time besides producing the same results physiologically, that topical applications produce.

Expression of granulations can be used in all cases, but is more especially adapted to the first stages of the disease, before the deeper tissues are much involved. Where severe inflammatory symptoms usher in the disease, it is well to allay such inflammations before applying surgical measures of any kind.

A number of instruments have been devised for the purpose of expression, the most suitable of which are Knapp's roller forceps and Noyes' forceps. Another instrument that can be used with great advantage is the ordinary Desmearre's entropion lid forceps, and which in many cases I prefer to other means. However, it is not the particular instrument that one may use in this performance; it is the completeness with which the operation is done that goes to cure our case. Frequently, expression can be successfully done by the use of the finger nails. Friction, as applied by means of a brush or similar means sufficiently strong to tear the superficial capillaries and soft friable granular masses, but without destroying the normal tissue fibers has been extensively used in some quarters with great satisfaction. Grattage or scratching by means of a stiff brush or by a small metal rake, is a similar means but rather more severe, and ought to be used with care and discrimination. In the first stages of the disease it might do considerable harm by tearing and lacerating the conjunctiva and therefore it is applicable only where we have exuberant and fleshy granulations covering the whole lids; where the conjunctiva is so completely infiltrated and covered as not to be recognizable. Expression in such cases is frequently not sufficient, as we have here to deal largely with hyperplasia of tissue elements. The results obtained by friction or grattage as indicated, will by tearing the superficial capillaries, as well as the softer pathologic elements, cause local depletion and greatly improve circulation and absorption. It is surprising how quickly these thick fleshy lids can be reduced in a few days by this means, where it would take months by means of the ordinary topical stimulation. The good results of this procedure can be augmented by the additional use of antiseptics and astringents. In the more advanced stages of the disease, where deep deposits have taken place especially at and in the fold of transmission, the venous circulation often becomes very sluggish owing to mechanical obstruction. Absorption under such circumstances is deficient and practically at a standstill. Neither expression nor grattage is fully capable of removing this condition of affairs. Thorough massage has produced good results, although this is not always sufficient. Through the thickening and stretching produced, the conjunctiva becomes redundant and the careful excision of the fold of transmission has been practiced in such cases with decidedly satisfactory results.

A two-fold indication is met in this way:

In the first place we remove a large amount of infiltrated, and objectionable tissue, and in the second place we destroy the over dilated and inactive blood vessels and improve the local circulation and nutrition.

It has been held that by means of excision of the fold, disagreeable contractions are liable to occur. This, however, is not the case if the excision is done in the proper cases and properly executed. It is de-

sirable to excise as little as possible of the conjunctiva, and as this membrane is quite redundant in these cases no harm can come from this. The main object is to excise the subconjunctival tissue deep in the fold.

Galezowski is an ardent advocate of excision of the fold of transmission, and does this as a routine practice in all advanced cases. In his experience he has had no unpleasant results following the operation. Special instruments have been devised for the purpose of excision, among which may be mentioned Galezowski's forceps.

Cauterization by the actual cautery has been practiced to a limited extent and, in my opinion, can not be considered a rational measure. It certainly offers no advantages over excision or grattage, besides being much more liable to leave hard and irregular cicatrices. The principle of electrolysis which has been practiced by different men with good results, would seem more conservative and therefore more applicable. I have had no experience with this method, nor do I believe that it can be made to answer the purpose as well as other means at our command. The operation of scarification of flabby granulations is in my opinion objectionable, as by its use we will necessarily sever and greatly injure the conjunctival covering without offering any advantage which can not better be achieved by grattage. The use of massage, although not strictly a surgical measure is one of great advantage in conjunction with the various other procedures. In cases where the disease has run its course and has left behind large atrophic areas of the conjunctiva, or where this has occurred through severe caustic or surgical treatment, transplantation of conjunctiva of the rabbit to cover these defects, might suggest itself. By thoroughly removing the overlying tissues, it would seem simple enough to transplant healthy conjunctiva and give the globe a more acceptable protection.

INTRALIGAMENTOUS AND RETROPERITONEAL TUMORS OF THE UTERUS AND ITS ADNEXÆ.

Abstract of a paper read at the meeting of the American Gynecological Association, at Washington, D. C., May 29, 1894.

BY WILLIAM H. WATHEN, M.D.

LOUISVILLE, KY.

While paroöphoron cysts and retroperitoneal myomata of the uterus and its muscular processes have nothing in common in their etiology, I would include both kind of tumors, because the technique of the operation for their successful removal is practically identical. With few exceptions, cysts that unfold the layers of the broad ligament and burrow deep into the pelvis and retroperitoneal connective tissue, often developing nearly continuity in relation to other structures, probably arise from remnants of the mesonephros in the paroöphoron. Either the cystic or solid tumor may separate the peritoneum anteriorly and lie in front of it attached to the bladder, fascia and muscles of the abdominal wall, the separation sometimes being so extensive that it may be possible to reach the tumor and enucleate it through a median incision between the pubes and umbilicus without wounding the peritoneum. The separation, however, is usually from the posterior pelvic and abdominal walls; the tumor having passed beneath Douglas' sac unfolds the mesorectum, meso-

colon or mesentery of the small intestine; or, passing under the appendix, the cecum or the ascending colon, lies between them and the abdominal walls. The blood vessels that cause the most hemorrhage in enucleation are confined mainly to the capsule, and these vessels are sometimes huge sinuses, and especially is this true when the tumor has unfolded the mesentery of the rectum, the colon or the intestine.

No one should attempt the removal of intraligamentous or retroperitoneal tumors who is not familiar with the normal relations of every one of the pelvic and abdominal viscera and the relations that these tumors may sustain to surrounding tissues, otherwise he is at sea without a compass, and the immediate and subsequent results of his work will be bad. He should know that these tumors are mainly supplied with blood from the ovarian and uterine arteries, and that successful enucleation depends largely upon a correct ligation of these vessels.

The dangers of the operation which should be anticipated are:

1. Hemorrhage from separated adhesions, from the capsule of the tumor, from the denuded surface of a myoma, from injury to the spermatic and uterine arteries, the iliac arteries and veins, and inferior vena cava.

2. Wounding the ureters, the bladder and the intestines.

The causes of death are hemorrhage, shock and sepsis.

The results of the operation depend mainly upon controlling hemorrhage and successful enucleation. To prevent injury to a ureter that may be in front of the tumor it is best to incise the capsule and introduce ligatures *parallel* to the abdominal wound; in incising the capsule avoid large vessels. Hemorrhage will be greatly lessened by careful enucleation close to the cyst wall or the substance of the myoma, thus pushing the vessels in the capsule and in the connective tissue away from the tumor without wounding them. If the spermatic arteries have previously been ligated near the uterus and near the pelvic walls, the enucleation may sometimes be completed without wounding a vessel large enough to cause troublesome hemorrhage—in fact, it may be possible in some cases, by enucleating close to the tumor and the uterus, to perform total hysterectomy without ligating the uterine arteries, they being pushed aside and left in the pelvis uninjured. Great care must be observed in separating the tumor from the bladder and the intestines, otherwise these organs may be wounded or the coats so injured that sloughing may result, and when the enucleation has reached the pre-vertebral space careful dissections must be made, always hugging the tumor, avoiding the ureters or deep-seated vessels.

As gum tubing can not be used in many of these cases, hemorrhage may be controlled by forceps, separate ligation, ligation *en masse*, or a continuous suture; and hemorrhage from the substance of a soft cavernous myoma may be controlled by firm gauze pressure, or ligation *en masse*, the ligature being introduced deep under the bleeding vessels with a long curved needle. Forceps should be so shaped as to be readily applied to any part of the separated capsule, and the surface of the blades should be comparatively smooth and the edges so rounded as not to cause hemorrhage by cutting through the thin and fragile walls of the vessels. I

here present two forceps of my own device that well illustrate this point. Adhesions should be separated, if possible, between forceps or ligatures. The cyst should be tapped before enucleation is begun, and when this is done the caliber of the vessels in the capsule contracts.

If hysterectomy is necessary, total extirpation is preferable, for we can not get sero-serous union over the uterine stump, and unless this can be done the cervix ought to be removed. If possible it is best to ligate the uterine arteries outside of the ureter before they give off branches that supply the upper part of the vagina and cervix, otherwise ligate them close to the cervix to prevent injury to the ureters. The patient should be in the Trendelenburg position, so that the different structures and their relations may be seen as we proceed. There is no fixed opinion or uniform practice in the treatment of the sac cavity. It is drained through the vagina; through the abdominal walls, with or without suturing the capsule to the abdominal wall; or it is not drained at all. If hemostasis has been nearly perfect and the operation aseptic, drainage is not necessary, and then in total extirpation the vaginal vault should be closed by interrupted sutures.

MEDICAL EXPERTS.

BY WILLIAM S. FORREST, ESQ.

OF THE CHICAGO BAR, CHICAGO.

[Response to a toast at the annual banquet of the Alumni of Rush Medical College, May, 1894.]

Justice can not be administered in our civil or criminal courts without the aid of medical science. In the detection of crime, in the demonstration of innocence, in determining the probable cause, nature and extent of personal injuries, in shedding light upon the validity of wills, in ascertaining the existence and degree of mental impairment, the courts are compelled to lean upon the special research, observation and experience of the physician.

Originally, in England the medical expert aided the court by reporting to him his conclusions somewhat as is now done by a Master in Chancery. In those days he was selected by the judge and not examined by counsel. That system failed, and in its place arose the present system, which requires the expert to respond to a subpoena, if his reasonable charges are tendered him, and to submit, under oath, to examination and cross-examination. There is nothing, however, in the law or practice to-day that prevents a trial judge, of his own motion, from selecting and compelling any physician to give expert testimony as to the matters in issue in any case, when his testimony is relevant, if the court tenders him his reasonable fees. A fund to be provided by the county board in any county is all that is required to invest the courts of that county with full power to introduce in every case the testimony of that physician, whom the presiding judge may deem the most competent, within his jurisdiction, to elucidate the controverted medical question.

Of late there have been frequent complaints of medical expert testimony. Most of these complaints, in the judgment of lawyers, are based on prejudice and the want of full and accurate information. Sometimes they are prompted by the bias and the enthusiasm that flow from the zeal of partisanship.

American journalists have ceased to be impartial