potent was the antitoxin in arresting this rapid growth that in four hours the membrane was distinctly seen to be receding and in 48 hours it entirely disappeared. The only after-effect was a small corneal ulcer of the size of a pin-head, which quickly healed. Case 32, the mother of one of the patients already described, whilst swabbing out the child's throat felt mucus to enter both her eyes. As she did not know the nature of the accident no local treatment was adopted. When I saw the patient three hours after both conjunctivæ were deeply congested. 1500 units of anti-diphtheritic serum were given there and then and were repeated in six hours. The acute inflammatory condition disappeared in about 24 hours and no membrane formed.

A person critically inclined may remark that there is very little proof of this last case being genuine diphtheria, inasmuch as any purulent matter entering the eye will inflame the conjunctiva. This is true, but the mucus came from a source the specific nature of which was beyond dispute. I think that it is interesting to note the rapidity with which the eyes in Case 32 inflamed compared with Case 31.

Case 31 is interesting from several points of view. 1. The position of the membrane was so well defined and so easily examined that it afforded an excellent opportunity of determining with considerable accuracy the power of anti-diphtheritic serum to arrest its progress. 2. The case further illustrates in a remarkable manner the resistance and vitality of the Klebs-Löffler bacilli on eyes which were twice syringed with perchloride of mercury (1 in 2000), which were continually being washed out with a fully saturated solution of boric acid, and which were three times brushed with nitrate of silver (15 grains to one ounce). Yet the plucky germ survived. 3. The most active local treatment will only delay the formation of membrane; it also appears to moderate the attack, at least in its first stage. 4. The case clearly opposes the view that the Klebs-Löffler bacillus will only flourish on a morbid surface.

In every case the serum used was from Messrs. Burroughs and Wellcome.

Kirkby-in-Ashfield, Notts.

DACRYOCYSTITIS AGGRAVANS RESEMBLING TUMOUR OF THE FACE.¹

By KENNETH SCOTT, M.B., F.R.C.S. EDIN.,

OPHTHALMIC SURGEON TO ST. MARY'S CHILDREN'S HOSPITAL, E.

THIS case, besides being an unusual one, is a good example of the great amount of unnecessary suffering and remarkable tolerance of abnormal conditions which are not infrequently observed, amongst eastern nations more especially. The patient came under my care before I left Cairo last year. She was an undersized but well-preserved woman, 75 years of age, of the peasant class, and living in Upper Egypt. She was admitted to the surgical wards of Kasr-el-Aini Hospital, presumably suffering from a large tumour which involved a great part of the front of her face on the left side, but was afterwards transferred to the eye-section of the hospital. The case proved to be one of double dacryocystitis which on the left side had attained to such enormous proportions that it could only be fitly described as dacryocystitis aggravans.

There was said to have been occasional but rapidly evanescent swellings close to the inner corner of each eye, and when these subsided some discharge usually escaped from the nostrils. No information could be gained as to the real duration of the condition except that the swelling on the left side had existed longer than had that on the right.

Both the upper and lower left eyelids were so inflamed and oedematous that the palpebral fissure could not be opened, but later the globe of the eye was found to be intact. There was, in addition, a large tumour, vertically oval in shape, which extended from the region of the eye to the angle of the mouth, close to the perpendicular mesial line of the face. It encroached upon the eye so as almost to conceal it, filling up the surface

depression over the orbital cavity and extending laterally outwards to be in line with the external canthus. Its lower limit was marked by the fold of skin running between the side of the nostril and the corner of the mouth, and the level of its surface lay at a considerable distance forwards in front of the bridge of the nose. The tumour had a well-defined border and was wholly sessile, its surface was smooth and even, and showed no signs of redness. Although it was extremely tense there was a distinct sense of fluctuation present and apparently some degree of pointing towards its lower and outer aspect. The surrounding tissues were thickened and indurated, but only in the eyelids was there any outward evidence of acute inflammation. There was much local pain but no general disturbance of the system.

On the right side of the face there was a small swelling such as is ordinarily seen in cases of dacryocystitis when there is retention. There was also slight thickening of the bones of the nose. This comparatively minor condition was relieved by cutting the lower canaliculus and pursuing the customary lines of treatment. On the left side, as neither of the lacrymal puncta could be exposed, the tumour was incised on its outer edge, where there was cicatricial evidence of previous openings. A large quantity of ordinary thick pus escaped and the swelling collapsed completely. The tissues were too inflamed to permit of further radical interference at the time, and it was not until 12 days later that I was able to slit the lower canaliculus and explore the remainder of the passage, when I found that the lacrymal duct easily admitted No. 8 of Couper's probes, which is approximately equivalent to a diameter of 3 millimetres. A style was afterwards inserted and retained so as to prevent the possibility of even a temporary blocking. The sac which had formed the large swelling was found to be a multilocular one with branching diverticula. It was well washed out every day with a solution of cyanide of mercury, 1 in 1000, but soon became re-filled with thick mucus, which in turn quickly assumed the form of pus, and although the patient remained in the recumbent posture an additional opening had ultimately to be made at the most dependent point of the sac, close to the nasal fold of the cheek, and was kept open by suitable means. The tonic and antiseptic irrigation of the interior of the sac was continued and in five weeks from the date of admission the patient was able to be discharged cured, instructions being given her to return at regular intervals for observation.

Had the lumen of the canal not been so patent it would have been a suitable case in which to enlarge its diameter by means of drills—a method which I had occasion to describe some time ago.² In similarly difficult cases a small improvement on the ordinary form of lacrymal probe has proved of much use. It consists in the simple addition of a narrow flange or collar with a milled edge fixed round the centre of the stem of the probe, thus affording a convenient purchase for the fingers, which are enabled to guide the instrument more deftly and with greater firmness and certainty.

Harley-street, W.

EIGHTEEN CONSECUTIVE CASES OF ABDOMINAL HYSTERECTOMY; TECHNIQUE AND RESULTS.

By A. A. WARDEN, M.D. GLASG. AND PARIS,

SENIOR ASSISTANT TO DR. DOYEN'S PRIVATE CLINIQUE, PARIS.

THE cases which I am about to describe illustrate the importance and safety of the operative technique followed by Dr. Doyen and are cases in which I have had the privilege of assisting him during the year 1899. They do not, therefore, represent Dr. Doyen's integral statistics, as he operated upon other cases both at Rheims and at Paris, but they include all those in which I assisted him to operate and whose convalescence I was able to follow. I must here express my indebtedness to Dr. Doyen for his permission to publish the cases and for the entire freedom of access which he has given me to his drawings, photographs, and pathological specimens.

In nine cases the operation was performed for the removal

¹ Notes of a case read before the Section of Ophthalmology at the meeting of the British Medical Association at Ipswich on August 2nd, 1900.

² Annals of Ophthalmology, U.S.A., 1897.

of a voluminous fibroid, in three cases for fibroid with salpingitis, in two cases for cancer, in one case for fibroid with dermoid cyst, in one for fibroid and ovarian tumour, in one for a dermoid cyst with salpingitis, and in one case for fibrous tumour of the uterus in which ovariectomy had been previously performed for a suppurating ovarian cyst.

Dr. Doyen's technique of abdominal hysterectomy is so simple and so largely responsible for the almost startlingly small mortality (from 2 to 4 per cent.) that it is strange that it has not yet been generally adopted in English practice, with or without its latest modifications as shown at the International Congress of Gynæcology at Amsterdam in August, 1899. The English surgeons and gynæcologists whom I have seen operate or who have discussed the matter do not appear generally to have adopted any one technique—some preferring what is known as the American method, or some personal modification of it, while a few appear still to use the *serre-nœud*. Physicians and surgeons, however, all the world over are agreed in one thing—viz., the desire to find out what is best for their patients—that is, in this matter the operation that is at once the simplest and that gives the best results. Uterine disease of one form and another is so frequent that if we include affections of the annexa it is undoubtedly the most common condition that forces us to open the abdomen. The general adoption, therefore, of the excellent technique that Dr. Doyen has devised, and which is largely practised on the continent, cannot fail to be of benefit. It has the two great advantages of being certainly the simplest method of removing the uterus, whether in a simple or a complicated case, and therefore of being capable of completion, even by a surgeon unfamiliar with it, in half an hour or less.

Perhaps the chief value of the operation to many minds will lie in the fact that injury to the ureter or bladder is practically impossible (I have not seen either wounded in from 30 to 40 cases), and the peritoneum being completely closed the risk of infection is reduced to a minimum.

CASE 1.—Laparotomy for uterine fibroid with double salpingitis was performed on a patient, aged 49 years, on March 29th, 1899. The fibroid was of about the size of a foetal head, and the salpingitis on the left side was of considerable volume. The patient, who had come from Alexandria, Egypt, for the operation, remained 26 days in the clinique and made an excellent recovery.

CASE 2.—Abdominal hysterectomy for fibroid was performed on a patient, aged 38 years, in April, 1899. The fibroid was of the size of an adult head. The only complication was due to abundant vascular adhesions of the omentum to the tumour and an uneventful recovery was made.

CASE 3.—Abdominal hysterectomy for fibroid was performed on a patient, aged 35 years, on April 25th, 1899. The cervix was displaced high up by the tumour which occupied chiefly the left cul-de-sac. Its removal was easy though the broad ligaments were short and were both clamped and cut in order to facilitate the elevation of the tumour and uterus and the opening of the posterior vaginal cul-de-sac. The patient remained 22 days in the clinique, leaving well.

CASE 4.—Abdominal hysterectomy for large fibroid was performed on May 9th, 1899. The case was uncomplicated except that the closure of the peritoneum by suture over the vaginal opening caused some difficulty.

CASE 5.—This case was one of simple uncomplicated abdominal hysterectomy for large fibroid and was performed on a patient, aged 47 years, on May 16th, 1899.

CASE 6.—Abdominal hysterectomy for fibroid filling the posterior cul-de-sac was performed on a patient, aged 33 years, on May 30th, 1899. This case presented difficulties owing to intestinal adhesions which gave trouble and had to be very carefully separated. The peritoneum was closed, but a drain was introduced sub-peritoneally from Douglas's pouch into the vagina. The patient made a good recovery and left the clinique on the thirty-eighth day.

CASE 7.—This case, in which an operation was performed on a patient, aged 44 years, on June 6th, 1899, is quoted because before the close of the operation it was found necessary to remove the uterus though at first only ovariectomy was contemplated. The case was one of a large cyst

of the right ovary containing about 10 litres of fluid and extending between the layers of the broad ligament. The adhesions were dense and the shell of the tumour was separated with great difficulty. The left annexa were also removed as well as the uterus, which was large and fibromatous. The patient left well on the twenty-fifth day.

CASE 8.—This was a case of uncomplicated abdominal hysterectomy for fibroid and was performed on a patient, aged 43 years, on June 9th, 1899. The patient left the clinique well in 24 days.

CASE 9.—Abdominal hysterectomy for large fibromatous uterus was performed on a patient, aged 47 years, on June 19th, 1899. There was a cancerous degeneration of the cervix invading the left vaginal cul-de-sac. This degeneration involved the left ureter, which was removed for about three centimetres, the lower end being then sutured into the bladder, and a ureteral catheter was passed into it *via* the urethra through the bladder. In spite of the serious nature of this case recovery was practically uninterrupted. The catheters were removed on the eighth day and

FIG. 1.

Illustrating the first step, the abdomen opened, and the tumour drawn out above the pubes. Behind are seen the handles of the forceps placed in the vagina. (Plate XIII., No. 1, facing p. 458, Macnaughton Jones, from photograph lent by Doyen.)

the patient left the clinique on the twenty-fourth day. When heard from at the end of September, 1900, she was in excellent health.

CASE 10.—This was a case of abdominal hysterectomy for large fibroid, the patient being aged 48 years. A rare and interesting feature in this case was that anteriorly to, and quite apart from, the uterus was a large dermoid cyst apparently between the layers of the great omentum. Both were enucleated without difficulty. The posterior peritoneal cul-de-sac was drained per vaginam. The patient left the clinique well in 24 days.

CASE 11.—Abdominal hysterectomy for fibroid with double hæmatosalpinx was performed on a patient, aged 42 years, on Sept. 5th, 1899. The operation was uncomplicated and the patient left the clinique well in 25 days.

CASE 12.—Abdominal hysterectomy on account of pain and fibrous tumour to the left of the uterus was performed on a patient, aged 35 years, on Sept. 29th, 1899. In this case there was also old inflammatory peritoneal thickening. The patient left well on the seventeenth day. Laparotomy had

also been performed by Doyen upon this patient seven months before (on Feb. 23rd, 1899) for a suppurating cyst of the ovary. The patient arrived at the clinique in almost a dying condition, as the cyst had ruptured and there were both pelvic and general peritonitis. Both annexa were removed, but the uterus was left to aid the peritoneal suture. A drain was placed in Douglas's pouch and led into the vagina. The patient made a surprisingly good recovery and left the clinique on the nineteenth day.

CASE 13.—This was an abdominal hysterectomy for suppurating dermoid cyst with double salpingitis and was performed in October, 1899, the patient being 50 years of age. The case was rendered difficult on account of the close adhesions that had formed between the peritoneum of the small pelvis and the tumours and the intestine. A good recovery was made and the patient left the clinique on the twenty-sixth day.

CASE 14.—Abdominal hysterectomy for large fibroid was performed in October, 1899, on a patient, aged 38 years. There were a slight amount of albuminuria and persistent diarrhoea, so that for several days after the operation the patient's condition seemed precarious. The patient left the clinique well in six weeks, her departure being delayed by tardy healing of the silk suture.

CASE 15.—This was a case of hysterectomy for voluminous fibroid and was performed on Oct. 19th, 1899, the patient being 55 years of age. Some difficulty was experienced in getting the cervix raised, but otherwise the operation was uncomplicated and the patient left the clinique well on the twenty-second day.

CASE 16.—Hysterectomy for cancer of the uterus was performed on Oct. 11th, 1899, the patient being 55 years of age. She recovered well from the operation and left the clinique in 22 days.

CASE 17.—Abdominal hysterectomy for fibroid and salpingitis was performed on Dec. 5th, 1899. The patient, who was 28 years of age, made an uneventful and good recovery.

CASE 18.—The patient was 47 years of age and abdominal hysterectomy for large fibroid was performed on Dec. 8th, 1899. The incision was of unusual length on account of the size of the tumour and extended from the pubes to about midway between the umbilicus and ensiform process. Both the operation and the recovery were uneventful.

TECHNIQUE OF DR. DOYEN'S TOTAL ABDOMINAL HYSTERECTOMY FOR FIBROID.

It is curious to note how few surgical ailments there are in the treatment of which, no matter how frequently they may occur in practice, surgeons generally are agreed as to the operative procedure to be adopted. In the treatment of hæmorrhoids, for instance, surgeons differ as widely to-day as they did a quarter of a century ago. And yet it seems unlikely that all methods of operating equally approach the ideal of excellence. The fault seems to lie in an excessive conservatism and in the lack of sequence and logical coherence in the literature of the arts of medicine and of surgery—a fault that is continually made evident by the re-discovery and the re-publication of suggestions and of facts that were known to our grandfathers and have been forgotten by many of their sons. Happily, there are exceptions to this rule, and occasionally a surgeon will describe the technique of an operation so simple, so clear, and so perfect that it takes its place at once never to be forgotten. Thus, Macewen's method of osteotomy for genu valgum is probably practised by surgeons in every civilised country in the world and there is none to dispute its place. Who, however, would dare to name the best operation for the radical cure of hernia, for a cerebral or cerebellar abscess, for an intestinal anastomosis, or for a gastro-enterostomy? The names of the claimants are legion.

I submit that Dr. Doyen's technique of the enucleation of uterine fibroids by abdominal hysterectomy is as perfect as operative technique can be. Dr. Doyen has made several minor modifications since he first described it at the International Congress of Gynæcology at Brussels in 1892, but its three chief advantages remain. These are—(1) the retention of sufficient peritoneum around the opened vagina to admit of complete closure of the peritoneal cavity; (2)

the avoidance of the use of clamps, ligatures, and forceps prior to the section of the broad ligaments; and (3) the applicability of the operation to the enucleation of all forms of uterine and broad ligament fibroids. I will now give a brief *résumé* of the technique and then describe each step in detail.

The patient is placed in Trendelenburg's position. The posterior vaginal cul-de-sac is opened from the abdomen by scissors cutting upon curved forceps introduced per vaginam by the assistant. The cervix is then easily caught by its posterior lip and freed by cuts of the scissors to right and left until completely circumcised. It is then drawn well up, separating itself from the bladder. The right broad ligament is isolated and cut and then the left. The success and safety of the operation lie in its simplicity and rapidity, the complete closure of the peritoneal cavity, and the extra-peritoneal treatment of the pedicles of the removed annexa.

FIG. 2.

Illustrating the removal of the uterus and hæmostasis of its pelvic attachments. (Plate XIII., No. 2.) The cervix is seen caught by the tenaculum after incision behind the posterior lip of the cervix upon the point of the forceps in the vagina. The open blades of the forceps can be seen. The right uterine artery has been caught and the operator is, in the illustration, catching the left uterine artery. (These two illustrations show practically the whole of the ablation of the tumour, as strong traction upon the cervix suffices to separate the uterus, and as a rule no further hæmostatic forceps need be applied.)

First step: abdomen opened, and tumour drawn out above the pubes.—The patient (vide Fig. 1) is placed in Trendelenburg's position and the abdominal wall is incised from the pubes towards the umbilicus and as far above it as is necessary to permit of the extraction of the tumour. The peritoneum is caught on each side of the incision by several catch-forceps and a large compress is thrust in behind the tumour to isolate it and to protect the intestine, &c. The fibroid is then drawn well up and out by means of the large fibroid-screw. Several other compresses are introduced at the sides above the pelvic brim to isolate the field of operation, to prevent the escape of intestine, and to protect the peritoneum from contamination by clots of blood or uterine mucus.

Second step: perforation of Douglas's pouch and seizure of the cervix.—If it has been easy to draw the tumour well out of the abdomen its removal should be rapid and

simple. The vagina has, of course, been cleansed and long curved forceps are pushed by the assistant behind the cervix in the posterior cul-de-sac as high up as possible (*vide* Figs. 2 and 3). (A manœuvre, now neglected but followed by Dr. Doyen in his earlier cases and certainly of use to those unfamiliar with the operation, is to place at this stage a strong silk ligature through the peritoneum at about half an inch below the point made prominent by the forceps in the vagina. The peritoneum is opened at this point and the ligature enables its posterior border to be easily picked up at the close of the operation when the suture of the peritoneum is commenced.) Douglas's pouch is then incised. This is best done with scissors cutting longitudinally upon the point of the long curved forceps which then penetrate the peritoneal cavity and are widely opened by the assistant. The incision is extended a little on either side and the cervix is firmly seized by strong catch forceps, or, better still, by Doyen's special sliding tenaculum, and drawn well up, the assistant steadying the tumour by holding the fibroid-screw firmly embedded in its tissue.

Third step: isolation of the cervix.—It is now easy to feel with the index finger of the left hand the strong lateral attachments of the cervix. Two cuts with the scissors laterally close to the uterine wall free the cervix from its relations to the lower part of each broad ligament, and being thus freed it is at once easily drawn further up and out. The anterior vaginal cul-de-sac now comes into view and the cervix is separated from it by the fingers or by the scissors strong traction being made upon it throughout. The right forefinger separates the bladder with the greatest ease, the traction alone, thanks to the loose cellular tissue separating the bladder and uterus, often sufficing to liberate entirely the cervix and the uterus.

Fourth step: removal of the uterus.—Only the lateral vascular connexions now remain, to be simply and rapidly divided as follows. The left forefinger is passed above the superior border of the right broad ligament through the vesico-uterine peritoneum and gently but rapidly strips off the right broad ligament which the assistant then seizes. The surgeon then cuts between the annexa and the uterus, thus entirely freeing the tumour on its right side. It is then drawn over to the left, the anterior peritoneal covering stripping off as this is done or, if not, separated by a few cuts with the scissors, and finally only adhering by the upper part of the left broad ligament, which is similarly cut, and the tumour and uterus are removed.

Fifth step: arrest of hæmorrhage.—The surgeon then seizes the broad ligament on his side of the patient (the left). The uterine and utero-ovarian vessels, which alone are now bleeding, are caught and ligatured, and if care has been taken to cut close to the uterine tissue only minor branches of these arteries will have been opened. The right and left appendages are now ligatured and removed and the pelvic cavity is sponged out. It only now remains to close the peritoneal cavity.

Sixth step: closure of the pelvic peritoneum.—The right vaginal commissure is picked up with strong dissecting forceps and a curved needle successively threads it, the retro-uterine peritoneum, the peritoneum of the tubo-ovarian pedicle and finally the peritoneum between that pedicle and the bladder. A medium silk ligature is passed through the eye of the needle and when drawn tight completely closes the peritoneum over the tubo-ovarian stump. The left side is similarly treated and a transverse suture between the two closely unites the retro-vesical peritoneum to that of Douglas's pouch. Any redundancy of peritoneum or tear should be carefully sutured. A dry compress again sponges out the pelvis and the operating table is placed horizontally.

Seventh step: closure of the abdomen. This is effected by a deep sero-aponeurotic layer with interrupted silk suture or continuous catgut and a superficial skin suture with silkworm or catgut. Thus it will be seen that while the tumour is rapidly removed much time is spent on the careful suture of the peritoneum and of the abdominal wall.

REMARKS ON SPECIAL MANŒUVRES.

1. *The broad ligaments.*—Frequently the broad ligaments are unduly short owing to their attachment high up on the

lateral parts of the tumour and it is difficult to get the latter elevated well out of the pelvis. These tight bands, as it were, of the broad ligaments are at once felt by the index finger and may be caught either by the assistant or with long curved elastic forceps and cut through close to the uterus. It is rarely necessary to apply pressure forceps to the uterine surface. If necessary the left broad ligament is similarly treated.

2. *Hæmorrhage from the uterine artery during the isolation of the cervix uteri.*—This usually occurs while the cervix is being drawn up with the tenaculum, but the surgeon is prepared for it, and it is as easy to catch it with pressure forceps as to catch an artery of similar calibre, say, in an amputation of the breast. As the patient is in the Trendelenburg position and is more or less congested it is frequently of use to proceed with the removal of the tumour and then return to the ligature of the two uterine arteries which have served the purpose of a venesection.

FIG. 3.

The result of further traction is seen in this illustration, where the cervix is entirely freed. The opened forceps are still seen in the vagina. (Plate XIV., No 1, facing p. 459, Macnaughton Jones. From photograph lent by Doyen.)

3. *Difficulty in reaching Douglas's pouch on account of adhesions or a posterior sub-peritoneal fibroid blocking the pelvis.*—Dr. Doyen remarked upon this difficulty in 1892 and showed how slight were the changes which it was necessary to introduce into the technique. The tumour is drawn up as high as possible, any adhesions are separated, and if there are multiple posterior fibromata present the peritoneum and uterine tissue are incised and these fibroids easily enucleated with the fingers or the screw. If the posterior cul-de-sac remains inaccessible the forceps in the vagina are simply pushed towards the right broad ligament and the right lateral vaginal cul-de-sac is perforated as close as possible to the insertion into the cervix of the lower edge of the right broad ligament and the operation is proceeded with as in more ordinary conditions.

4. *Isolation of the cervix from the vagina before the abdomen has been opened.*—This is a manœuvre that considerably facilitates the operation, especially to those undertaking it for the first time. It is well, at any rate, during the preparation and toilette of the vulva and vagina to examine carefully the exact position and relations of the cervix. The

higher it is and the more difficult of access by the vagina the easier it will be to reach it from the abdomen. The lower and more normal it is the easier will be the preliminary circular incision of the mucous membrane per vaginam. Undoubtedly the most delicate step in the operation is the section of the lateral attachments of the cervix and of the mucous membrane of the posterior vaginal cul-de-sac, and when this is done as a preliminary step by the vagina the extirpation of the uterus by the abdomen is of the greatest simplicity.

5 *Drainage*.—Though not habitual it is sometimes well to drain Douglas's pouch, either after an exceptionally laborious operation or when the vagino-peritoneal wound has been plugged and not sutured. The best method is by a glass drain introduced from the most dependent part of Douglas's pouch into the vagina and covered externally by a small pouch of thin rubber or skin to collect aseptically any fluid that may thus drain.

6. *After-treatment*.—The patient is well purged on the second day, and sometimes on the first day, after the operation. If the temperature rises ice chopped in small pieces and placed in bladders is laid over the abdomen. I have yet to find the patient who did not find this soothing and comfortable. These are the two details in which the after-treatment differs from that followed in all laparotomies.

Paris.

BILATERAL RESECTION OF THE SUPERIOR CERVICAL GANGLION OF THE SYMPATHETIC FOR GLAUCOMA.

By H. WORK DODD, F.R.C.S. ENG.,

OPHTHALMIC SURGEON TO, AND CLINICAL LECTURER ON OPHTHALMIC MEDICINE AND SURGERY AT, THE ROYAL FREE HOSPITAL; SURGEON TO THE ROYAL WESTMINSTER OPHTHALMIC HOSPITAL, ETC.

THE operation which I describe in this paper was performed upon a patient as a result of an article by Dr. Jonnesco of Bucharest which appeared in *La Presse Médicale*, June 8th, 1898. In that article Dr. Jonnesco stated that he had performed the operation of resection of the superior cervical sympathetic ganglion for glaucoma seven times and that at the time of writing the cases were old enough to enable one to judge as to the value of the procedure. The results claimed by him consist in an immediate and permanent fall in the ocular tension in all the cases, very energetic contraction of the pupil even in those cases previously iridectomised, disappearance of peri-orbital pains and cephalalgia when these existed, disappearance of the attacks in the irritative glaucoma cases, and very marked and permanent improvement of the sight in the cases where optic atrophy was not complete. This lessening of the ocular tension, due to resection of the superior cervical ganglion, is explained by the ablation of the ocular fibres of the sympathetic which traverse this ganglion before reaching the eye. These fibres are distributed to the iris, the uveal tract, the vessels of the eye, and the peri-bulbar muscular apparatus contained in the capsule of Tenon, &c. Their excitation, permanent or intermittent, peripheral or central, produces a collection of phenomena which is termed "glaucoma." Permanent or intermittent contraction of the arterioles produces an increase of blood-pressure from which arise extravasation and increase of the aqueous humour. Permanent or intermittent dilatation of the pupil draws the iris towards the iridian angle, which condition obstructs the canals or the zone of filtration and prevents or slows down the flow of the aqueous humour. The permanent or intermittent contraction of the peri-bulbar muscular apparatus compresses the emissary veins of the bulb and clogs the venous circulation of the eye whence arises dilatation of the intra-ocular veins. This being admitted one easily understands the mechanism by which the resection of the superior cervical ganglion produces decrease of tension and with this cessation of all the troubles of glaucoma. Dr. Jonnesco believes glaucoma to be central and not peripheral in origin. In suppressing the superior cervical ganglion the origin of the trouble is not removed, but the ways of transmission are destroyed. He thinks that this operation should be especially successful in its results in chronic irritative glaucoma and in simple chronic glaucoma.

The foregoing is a brief summary of what I take to be Dr. Jonnesco's views on the subject.

It is an undoubted fact that iridectomy has been found to fail in most cases of the chronic forms of glaucoma and that we are now in a state of peculiar uncertainty as to the best treatment of this most troublesome and painful disease. If it be true, as Dr. Jonnesco states, that the removal of the superior cervical ganglion has a beneficial effect upon chronic glaucoma, then we have in this operation a means for relieving a large number of patients whose eyes under the present conditions progress from bad to worse. After taking all the above facts into careful consideration in consultation with my friend and colleague Mr. E. W. Roughton at the Royal Free Hospital, Gray's Inn-road, I felt justified in performing the operation in the following case which seemed to present the characteristics most favourable for trial.

The patient was a woman, aged 62 years, who had been under treatment for chronic glaucoma off and on for about 14 years at the Royal Free Hospital. During that time her vision had been steadily and slowly diminishing and she had never been free from pains in the eyes and "all parts" of the head. During this long time exacerbations occurred at intervals of about six months. While these exacerbations lasted her sufferings from pain in the eyes and head were extreme. She then saw "flashes of light," and though she did not vomit she was the subject of nausea. The symptoms had always been somewhat relieved by the use of eserine. In November, 1891, vision = $\frac{1}{12}$ in both eyes and she wore + 3.50 D. glasses for near work. In October, 1896, the R. E. vision = $\frac{1}{36}$; L. E. vision = $\frac{1}{60}$. In December, 1898, R. E. vision = $\frac{1}{24}$; L. E. vision = $\frac{1}{36}$. The fields of vision had very slowly contracted, this being most marked on the temporal sides. The tension had never been extreme, varying up to + 1 in either eye during the exacerbations. The patient had been the subject of dysmenorrhœa through most of her adult life. Two years ago she had hæmorrhage from the mouth (gastric ulcer?), but she had had no other serious illness. The patient was a milliner and had had for many years a successful business, but about 10 years ago it began to deteriorate and since then she had been in struggling circumstances. One of her sisters had had the left eye removed for "ulcers" and had had an iridectomy performed on the right eye for chronic glaucoma, for which condition she is still under my treatment. There was said to be gout in the family. The patient was a rather thin, white-haired, somewhat anæmic woman. The pupils were equal, regular, and small, but not contracted. The field of vision for the right eye for white was slightly contracted and more marked on the temporal side; the fields for red and green were still more conspicuously lessened. Vision = $\frac{1}{18}$. In the left eye the field of vision for white was decidedly contracted, especially on the temporal side. In the upper temporal quadrant there was a scotoma and the whole of the centre of the field was blurred and indefinite. Colours were indistinctly seen with this eye. Vision = $\frac{1}{36}$.

Able assisted by Mr. Roughton I operated in the following manner. An incision about four inches in length was made along the line of the anterior border of the right sterno-mastoid muscle, beginning above at the level of the angle of the lower jaw through the skin and fasciæ. The anterior border of the sterno-mastoid muscle was then exposed and its fascia divided in the whole length of the wound. The border of the muscle thus shown was drawn back. Several lymphatic glands were then removed. The common facial vein was ligatured in two places and divided between near to its entrance to the internal jugular vein. The fascia below the sterno-mastoid muscle was then torn through and the sheath of the great vessels of the neck was opened. The artery and vein were carefully dissected apart and the vagus nerve was then searched for and found. It was then drawn forward by a retractor, together with the carotid artery, while the internal jugular vein was held backwards by another retractor. The cord of the cervical sympathetic nerve with the superior cervical ganglion was then found in the fascia at the bottom of the wound, from which it was carefully dissected out. The ganglion was seized in a strong pair of forceps and pulled forcibly downwards with a twist so as to tear out the nerve from as high up as possible. The nerve was then cut off at the lower angle of the wound and about one and a half inches of its length were removed, including the ganglion. The operation was then repeated in exactly the same manner on the other side of the neck. The wounds were closed with separate silk stitches and a wet