Attention was called to this subject in 1874-75, by several articles which were published in the Parisian scientific journals. The most important of these appeared in the *Archives de Physiologie Normale et Pathologique*, and was entitled "Recherches Cliniques et Expérimentales sur l'état de la Pupille Pendant l'Anesthésie Chirurgicale produite par le Chloroforme," par MM. Budin et Coyne. In this paper it was asserted that the condition of the pupil offered a reliable evidence of the degree of anaesthesia produced by chloroform, and was therefore of value as a guide in its administration. This was disputed and contradicted by Professor Schiff, of Florence, and others, who published quite opposite results, and up to the present date the action of the pupil during chloroform anaesthesia is still undecided, if one can judge by the conflicting statements made by the various authors who have investigated the subject.

It has always been difficult for me to determine the exact moment at which a patient is sufficiently under the influence of chloroform for an operation to be proceeded with. The sign of abolition of conjunctival reflex action, which is usually relied on, is very variable; in fact, in the majority of cases it is altogether misleading. I have also frequently experienced discomfort from the want of a reliable symptom to indicate whether the patient is deeply under the influence of chloroform, a matter of paramount importance for satisfactory administration. And I have never been able to observe the modifications of the pupil during the different stages of anaesthesia which are described in many works; namely, that it is at first contracted, then dilated.

From a number of clinical observations made by me in the Glasgow Royal Infirmary, followed up by a series of experiments on dogs performed in the laboratory of the University of Vienna, I am convinced that the statements made in the above quoted French article are for the most part correct. I have formulated the following conclusions:—

1. The effect produced by chloroform on the pupil is at first dilatation, varying in degree and duration, then contraction as the narcosis becomes profound, and dilatation again when the sensibility is returning. If the administration be still continued, with the pupil strongly contracted and motionless, the pupil will also dilate, but in this case more suddenly and completely, and will be coincident with a state from which it will be difficult or impossible to resuscitate the patient. This latter is the dilatation of asphyxia.

2. So long as the pupil dilates in response to excitation by pinching, etc., the patient is not sufficiently narcotised for the operation to be proceeded with, unless the latter is slight and does not require complete anaesthesia.

3. When the pupil becomes strongly contracted and immobile, no more chloroform should be given until it begins to dilate again. If, then, further anaesthesia be required, a little more chloroform should be given till the pupil again contracts.

4. The occurrence of sickness causes dilatation similar to, but more sudden than, that which happens when sensibility is returning, and the efforts of vomiting have the effect of arousing the patient.

The watching of the respiration and the pulse, which are doubtless the best indications of the effect produced on the individual by chloroform, and, therefore, of vital importance for safe administration, does not in many cases furnish evidence of the state of sensibility, in regard to which I hold the observation of the pupil to be of greatest assistance. The sign usually relied on, namely, the insensibility of the conjunctiva, is by no means a satisfactory test, for in many cases conjunctival anaesthesia is established long before the patient can be said to be under the influence of the drug. By observing the pupil, the administrator of chloroform can tell at once when the effect of the drug is on the wane, because the pupil then begins to dilate slowly. Noticing this, he can, by the administration of a few drops more chloroform till the pupil contracts again, prevent the occurrence of struggling and interruption of the operation. In this way he can keep the patient in the state most suitable for the satisfactory performance of the operation without narcotising him more than is necessary. The amount of chloroform required to maintain a state of anaesthesia is much less than that required to put a patient under its influence several times, and, as it is admittedly a dangerous drug, the less administered the better, especially in operations of long duration. And by allowing the patient partially to recover, one runs the risk of the occurrence of sickness and vomiting, which is always an awkward, and often a dangerous, accident. In the absence of such a guide as the observation of the pupil, the chloroform is likely to be given in a rather haphazard way, dosing the patient till narcosis is profound, perhaps too much so, then interrupting the operation till the danger is averted by arousing him, or waiting until signs of feeling, such as struggles or a cry of pain, give indication for more chloroform.

The observation of the pupil also furnishes a fair indication of the

effect produced by chloroform, its size bearing a constant relation to the state of the blood-pressure. In the experiments on dogs the blood-pressure in the carotid artery was recorded on charts, and it was found that contraction only occurred when the pressure had fallen considerably, and, on removal of the chloroform, dilatation only took place when the pressure had risen to a certain height. As reduction of the blood-pressure was pronounced by the Committee of the British Medical Association to be one of the chief dangers in chloroform-administration, the presence of a sign by which the occurrence of that important condition can be recognised must be of practical value.

It is not the purpose of this article to undervalue in the smallest degree the indications afforded by the respiration and circulation in the administration of anaesthetics, but rather to supplement these by a sign which can easily be observed in conjunction with them. The observation of the lips, which is a most convenient method of watching both respiration and circulation, can be attended to at the same time as the state of the pupil. Therefore, while I consider that attention to the former is of first importance, I at the same time believe the latter to be of valuable assistance, and worthy of observation by every one who administers chloroform.

REPORT ON THE PHYSIOLOGICAL ACTION OF COLCHICUM ON THE KIDNEYS OF THE GOUTY AND RHEUMATIC.

By C. S. TAYLOR, M.D.Ch., B.Sc.

(From the Physiological Laboratory, Brussels.)

THE object of research was to determine the exact share taken by the kidneys by assisting in the elimination of morbid matter, and more in especial in promoting the elimination of excrementitious matter through the kidneys. Experiment shows thereby that as the patient, who has been taking colchicum is getting better, the urine becomes increased, either in quantity or specific gravity, or in both. Sometimes there has been a copious deposit of lateritious sediment, and this seems to me to be the most favourable case, but is not essential, for in other instances the excrementitious matter is eliminated in the form of dissolved urea, and then there is no deposit. This, I believe, is the true mode in which colchicum cures rheumatism and gout, and it also explains why it acts most favourably when it does not disorder the bowels. N.B.—After pain and inflammation has subsided, it becomes necessary to continue the colchicum for a week or ten days to get rid of the gouty and rheumatic matter from the system. To obtain its necessary efficacy it should be combined with a mild tonic, and afterwards iodide of potassium should be substituted, and the patient's diet regulated.

Important Test.—Of those taking colchicum, the result was nearly doubled in the space of twelve days. In one case the urine before taking colchicum contained 0.069 per mille of uric acid; four days after commencing to take the colchicum the proportion was 0.076; on the eighth day it was 0.091; and on the twelfth day it was 0.102. In other instances similar results were obtained; for example, in a sailor under treatment for secondary syphilis, etc. In order to ascertain the physiological action of that agent on the kidneys, I first examined the urine. The density was 1025; it contained no deposit, nor was it affected by heat or nitric acid. It contained—

Total solids	...	...	27.5000
Water	...	...	972.5000
Urea	...	...	12.360
Uric acid	...	...	0.281
Inorganic salts	...	...	7.438
Organic matter	...	...	7.423

Total ... 1000.000

N.B.—Here it will be perceived that both the urea and uric acid were slightly deficient if we compare it with the standard of healthy urine as given by Becquerel—

Total solids	...	...	31.185
Water	...	...	968.815
Urea	...	...	13.838
Uric acid	...	...	0.391
Inorganic salts	...	...	7.695
Organic matter	...	...	9.261

Total ... 1000.000

On the third day after the patient commenced to take colchicum

the urine was examined; it possessed a slight turbidity, which, however, was dissipated by heat; the density was 1030. It contained—

Total solids	...	...	29.650
Water	...	970.350	
Urea	...	15.500	
Uric acid	...	0.491	
Inorganic salts	...	6.350	
Organic matter	...	7.209	

Total ... 1000.000

Here, it will be observed, the urea was increased by one-fourth, the uric acid nearly doubled, and the organic salts and inseparable organic matters considerably decreased.

The urine was again examined on the sixth day after commencing to take the colchicum, with the following results: Turbidity rather increased; density 1034. It contained—

Total solids	...	...	33.460
Water	...	966.540	
Urea	...	18.341	
Uric acid	...	0.750	
Inorganic salts	...	7.436	
Organic matter	...	6.933	

Total ... 1000.000

Here, then, the physiological action of colchicum in increasing the urea and uric acid was well marked. Having obtained these results from this case (which are only corroborations of many others), it was not considered justifiable to proceed further with the administration of colchicum with this patient. It has been supposed by many authors that under the use of colchicum a remarkable change takes place in the system, that is, that the uric acid becomes converted into urea; but this has not been substantiated, and from the above cases, and the analyses which I have just noticed, we must be led to suppose that no such change occurs, but that an increase in both those principles is the result. The opinion of Dr. Graves was that the beneficial action of colchicum is not owing to its producing a more rapid excretion of lithates through the kidneys, but to the remarkable property that plant possesses of altogether putting a stop to the morbid formation of lithates. That of Dr. Gairdner is that he has always found that the increase of urea was accompanied by a corresponding diminution of the urates in the urine. But from the above experiments I am now inclined to believe that neither supposition has any basis. Furthermore, Dr. Garrod states that, in acute rheumatism, no more urea and uric acid are to be found in the blood than in health, in which they are present only in very minute quantity. My opinion differs from his, as I believe that both exist in an increased quantity. In the case I am about to relate, and which fell under my own personal observation, I shall endeavour to prove that such is the case, and to show, from the analysis of blood and urine which I made both before and after the exhibition of colchicum, that the remedial agency of this medicine is due, partly at least, to its power of eliminating urea and uric acid from the blood, and increasing their quantity in the urine.

CASE A.—A girl. On July 13th, 1882, a small quantity of blood was withdrawn, analysed, and found to contain—

In 1,000 parts of blood { 0.507 urea.
.865 uric acid.

The urine was examined at the same time. It contained—

Total solids	...	...	28.568
Water	...	971.432	
Urea	...	10.496	
Uric acid	...	0.257	
Inorganic salts	...	7.0461	
Organic matter	...	10.354	

Total ... 1000.000

Colchicum in combination with muriate of morphine was then administered.

The urine was again examined a week after the patient's admission. It was found to contain—

Total solids	...	...	31.459
Water	...	968.541	
Urea	...	12.312	
Uric acid	...	0.421	
Inorganic salts	...	8.231	
Organic matter	...	10.495	

Total ... 1000.000

Nine days afterwards the urine was re-examined. It contained—

Total solids	...	...	35.613
Water	...	964.387	
Urea	...	13.984	
Uric acid	...	0.598	
Inorganic salts	...	9.401	
Organic matter	...	11.630	

1000.000

After twelve days' constant use of the colchicum, a small quantity of blood was procured for examination. Now, however, not the slightest trace either of uric acid or urea could be detected in so large a quantity as 3.500 grains. The urine was examined at the same time, and was found to contain—

Total solids	...	...	34.554
Water	...	965.446	
Urea	...	14.561	
Uric acid	...	0.737	
Inorganic salts	...	9.649	
Organic matter	...	9.607	

Total ... 1000.000

The colchicum being still continued, the urine was again re-examined on the eighteenth day, and found to contain—

Total solids	...	...	38.128
Water	...	961.872	
Urea	...	17.635	
Uric acid	...	1.034	
Inorganic salts	...	9.999	
Organic matter	...	9.460	

Total ... 1000.000

CASE B.—I had an opportunity only once of examining the blood before colchicum was taken. It then contained—

In 1000 parts { 1.416 urea.
.691 uric acid.

Before taking colchicum, the urine contained—

Total solids	...	...	23.479
Water	...	976.521	
Urea	...	1.358	
Uric acid	...	0.097	
Inorganic salts	...	7.333	
Organic matter	...	9.091	

Total ... 1000.000

The urine was again examined on the fourth day—

Total solids	...	...	24.538
Water	...	975.462	
Urea	...	9.103	
Uric acid	...	0.231	
Inorganic salts	...	8.693	
Organic matter	...	6.511	

Total ... 1000.000

On the ninth day—

Total solids	...	...	26.322
Water	...	973.678	
Urea	...	12.981	
Uric acid	...	0.497	
Inorganic salts	...	9.400	
Organic matter	...	3.444	

Total ... 1000.000

On the thirteenth day—

Total solids	...	...	27.466
Water	...	972.534	
Urea	...	16.824	
Uric acid	...	0.937	
Inorganic salts	...	7.203	
Organic matter	...	2.503	

Total ... 1000.000

Results.—These are the analyses of two very favourable cases, in which it will be seen that the urea and uric acid are increased in proportion to the time that the medicine is continued. My object for selecting these two cases is on account of their showing the increase more gradual. In all the cases, however, in which I have analysed the urine, the great increase was distinctly marked, although perhaps not in so regular a proportion.

Conclusion.—These analyses, I hope, will show to the profession to what extent colchicum will alter the renal secretion, by supplying it, when deficient in its normal constituents—urea and uric acid—from the blood. From practical observations and experiments, I am inclined, therefore, to believe that to this property of colchicum its remedial action is in a great measure to be referred. Further analysis of the blood may, however, be thought necessary, but want of time has allowed me no means for this purpose. The analyses of the urine recorded are only a few selected from many others made by me, and were effected according to Becquerel's method. Colchicum has been employed in all forms of the disease, but it appears to me more particularly useful in articular rheumatism. My belief is that in proportion as the synovial symptoms predominate or mix themselves distinctly with the fibrous—in proportion as the disease approaches in its character to gout—we may expect to be successful with colchicum.

N.B.—Large doses are not requisite; 20 minims of the tincture of the wine may be given every six hours until some relief be obtained, or a grain of the inspissated juice or of the acetic extract of colchicum every four hours. Under this treatment the disease sometimes vanishes within three days, the medicine producing sickness and purging, and the rheumatism or rheumatic gout rapidly declining; occasionally, the same favourable event takes place, although there has been no disturbance of the stomach and bowels.

The cases in which colchicum appears to me to be more pre-eminent useful are those in which the disease attacks the joints and is of an erratic character, for example, suddenly disappearing from one joint, and as suddenly appearing in another; these, I believe, are the cases in which the heart and other internal organs are chiefly affected, and probably if the active operation of colchicum is secured early, these formidable secondary diseases are less likely to occur.

REMOVAL OF UTERINE APPENDAGES FOR THE RELIEF OF CONSTANT OVARIAN PAIN, INCESSANT VOMITING, AND DYS- MENORRHOEA: RECOVERY.

By A. C. BUTLER-SMYTHE, F.R.C.S. Ed.,

Senior Surgeon to the Grosvenor Hospital for Women, Westminster.

A. M., widow, aged 40, came under treatment in 1884, suffering from constant pain in the ovarian region and troublesome vomiting. She was a short, slight, dark-featured woman, with the following history. Had been married four years, but had never been pregnant. First menstruated at the age of 15, and ever since she has suffered from dysmenorrhœa. Seven years ago she had diphtheria. For more than two years she had been troubled with sickness at the time of her periods. Within the last seven months she has complained of constant gnawing pains in both iliac regions, and has been sick several times daily, the vomiting occurring at all hours of the day and night. No disease of the stomach could be detected. Physical examination revealed tenderness over both ovaries, pressure causing vomiting. The uterus was anteflexed, cervix elongated, and the os patent. The sound passed three inches. For nine months she remained under treatment, and during that time every known remedy was tried for her relief, but without avail, and she rapidly lost flesh and took to her bed. Her next period, July, 1885, was attended by aggravated symptoms. At her urgent request I agreed to remove her ovaries and tubes as a last chance of relief; so five days after the period had passed she was put under ether, and the abdomen opened. The appendages were removed without much difficulty, and the patient made a rapid recovery, the pain and vomiting ceasing from the date of the operation. A catamenial flow appeared on the second day, and lasted till the ninth, but she had no dysmenorrhœa. The ovaries were the smallest I have ever seen removed from an adult. They were hard and fissured on the surfaces, and about the size of small beans. The tubes were thick and congested.

Two years have elapsed since the operation, and the patient remains well. The symptoms throughout the illness, and their immediate cessation after the operation, taken together with the condition of the ovaries, would lead one to suppose that they were due to the cirrhotic state of those organs. Inasmuch as the operation was performed in order to save the patient's life, the result seems to justify the treatment adopted.

By permission of the Benchers, the gardens of Lincoln's Inn will be opened on evenings for the benefit of the poor children living in the surrounding districts.

SALIX NIGRA AS A SEXUAL SEDATIVE.

By J. HUTCHISON, M.D.,

Physician to Anderson's College Dispensary, Glasgow.

In many women pain in the ovarian region is a constant attendant upon the menstrual epoch. In some this is due to organic disease, but in a large number it is one of the manifestations of the neurotic temperament. Such cases are met with in all degrees of severity, from a slight amount of discomfort along with indications of globus hystericus, up to hystero-epilepsy in its most pronounced forms.

It has always been a slur upon our profession that when a method of treatment becomes popular or fashionable other methods are entirely discarded. At present, massage and isolation from relatives is the popular mode of treatment, and drugs occupy a secondary place, if, indeed, they have any place at all. Pecuniary difficulties, however, stand in the way of isolation or massage ever reaching the masses, and drugs will always be in employment. Several drugs are in daily use against the ailment, but with only partial success, and it is with the view of bringing before the profession a remedy which in my hands has produced results which I never had before while I was employing the bromides, valerian, assafoetida, etc., that I have sent this short notice.

Salix nigra, or the pussy willow, is a tree growing from 15 to 20 feet high. It is met with along the streams in the Southern States of America, and is credited with possessing tonic, carminative, and stimulant properties, besides being an astringent and antiperiodic. In the *Transactions of the Texas State Medical Association*, Mr. Pain reports many cases treated successfully with the drug. He prescribed it in cases of ovarian hyperæsthesia, uterine neuralgia, etc., and also in spermatorrhœa and nocturnal pollution. His verdict upon the drug is that it is a powerful sexual sedative, similar in its action to bromide, but without its depressing qualities.

Through Messrs. Thomas Christy and Co., of London, I obtained a supply of the fluid extract, and have been employing it for some months. The most numerous class of cases in which I exhibited the drug were women of a nervous temperament, in whom the nervous irritability reaches its height at the menstrual period, when, along with the general *malaise*, is added a very decided pain in one or other ovary. They also suffered from hemicrania, the pain being situated above the left eyebrow, and resembling the feeling as if a nail were being driven into the skull (*clavus*). Many of them, too, complained of a pain underneath the left breast, and extending round to the back. On one or two occasions I have noticed patients complaining of the above symptoms, and in only a moderate degree, under favourable conditions—as, for example, long-continued anxiety or alcoholism—go from bad to worse till they became hystero-epileptics. In cases of this kind, it is supposed that the centre of inhibition has in some way got out of gear, and the severity of the symptoms depends upon the amount of disturbance in this nerve-centre.

In cases where the ovarian distress was the symptom for which advice was sought, as being in the patient's eyes the most prominent, I usually succeeded in eliciting other indications of an irritable nervous system, and placed them upon half-drachm doses of the fluid extract of *salix nigra* three times a day. In quite 75 per cent. of patients so treated a great amount of relief was obtained after two or three days' treatment. Not only was the ovarian hyperæsthesia relieved, but the nervous palpitation of the heart was abated, and the patient felt in every way stronger.

I have also given the drug in two cases of nocturnal emissions with marked benefit. The pollution ceased entirely while the drug was being taken and for several months thereafter. Virile power and passion were not much if at all diminished, but the relief from the ailment gave them great satisfaction.

A CASE OF CHRONIC PROSTATITIS: A PATHOLOGICAL CONTRIBUTION TO THE STUDY OF THE PHYSIOLOGY OF THE PROSTATE GLAND.

By WILLIAM ANDERSON, F.R.C.S.,

Assistant-Surgeon to St. Thomas's Hospital.

THE patient, a healthy man, aged 23, came under treatment in May, 1884, with symptoms of chronic inflammation of the prostate of eighteen months' duration: the condition having supervened upon an acute abscess of the gland, the result of gonorrhœa.

The only symptom of which the patient complained when first seen was a persistent sensation of fulness and discomfort in the perineum,