ness to the evacuation of the pent-up pus, and to rely only on the timely performance of paracentesis.

I must now refer to several matters which interfere with the easy and successful performance of my operation at the onset. Some patients are timid and excitable, and, under these circumstances, it often requires a little tact to gain their confidence and obtain their voluntary assistance. Another difficulty arises from the imperfect closure of the nostrils. For the successful application of the apparatus, it is absolutely necessary to adjust the inflatable nose-piece, so that the orifices are securely and completely plugged. I have at hand several nasal tubes, and it is always easy to select one to suit the nostrils of the patient. Again, it is equally essential to attend to the closure of the lips, and the fixing of the muscles of the chest and pharynx. After taking the full inspiration, the patient must perform the muscular movement of forced expiration, without permitting the discharge of air by the mouth. In this way, by the action of the tensors of the palate and the muscular structures of the pharynx, the cartilaginous orifices of the Eustachian tubes are drawn downwards, and rendered patent, so that air can readily pass in and out of the tympanum. The muscular movements which take place during deglutition act directly upon the open ends of the tubes; and, for this reason, it is often very useful, during the early stages of the operation, to get the patient to swallow a little water several times at regular intervals.

Another cause of delay and difficulty arises from those chronic disorders of the throat and naso-pharynx which are so intimately associated with middle-ear disease. A relaxed and congested condition of these parts must be treated by the persistent application of local astringents, applied regularly and freely several times during the day. If the tonsils are enlarged and indurated by inflammatory changes, the ordinary operation of excision will be necessary. When a thick muco-purulent secretion from the pharyngeal follicles occludes the Eustachian orifices, it requires to be constantly washed away, and the mucous surface of the cavities stimulated by deodorising solutions. These applications can be very efficiently made by the patient himself, and he should be instructed to introduce them into the nostrils with a syringe, and then to draw them over the back part of the velum palati into the mouth, and thus dislodge the mucus.

Sometimes the naso-pharynx is blocked by adenoid growths of very variable consistency. These vegetations seriously obstruct the tubal openings, and cause obstinate deafness, with derangement of tympanic pressure. Now, before my method is applied for the relief of the aural symptoms, it is essential that these mucous outgrowths should be removed. A very effectual plan is to explore the pharynx thoroughly with the forefinger; and then, wherever vegetations are detected, to scrape them off at once with the nail. I have performed this little operation for some years, at the suggestion of Mr. Cresswell Baber, of Brighton, with excellent results. Sometimes it excites so much struggling and retching that the administration of an anæsthetic is necessary for its successful performance. Sir William Dalby has recently introduced a steel nail for the removal of these pharyngeal growths. It is secured over the end of the finger without covering the point; and by its aid, he states, the cavities can be cleared with great facility at one sitting.

In many cases of chronic and complex aural disease, in which tinnitus is dependent upon disorder of both the nervous and conducting structures of the organ, very considerable benefit is obtained by the operation of alternate injection and evacuation. It is especially, too, in these cases that the induced current proves of much value as an auxiliary measure. It acts directly as a stimulant to the nervous and muscular structures. The morbid changes in the tympanum have been followed by wasting and paralysis of the intrinsic muscles; and the tinnitus, often of a very depressing and continuous character, is occasionally complicated with attacks of aural vertigo. I always employ a weak current, and conduct it directly on to the tympanic membrane, near its posterior border, by means of a loop of silver wire enclosed in a vulcanite speculum. The electrical stimulant generally excites some contractions in the facial muscles, and sometimes seems to increase for a time the sensibility of the auditory nerve. By repeated and judicious application, relief is often obtained; and this result can be fairly attributed to increased tonicity of the tympanic muscles and a reduction of the abnormal tension upon the nervous apparatus of the organ.

In conclusion, many cases of tinnitus are undoubtedly aggravated by morbid conditions of the blood, and diseases of the general system. When anæmia, gout, syphilis, or rheumatism are present, appropriate remedies must be employed, and patients must be strictly enjoined to live regularly and temperately.

As regards the treatment of tinnitus in cases of severe and hopeless

deafness caused by disease of the deep recesses of the labyrinth, some benefit may be obtained by the application of the induced current, and by the use of stimulating applications behind the ears. The injection of air into the middle ear containing a little of the vapour of either chloroform, ether, or carbolic acid, is also serviceable, and can be advantageously employed by the patient himself whenever the symptoms are urgent. But respecting the treatment of these obscure aural orders, I have really no suggestion to offer. A combination of deafness and tinnitus, produced by abnormal tension within the tympanum, is the most common of all aural derangements; and I can confidently recommend the alternate injection and evacuation of air as an improvement upon the local measures which are at present adopted for restoring the normal equilibrium of pressure within the tympanic cavity.

DRUMINE.

By JOHN REID, M.A., M.D., C.M.GLAS., Melbourne, Australia.

DRUMINE is an alkaloid obtained from *Euphorbia drummondii* (Boiss). *Euphorbia drummondii*, N.O. Euphorbiaceæ, has the following botanical characters. Prostrate or diffuse much-branched plant, closely resembling the European *E. chamæsyce* (Linn.), and when flowering the first year easily confounded with it; but always quite glabrous, and forming at length perennial thick or woody rhizome. Leaves opposite, orbicular ovate or oblong, obtuse or notched, entire or serrulate, very oblique, at the base two to four lines long, firmer than in *E. chamæsyce*. Stipules entire fringed or lobed. Flower heads very small, shortly pedicellate in the upper axils. Involucre about half a line long, the glands with a narrow white border, entire or nearly so. Capsule under one line long, glabrous. Styles notched only, varying from almost none to nearly as long as in *E. chamæsyce*. Seeds rugose, *E. chamæsyce*, *E. Ferdudi*, *E. Drummondii* and *E. Dallachyana* (Baill. *Adans.* vi, 284-85).

Habitat.—In North Australia: Victoria River and Gulf of Carpentaria. In Queensland: Broad Sound, Thirsty Sound, Brisbane River, Rockhampton, Curriwillighie. In New South Wales: Port Jackson, Lachlan River, Darling River, thence to Barrier Ranges. In New Zealand. In Tasmania: Swanport (found by Dr. Storey). In South Australia: Spencer's Gulf, Murray River, Kapunda, and the Gatoles Ranges. In Western Australia: Swan River and Murchison River. In Victoria: From the sources of the watercourses in the North-West to the Murray River, from those in the North East to the Hume River, including the whole Victorian Alps. *Vide Müller, Census of Australian Plants Fragmenta*, vi, p. 182; *Key to System of Victorian Plants*, 1885, p. 11, and Bentham's *Flora Australiensis*, vi, p. 49.

Preparation.—The whole plant, including the rhizome, seeds, etc., is macerated in dilute hydrochloric acid for some days. It is then strained through linen under pressure. (The plant may be boiled in the dilute acid, and strained under pressure.) Sodium bicarbonate is added, stirring while adding it, until an alkaline solution is obtained with precipitated drumine. The product is filtered, and the precipitate is washed with water to get rid of colouring matter, leaving drumine on the filter. This may be dissolved in dilute acid, and evaporated to obtain the hydrochlorate, or other salt.

Properties.—Alkalies precipitate it, the salicylate is very sparingly soluble in water and gives a crystalline precipitate. It may be crystallised from aqueous, spirituous, or chloroform solutions in aciculae, the larger ones almost rhombic, under a high power of the microscope, and stellate crystals, all microscopic. The powder is either dirty like morphine, or pure white. The solution is compatible with iron and acids, cyanide of potassium, and a neutral solution precipitate it, not prussic acid; perchloride of mercury is compatible with it; strong nitric acid does not act on it chemically, but dissolves it, as does H_2SO_4 .

Uses.—In nasal catarrh, injected into the nostrils, it effects an immediate cure. This may, in chronic cases or otherwise, be used in solution with gr. i corrosive sublimate to the pint, and gr. vi ad $\frac{3}{4}$ i hydrochlorate of drumine. Spasmodic contractions at anus—solution locally; the same in pruritus. Facial dermatitis, with acne and itching; spermæti $\frac{3}{4}$ i, drumine gr. x. Sciatica or lumbago: case of two years' duration, unaffected by other remedies, cured by two injections. Sprains:—Cases of sprained abdominal muscles cured speedily by free injections. Periosteal pain following fracture of the lower end of the sternum, with tenderness, of two years' duration, cured by injections. Burns:—Extensive denudation of skin; very free application to raw surfaces; relief of pain; no constitutional symptoms. Neuralgia:—Dropped into the eye, it gave relief. Opera-

tions:—Used in probing for splinter (producing feeling of deadness); in probing abscess in the foot, etc. Internally:—Relieved the feeling of thirst on a scorching day, and made the tongue moist. On Tongue:—One side may lose the sense of taste for quinine, the other being unaffected (repeatedly tried); also common sensibility destroyed.

Compared with cocaine, it does not dilate the pupil; it does not stimulate prior to paralysing sensation; it produces no constitutional symptoms when applied to extensive surfaces.

Notes.—Mr. Stanley, M.R.C.V.S., found that sheep might eat it for some time without its causing death, and that, when given in poisonous doses, it causes hoven. This supports my views, seeing that the sensory nerves of the gut are paralysed, secretion as well, and so absorption is in abeyance. One cat I experimented on was paralysed in the extremities; but the dose was very large, and a spirituous solution was used. The stomach, etc., in a cat that had tasted neither food nor water for nine days was natural and free from inflammation, etc.; the blood was natural; the bowels were empty. I have written quite fully enough to show (1) that the drug is a pure anæsthetic; (2) that it is safe; and (3) that it may be used both internally and externally with advantage. For further particulars, I would refer to my more extended articles in the *Australasian Medical Gazette* and the *Chemist and Druggist of Australasia*. I have given only experiences.

AN OBSCURE CASE OF FRACTURE OF THE SKULL.

By RICKMAN J. GODLEE, M.S., F.R.C.S.,
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ON Monday, November 22nd, 1886, at 9 A.M., a boy, aged 15, was thrown from a horse, which fell whilst running away with him, striking and bruising his forehead and nose and both knees. He was apparently not even stunned, but, after sitting still for two hours, and sleeping for ten minutes, he walked home and spoke rationally to his parents, and, indeed, nothing except the bruising was noticed by them until the afternoon of the following day, when he rather rapidly passed into a state of delirium, with high fever. There was at no time any sickness, nor any bleeding from the nose, mouth, or ears.

Some months previously he had suffered from a troublesome discharge from the nose, which, it was thought, might have been caught from examining too closely a horse that had been tracheotomised for a disease known in the stables as "strangles." This had been treated both in England and in Belgium, and was supposed to have been completely cured.

He was seen by Mr. A. B. Kelly on the afternoon of Tuesday, November 23rd, and at 7 P.M. Mr. Kelly and I saw him together. There was then swelling and bruising about the nose and at the lower part of the forehead, the swelling here occupying the middle line, but extending somewhat more to the left than to the right side. There was also redness, caused probably by the application of some arnica, which strongly suggested the idea of erysipelas; but this proved to be erroneous. There was no marked swelling of either orbit, and no subconjunctival ecchymosis, and there was no swelling in any other part of the head. The left knee was distended with fluid, and evidently was both tender and painful.

He was at this time speechless and almost, if not quite, unaware of what was said to him. He moved all his limbs, except the injured left leg, freely; swallowed food when the feeder was applied to the lips, and passed his water spontaneously, but unconsciously. The pulse was rapid and full, about 120; the respirations also were rapid, but regular; and the temperature 105° Fahr.

We examined carefully both the chest and abdomen, and endeavoured to exclude all other conceivable causes of the fever; and thinking that the swelling of the face might possibly be due to erysipelas, we applied fomentations, and administered a mercurial purge. Next day, as the symptoms remained the same, though the swelling of the face was less, we abandoned the idea of erysipelas, and adopted the diagnosis of meningitis; the hair was accordingly cut short, and ice was applied on the 25th, and from this time forward.

He lived till midnight on November 28th, that is 6½ days after the accident, and, in the interval, the following symptoms developed themselves: The right arm became incompletely paralysed and rigid on the 26th; and the right side of the face, including the upper eyelid, on the 28th; but movements of the right leg were still performed. There was slight spasm of the right facial muscles before he died. The reflexes could not be properly compared, on account of the injury to the left leg; ankle-clonus was marked on the right side. The bruise on the

forehead became very prominent, and seemed to be pointing. The distension of the left knee increased considerably, and a large purplish-brown patch of ecchymosis appeared on the left calf and inner side of the left foot, evidently tender, and most suggestive of blood-poisoning. He continued to take his food; and he passed his water under him. The lips and tongue were dry, and the breath acquired the peculiar earthy smell often met with after head injuries. The pulse and respirations remained rapid; the temperature once sank to 103°, but stood usually at 105°.

No other symptoms of consequence were observed, and we had thus to be content with the diagnosis of meningitis and acute septicæmia, following a presumed fracture of the skull, which was, as far as outward evidence went, a simple one—a condition of things so rare as to make us doubt the accuracy of our conclusion.

A necropsy was made eighteen hours after death, when decomposition was already somewhat advanced. The clot on the forehead peeled off with the scalp, and was, in this situation, quite superficial to the pericranium. It had suppurated, and the abscess thus formed communicated by a narrow track with a patch of bone, from which the periosteum had been stripped off, extending along the junction of the upper and inner walls of the left orbit. This track thus passed round the internal angular process of the frontal bone. On opening the skull, it was found that there was extensive meningitis, more abundant on the left side than on the right. On the right side, it was principally about the base and the temporo-sphenoidal lobe; on the left, it extended up along the fissure of Rolando over the region occupied by the cortical centres of the face and upper limb, but not obviously reaching that of the leg centres. The brain itself was quite uninjured.

There was a small fissured fracture, commencing 1½ inches above the internal angular process of the left frontal bone, and running down to the upper and inner angle of the left orbit, along which it extended as far back as the articulation between the frontal and sphenoid bones—following, in fact, the suture between the frontal and the ethmoid. For some little distance on each side of this, the dura mater had been stripped off; but it was so injured in removing the brain, that it is uncertain whether or not it had been torn at the time of the accident. The fracture communicated with the posterior ethmoidal cells, which contained pus; and it was found, on chipping away the cribriform plate, that the ethmoidal cells and the sphenoidal sinus on the right side also were filled with pus.

The left knee-joint was distended with pus, and there was some bruising on the inner side of the patella itself. The fluid in the calf was clearly inflammatory, but not actually purulent in the part cut into for observation. The viscera were examined without finding any point of interest.

To explain this very obscure case, two hypotheses are possible. First, that which is most likely the correct one, that the fracture, which was really compound, as it communicated with the posterior ethmoidal cells, became contaminated from the secretion of the nose, hence the suppuration of the clot, the septic meningitis, and the general septicæmia, which was indicated by the suppuration of the knee-joint. If we add to this the possibility of some specific poison remaining from the previous attack of inflammation of the mucous membrane of the nose, possibly caught, it will be remembered, from a horse, the exceedingly rapid development of the symptoms becomes comprehensible.

Secondly, it is conceivable that the patient may have been in the state (analogous to that preceding the onset of acute necrosis depending upon injury) when any extravasation or bruising is almost certain to result in an abscess. This not very common condition will be familiar to most surgeons, but it does not, I think, clear up the difficulties of this case satisfactorily.

On the whole, if merely from the point of view of diagnosis, it seems worthy of being recorded. Acute meningitis following a simple fracture of the skull is, I believe, almost unknown; doubtless instances of it have been described, especially before the bearing of the septic element in the production of meningitis was recognised; but it is more than likely that, in these cases, some minute communication with a sphenoidal sinus, an ethmoidal cell, or, perhaps, the external auditory meatus has escaped detection by the observer.

THE *Journal de Médecine* of January 2nd, 1887, contains the following prescription for gastralgia and indigestion recommended by Dacosta. B Bromide of potassium, 8 grammes; calcined magnesia, 6 grammes; cherry-laurel water, 60 grammes; lettuce water, 240 grammes; simple syrup, 25 grammes; extract of thebaïa, 40 centigrammes. Shake the bottle before using. Dose: one tablespoonful before meals.