Such is a brief outline of the treatment which I adopt in cases of menorrhagia depending on the three causes I have mentioned, a line of treatment I have not ventured to advocate till I had first given it a full and protracted trial. My experience having now extended over a period of several years, a term sufficiently long to allow of my testing the results, I can now say that those results have been eminently satisfactory.

CAST OF THE URINARY BLADDER.

By J. R. WARDELL, M.D., F.R.C.P.,

Physician to the Tunbridge Wells Infirmary.

IN the rare case of the expulsion of a cast of the urinary bladder, given as a report of the Tunbridge Wells Infirmary in the JOURNAL of June 10th, it is said: "Dr. Wardell observed that he had referred to several works on pathology, but could find nothing like the case now narrated." It is evident, however, on further investigation, that a few similar instances have been recorded. Mr. Thomas Smith of St. Bartholomew's Hospital writes to me and says: "I have just read your most interesting case of cast of the female bladder. Should you care for references of similar cases, you will find them in the Pathological Society's *Transactions*, vol. xiii, page 150, and vol. xv, pages 137 to 140." Craigie says: "In the chronic form of cystitis, the mucous membrane may become thick, firm, and almost cartilaginous, with roughness and granular irregularity of its surface; and not unfrequently it is formed into pouches or cysts by the irregular contraction of the muscular coat" (*Prac. Physic*, vol. 1, p. 932). Copland, under the head of Complications of Cystitis, thus writes: "Coagulable lymph is sometimes found covering or attached to the mucous coat. This tunic in the most acute cases may be detached from the muscular in parts or even throughout, forming a greyish layer, resembling a false membrane" (*Med. Dictionary*, vol. iv, p. 1191). Dr. Tanner thus refers to this subject: "A few curious cases have been recorded where the whole mucous lining of the bladder has been thrown off in one piece. In the museum of the Royal College of Surgeons there is a preparation (pathological specimens, No. 1993) which illustrates the correctness of this remark." This author then cites the history of the foregoing case. It occurred to a man 70 years of age in Edinburgh, who fell from a scaffold and had retention of urine and cystitis. At the end of the third week nothing passed through the catheter, and its point was felt to impinge upon a membrane. Mr. Liston cut into the bladder above the pubes, and the man lived three months after the operation and died from exhaustion. The layer of membrane, as it is found in the museum, is of saccular form, measuring six inches long and four in diameter. The shape indicates that it lined the whole interior of the bladder, and was thrown from it in one piece. The outer surface is flocculent, and in parts distinctly fibrous; the inner surface is granular and reticulated like superficially ulcerated mucous membranes. As the College catalogue states, it exactly resembles the mucous membrane of a bladder separated as a slough in one piece. (Tanner's *Pract. Med.*, 6th Edition, vol. ii, p. 226.)

This description of the specimen in the College of Surgeons' museum singularly applies to the specimen which I now have in my possession. This kind of primary croupous process may occur in all mucous membranes; and it is albuminoid and semi-pellucid, and interlaced with fibrous flakes. If not thrown off, it assumes a partially organised and continuous texture. There is much redness with injection of the subjacent vascular coats, which at length becomes paler and more normal. I believe that diverticula have their origin in the vesical parietes throwing off this albuminoid exudation. Rokitsky says that primary croupous exudation of the vesical mucous membrane is extremely rare. This inner coat of coagulable exudation is liable to become the seat of urinary sediments; and if this adventitious covering be not thrown off, there may be an incrustment deposited from the saline urinary products, as I remarked it to be the fact in the specimen which I exhibited at the East Sussex meeting.

PROFESSOR FLOWER'S HUNTERIAN LECTURES ON THE TEETH AND ALLIED ORGANS IN THE MAMMALIA.

Delivered at the Royal College of Surgeons of England.

LECTURE XVIII.—Wednesday, March 29th.

Marsupialia.—These form an extensive group, agreeing in certain important characters, and at the same time presenting so many differences among themselves that some naturalists divide them into orders corresponding with those of placental Mammals.

In the Didelphia, represented by the Didelphys or Opossum, the dental formula is $i \frac{5}{3}, c \frac{1}{1}, p \frac{3}{3}, m \frac{4}{4}$. The incisors are small. The canines are large, much resembling the carnivorous type (the animals are all either carnivorous or insectivorous). The præmolars have compressed crowns and sharp points. The molars have many roots, and are tuberculated. It is to be noted that the Marsupialia have generally four molars, in place of three as in placental Mammals. The upper molars have two large cusps on the outer side and two small ones in front, giving a faint indication of the W-pattern. The lower molars have five cusps. It was formerly supposed that the front teeth of the Opossum were preceded by milk-teeth; but closer investigation has shown that this is not the case. The last præmolar alone has a predecessor: this is just like a true molar; but, when the animal is about half grown, another can be found beneath it. The permanent tooth appears when the animal has nearly attained its full growth.

The Dasyuridæ, represented by the Dasyurus, are essentially carnivorous. The Thylacine is externally very like a Dog—an instance of an animal of different origin but with similar habits, and having its structure modified to suit those habits. The incisor teeth are small, the canines are large, the præmolars pointed and compressed, and the true molars presenting a form intermediate between sectorial teeth and ordinary molars. The formula is $i \frac{3}{3}, c \frac{1}{1}, p \frac{3}{3}, m \frac{4}{4}$. Three of the upper molars and the four in the lower jaw present a rude resemblance to sectorial teeth. On examining a young Thylacine taken from the pouch, before the teeth have come through the gums, the incisors are found to be of the same size as in the adult animal; and at the edge of the gum there is a small tooth of the size of a pin's head, with the root already absorbed, lying over the third præmolar. This tooth is shed very soon afterwards. All the permanent teeth come through nearly at the same period.

In the Perameles or Bandicoot, the incisors are small, being $\frac{5}{3}$ in number; the molars are formed on the insectivorous type. The posterior milk-præmolar remains until the animal is nearly full grown.

The preceding Marsupials are termed polyprotodonts from their numerous small incisors. All the other members of the order are vegetable-eaters, and are diprotodont, having never more than one incisor on each side in the lower jaw. In the upper jaw, there may be two or three on each side.

In the Phalangista or Phalanger, which has an outward resemblance to the Opossum, the last præmolar, as far as is known, is the only tooth that has a milk-predecessor. The molars are square, with four cusps and transverse ridges. The Koala has a similar arrangement of teeth.

In the Tarsipes, which lives in trees and sucks out honey with its tongue, there are two long projecting incisors in front; the rudimentary teeth vary in number, and resemble needle-like points.

The Kangaroos have three incisors in the upper jaw, and one long procumbent sharp incisor below. After these comes a space, occupied in early life only by a canine. There is a præmolar tooth; then four teeth nearly alike, having two crests and a large transverse ridge, with a deep groove between. The mode of succession of the teeth is peculiar. A præmolar and a molar both drop out, and are succeeded by one true molar. In the old animal, some of the anterior molars fall out.

The Kangaroo Rat (*Hypsiprymnus*) has three incisors and a canine in the upper jaw. The præmolar is elongated from before backwards, and compressed, and marked by ridges on the side. The molars have tubercles. A small milk-præmolar and a molar are both shed, and are replaced by a præmolar.

The Wombat or Phascolumys has two incisors above and below, with (alone among Marsupials) persistent roots, as in Rodents. There are five molars, above and below, with pointed roots, and curved as in Rodents. They each present two columns, with a deep groove between; the anterior molar is single, and may be called a præmolar.

There are many extinct Mammalia in the oolitic formations. Many have been found in the upper oolite at Purbeck. One of them, named by Falconer *Plagiaulax*, had one incisor on each side in the lower jaw, together with some teeth which were apparently præmolars, and some true molars. Owen regards it as carnivorous; but as yet we only know its lower jaw.

The teeth of the Thylacoleo may be taken as a test of the value of teeth in determining the characters and affinities of animals. The complete dentition of this animal is known; it was very peculiar, and unlike that of any existing animals. Nothing is known for certain of any other of the bones of the animal. It has been the subject of much controversy, and of several papers by Owen. A fragment of the skull and two teeth were described by Owen in 1859; from this part, and a small portion of the lower jaw, he described it as having been of very