which is kept up gradually overcomes the contraction of the muscles; and, with very little adjustment, the limb will be found to have gained its proper length in the course of two or three days, the extension being increased or diminished according to the necessities of the case.

There are many advantages besides this. Apart from doing away with the forcible extension necessary to overcome spasmodic contraction of the muscles, which often gives rise to so much pain and subsequent excessive irritability of the parts, there are many reasons for urging the trial of the above-mentioned plan, more especially in fractures of the thigh.

With the exception, perhaps, of an occasional twist once or twice round the knee or ankle to steady the limb, no bandaging is required; or a sand-bag on the inner side of the extremity will generally effect all that is wanted. With the dispensing of bandages, not only is the patient relieved of much pain at the time of putting up the fractured limb, but also of all distress occasioned by their subsequent renewal and adjustment. The surgeon's time is saved, which is no small gain if he have several such cases to attend to daily. The large surface of skin remains exposed. Thus its excreting power is unimpaired; and the irritation which is occasioned by its excretions being pent up, and which at times becomes almost unbearable, is altogether avoided. The limb can be cleansed daily without interfering with the appliances, and every practical surgeon knows the value of this measure. Moreover, with a momentary glance, it can be ascertained whether the position of the limb is good, and any irregularity remedied.

Another very great advantage is, the being able to place the splint and perineal band on the sound side, as has been for some time practised by Mr. De Morgan in cases of hip-disease. This, of course, will be especially useful when there is abrasion or bruising of the injured side, which would be aggravated by anything coming into contact with it. When the splint is used in this way, a sand-bag on each side of the limb will be sufficient to steady and support it. With the old Liston-splint, and its mode of application, requiring, as it at times does, great force in reducing the fracture, and then even failing to obtain proper length, it has frequently occurred to my mind that the separated fragments are often either too far apart, or form with each other a more or less obtuse angle.

The amount of force used, and the mode of fixing above and below, seem almost incapable of bringing the ends of the fractured bone into close and perfect apposition. The present mode of using the elastic is calculated, I think, to ensure this. The extension is equalised; the power above being as great as that below the seat of fracture, overlapping is more easily corrected, and, as the contraction of the muscles is overcome, the elastic, by its contraction, tightens the cords, so that sufficient extension is always kept up. As the limb lengthens, the elastic of course shortens; and this shortening of the elastic is very essential; for, as the limb attains its normal length, the extension ought to be diminished, otherwise the fractured ends might possibly be pulled too far apart. This required diminution of tension is brought about by the lengthening of the limb. Both objects are effected at the same time, the one by means of the other. When once the separated ends of the bone are placed in good apposition, the length of the limb is easily maintained, slight tension being required to steady them on the one hand, while the contraction of the muscles assists in doing so on the other. The result is close apposition of the parts. This, of course, facilitates and hastens union, and prevents anything like shortening.

Mr. Nunn is of the opinion that, by means of this extension, the normal co-ordinated tension of the muscles is able to keep the bones in proper position.

The appended cases will show with what results this mode of elastic extension has been used. If space allowed, several could be added, besides which we have many more now under similar treatment, all promising like success. This plan could not, of course, be adopted in cases complicated with delirium of any kind; but there appears no reason why it should not be tried in oblique compound fractures, where so much difficulty is experienced in their reduction.

CASE I. James E., aged 16, was admitted under Mr. Nunn's care on January 11th. Right leg short by an inch and a half; foot everted; oblique fracture of femur at junction of lower with middle third; very considerable effusion and tension around seat of fracture; swelling around, and effusion into knee-joint. Elastic extension on sound side, owing to an ulcer in the right groin; ice to knee; proper length obtained. February 12th. Splint removed; firm union, but slight thickening; length perfect.

CASE II. Charles H., aged 13, was admitted February 6th, under the care of Mr. Moore. Right leg short by two inches; foot everted; crepitus at junction of middle with upper third of right femur. Elastic extension was applied. Shortening less by one inch. February 7th. Shortening less by one inch and a half. February 9th. Length normal.

March 9th. Splint removed; firm union; length normal. Discharged March 10th.

CASE III. Thomas K., aged 44, was admitted under Mr. Nunn on January 12th. Very oblique fracture of tibia, with fractured fibula; lower fragment of tibia riding, but thinly covered by skin; considerable ecchymosis and swelling. Ordinary back iron-splint was applied; remained on this splint fifteen days; constant adjustment and alteration required to keep fragments in position, but without success. Elastic extension. Fragments reduced to proper position. In three weeks, there was firm union; line and length of tibia quite normal, but slight thickening of tibia to indicate seat of fracture.

CASE IV. John W., aged 43, was admitted under the care of Mr. Nunn on January 10th. Oblique fracture of tibia at middle third, with fractured fibula; lower fragment drawn up above upper one. Back splint and lateral splint were in succession applied, with very unsatisfactory results. February 7th. Elastic extension applied. Fragments easily reduced to their normal position. On the 21st, the splint was removed. Firm union; length normal; line of tibia almost uninterrupted. On the 27th, he was getting about with the help of sticks.

CASE V. William C., was admitted on February 19th. Transverse fracture of tibia and fibula about four inches above the malleoli; considerable displacement, with shortening and bruising. Elastic extension was applied on March 18th. Firm union; but slight thickening on inner side of tibia to indicate seat of fracture.

EXPERIMENTS ON THE POISON OF THE COBRA-DI-CAPELLA.*

By GEORGE B. HALFORD, M.D.,

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A MELANCHOLY accident which lately happened with the cobra-di-capella induced me to make some experiments and observations upon the action of the reptile's poison, which have proved eminently interesting.

When a person is mortally bitten by the cobra-di-capella, molecules of living "germinal" matter are thrown into the blood, and speedily grow into cells, and as rapidly multiply, so that in a few hours millions upon millions are produced at the expense, as far as I can at present see, of the oxygen absorbed into the blood during inspiration; hence the gradual decrease and ultimate extinction of combustion and chemical change in every other part of the body, followed by coldness, sleepiness, insensibility, slow breathing, and death.

The cells which thus render in so short a time the blood unfit to support life, are circular, with a diameter on the average of one seven-teen-hundredth of an inch. They contain a nearly round nucleus of one two-thousand-eight-hundredth of an inch in breadth, which, when

further magnified, is seen to contain other still more minute spherules of living "germinal" matter. In addition to this, the application of magenta reveals a minute coloured spot at some part of the circum-

* Communicated by James Paget, F.R.S., London.

ference of the cell. This, besides its size, distinguishes it from the white pus, or lymph-corpuscle.

Thus, then, it would seem that, as the vegetable cell requires for its growth inorganic food and the liberation of oxygen, so the animal cell requires for its growth organic food and the absorption of oxygen. Its food is present in the blood, and it meets the oxygen in the lungs; thus, the whole blood becomes disorganised, and nothing is found after death but dark fluid blood, the fluidity indicating its loss of fibrine, the dark colour its want of oxygen, which it readily absorbs on exposure after death.

Let it not be thought that microscopic particles are unable to produce such great and rapid changes. It is well known, and I have frequently timed it with my class, that a teaspoonful of human saliva will, when shaken with a like quantity of decoction of starch, convert the whole of the latter into sugar in a little less than one minute. If ptyaline, the active principle of saliva, exerts this power at most in a few minutes, then surely the active principle of the secretion of the serpent's poison-gland may exert an infinitely greater power in as many hours.

It results, then, that a person dies slowly asphyxiated by deprivation of oxygen, in whatever other way the poison may also act, and so far as the ordinary examination of the blood goes, the *post mortem* appearances are similar to those seen after drowning and suffocation.

I have many reasons for believing that the *materies morbi* of cholera is a nearly allied animal poison. If so, may we not hope to know something definite of the poisons of hydrophobia, small-pox, scarlet fever, and, indeed, of all zymotic diseases?

I intend to discuss the whole subject, which abounds with matter of the deepest importance to physiology and medicine, as critically as possible in my lectures at the University, when I hope also to show the presence of the poison of our Australian snakes in the blood of bitten and inoculated animals, and to make some experiments on the possibility of saving life.

At the suggestion of my friend Dr. Neild, I am going to try the inhalation of oxygen as a remedy.

THE COMMISSIONERS OF LUNACY AND MR. BAKER BROWN. In the twenty-first Report of the Commissioners of Lunacy, lately presented to Parliament, appears the sequel of the Baker Brown correspondence, of which the first part has already been communicated in the JOURNAL. We pointed out at the time the discrepancy between Mr. Brown's statements to the Commissioners and in his book. He wrote to the Commissioners: "10 January 1867. I have no hesitation at once in stating, as senior surgeon and founder of the London Surgical Home, that the institution is not open for the reception of females of unsound mind, and in no papers or advertisements issued or published by authority has it ever been stated so. During last year one patient, a servant, was taken in as suffering from hysteria. I immediately discovered she was of unsound mind, and as quickly as possible had her removed to Hanwell Asylum." We quoted from the eighth chapter of his book numerous cases of alleged cure of insanity. The Commissioners have asked him to reconcile these statements. He replies in the same sense as he replied on this point to the Obstetrical Society; that he supposed their inquiry to be intended to ascertain whether any cases had been received since the publication of his work. They comment on the fact that his reply is "exactly in accordance, not with the facts, but with the advice your solicitor gave you." They add: "The Commissioners ought not, perhaps, in such circumstances, to express surprise that you should suppose *them* also capable, with a full knowledge of the facts contained in your book, to write to you as if those facts were in no way known to them. But they must inform you, in the strongest language they can permit themselves to use, that they would have regarded it as an unworthy deception to call upon you for a contradiction of a statement made by a reporter in the *Times* newspaper, while they were content to leave uncontradicted a statement to the same effect made by yourself several months before."

VALENTINE WILLIAMS, a well-known character in Herefordshire, 83 years of age, who got his living by selling birchbrooms, has been knocked down on the Hereford, Hay, and Brecon Railway. The poor creature died while being conveyed to the Hereford Infirmary. His body was refused admittance to the dead-house of that place; it was then taken to the workhouse, where a like refusal occurred, and the body was at last carried to the police-station, where it remained till removed by the friends of the deceased.

OUTBREAK OF PLAGUE IN THE PERSIAN GULF.—Intelligence has been received by the government of Bombay, from the vice-consul at Busrah, on the Persian Gulf, that the plague has broken out with some virulence at Kerbella, but had not spread beyond that part.

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THE ST. ANDREW'S MEDICAL GRADUATES.

THE claims of the St. Andrew's graduates have been brought before the Government, in a document drawn up by Dr. Richardson and Dr. L. Sedgwick, which contains so much interesting information regarding their body, and so strongly supports their claim to representation in Parliament, that it is desirable to give its substance.

The proposed new Reform Bill for Scotland, which provides for the representation in Parliament of the Universities of Edinburgh and St. Andrew's conjointly, will practically exclude from the franchise all graduates of St. Andrew's who obtained their degrees before January 1st, 1863. This exclusion is understood to be based mainly on the assumption that these graduates were not examined for their degrees, but obtained them by purchase. Such an impression, which by the medical world is at once recognised as entirely false, has been widely disseminated, and has even been conveyed to members of the Government. The following statement, based on official information, will remove the impression.

The University of St. Andrew's was one of the first to institute examinations for medical degrees, and has ever been foremost in adopting alterations to ensure the proficiency of its graduates. It is utterly untrue that the St. Andrew's degree can be obtained by purchase. The examination lasts three days; it is partly written and partly *vivâ voce*, and is, in every respect, similar to the examination for membership of the Royal College of Physicians of London. The University of St. Andrew's was almost the first to institute examinations at the bedside. The Examiners are unbiassed; a certain number of them being invariably distinguished graduates of other Universities, and all of them being unknown to the candidates.

The number of rejections is an evidence of the strictness of the examination test. In 1858, when the question of representation in the Medical Council was being considered, the official returns of the University showed that the rejections numbered one in four; a proportion higher than that of any other examining body, except the University of London; and this, although nearly all the rejected candidates were at the time legally qualified practitioners.

Another strong proof of the efficiency of the examination, and the clearest refutation of the objection that the St. Andrew's M.D. is not fitted for the franchise, is afforded by the statistics presented for the last three years to the Medical Council by the chiefs of the Army and Navy Medical Departments, which show the qualifications of the gentlemen who were examined by the Boards prior to employment in the services. As all the candidates must have a qualification before offering themselves for examination, the ratio of rejections is offered as a conclusive proof of the value of each degree. It is as follows: 32.52 per cent. of the Members of the Royal College of Surgeons; 18.18 per cent. of the Doctors of Medicine of Edinburgh; and only 8.33 per cent. of the Doctors of Medicine of St. Andrew's, failed to satisfy the authorities that they were fit to be trusted with the lives and limbs of our soldiers and sailors.

If the severity of the examination tests in such a satisfactory manner the professional attainments of the graduates in the