berzelius, the little that is known regarding the dark compound of which I have spoken. “The acids combine not only with albumen, but also with the colouring matter of the blood, forming neutral compounds, insoluble in acidulated water, but soluble in pure water, which they tinge a deep brown colour. The colouring matter may be precipitated by ammonia, from the compound it forms with acetic acid, and the precipitate exhibits all the properties of the colouring globules coagulated by heat. The compounds formed with the various acids are of a dark colour.”

London, May 8, 1841.

CASE OF SPASMODIC COUGH FROM SPINAL IRRITATION,

CONNECTED WITH DERANGED SECRETION.

By T. B. WINTER, Esq.

MASTER A., aged ten, of strumous habit and highly excitable temperament, was attacked with a very violent cough on November 7, 1840. When I first saw him, on November 9, his cough was peculiarly severe and spasmodic, not unlike croup, but unattended with the stridulous breathing; the paroxysms returning every minute, but without much fever. At the same time he complained of a severe darting pain in both knees. His bowels were regular. His cough continued with very little intermission till the 15th, becoming more like barking than coughing, resisting every remedy both local and general. Emetics—purgatives, with and without calomel—anodynes—alteratives—leeching and blistering the throat, were all employed in active succession, under Dr. Hall's direction, as well as my own, but to no purpose. He occasionally fell asleep for an hour or two, during which time his cough ceased, and