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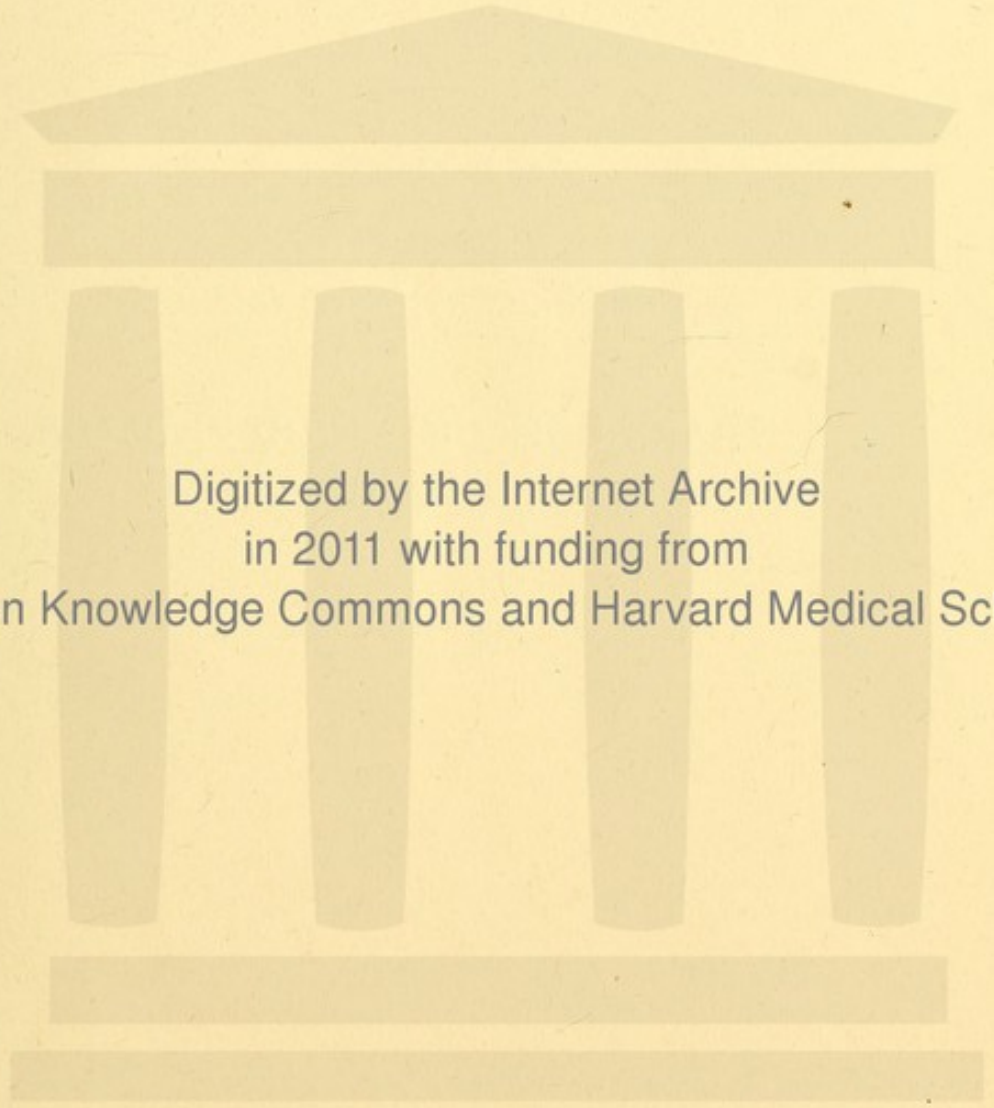

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UNIFORM WITH THIS VOLUME.

YEAR-BOOK OF THERAPEUTICS.

By R. W. AMIDON, M.D.

OCTAVO, $1.50

YEAR-BOOKS OF MEDICAL PROGRESS

A

YEAR-BOOK OF SURGERY

FOR 1883

EDITED BY

CHARLES H. KNIGHT, M.D.

G. P. PUTNAM'S SONS
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INTRODUCTION.

THE attempt has been made to give in the following pages condensed reviews of some of the more important contributions to surgery in the current literature of the past year. It has been impossible to approach completeness in the work, owing to the vast extent of the field to be explored and to the limited space at my command. It has been thought best to exclude bibliography, since the ground is already efficiently covered by the *Index Medicus*. Great assistance has been derived from that periodical and from certain journals, especially the *Phila. Medical News* and the *London Medical Record*. Articles have been selected with a view of presenting those which contain some point of special interest or value. As far as possible full credit has been given to the sources from which the various papers have been taken and to their respective authors.

It is interesting to observe with what impunity operations, almost unthought of in pre-antiseptic times, are now undertaken. In no department is the influence of antiseptic principles more conspicuous than in that of abdominal surgery. The stomach, the intestines, the kidneys, and the spleen are not beyond the reach of the knife. It may not yet be possible to say that humanity has received as much of benefit as surgery has gained in brilliancy; but evidently, with improved methods and wider experience, progress is being made. Whether the sense of security attending the use of germicidal agents has a real or an imaginary basis, whatever theory of antisepticism may be accepted, the surgeon nowadays is compelled to take a more watchful interest in the minor but important details of his operation and in the

after-treatment of his patient,—a result due in great measure to the general adoption of antiseptic methods.

It is improbable that the fortunate result obtained by Billroth in his third resection of the pylorus will be often repeated. The most substantial good thus far derived from experience in this operation has been in the direction of limiting its application to the early stage of carcinoma, or to the colloid variety of cancer. What remains is the necessity of perfecting the means of diagnosis. Unfortunately, there seems to be no way of exactly determining the extent and character of disease in this region. The most accomplished operators have been foiled by unexpected adhesions and dissemination of cancerous lesions. The possibility of relieving stenosis of the pylorus and of the cardiac extremity of the œsophagus, by instrumental dilatation through an artificial gastric fistula, seems to have been first suggested by Schede,[1] who undertook the operation, but his patient died after he had a single time carried a dilating instrument through the pylorus. Several years later Trendelenberg failed in an attempt at divulsion of an œsophageal stricture through a gastrotomy wound. More recently Von Bergmann has reported a successful case,[2] and two additional cases have been published by Loreta.[3]

The year has witnessed great activity in the surgery of the neck. Kocher's remarkable success in thyroidectomy will go far to establish excision of goitre as a safe and justifiable means of treatment, even in the absence of vital necessity for the operation.[4] In this connection the observations of J. L. and A. Reverdin[5] are of interest. These authors propose the theory, already suggested by others, that myxœdema owes its origin to suppression of the function of the thyroid body, which has been found to be atrophied in this affection. Their idea is based on phenomena which devel-

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[1] *Verhandl. d. deutsch. Gesellsch. f. Chir.*, vi., 1877, 107.

[2] *Deutsche med. Woch.*, Oct. 24, 1883.

[3] *Gaz. d. osp.*, Nov. 14, 1883.

[4] *Arch. f. klin. Chir.*, B. xxix., H. 2, 254. Notes of 236 cases are given.

[5] *Rev. méd. de la Suisse rom.*, 1882, 539. See also P. LIEBRECHT; excision of parenchymatous goitre. *Bull. Acad. roy. de méd. de Belg.*, Brux., 1883, xvii., 357, and *Centralbl. f. Chir.*, No. 35, 1883, 561.

oped among twenty-two subjects in whom extirpation of this gland had been practised. The most noticeable of these phenomena were a condition of debility associated with progressive anæmia, and a state similar to œdema of the face and hands, without albuminuria. In some cases there was a sensation of cold in the extremities, perspiration ceased, and there was actual loss of power, the patients being unable to walk with ease or to grasp and hold objects. In other cases slowness of speech was noticed, with loss of memory and general mental impairment. In still others, bloating, especially of the face and hands, was observed (not a true œdema, since there was no pitting on pressure), and a physiognomy resembling that of cretinism was presented. These sequels, which by no means always developed, usually appeared three or four months after the operation, and were not constant, either in degree or duration. Generally in about two years improvement in condition, except as regards impairment of memory, became more or less manifest. The authors conclude that the thyroid is not engaged in hematopoesis, but has a certain unknown vaso-motor function. The symptoms described seem to follow only total extirpation of the gland, since they have not been noted after partial excision or after enucleation, or after incision with resection and suture in the case of cysts. Neither the age nor the sex of the patient, the difficulties of the operation, the loss of blood, nor the duration of convalescence seem to influence their appearance. In performing thyroidectomy it is therefore advisable to preserve the capsule and as much of the gland as possible, except in case of malignant disease. Similar observations have been made by Kocher. The number of this surgeon's extirpations of the thyroid, partial and complete, reaches the extraordinary total of one hundred and three. Thirty-four of these cases he has had the opportunity to re-examine since the operation. The changes which have been referred to were not seen in those in which only one lobe, either with or without the isthmus of the thyroid, had been removed. In eighteen patients in whom extirpation was thought to have been total, the phenomena were exhibited to a more or less marked degree,

except in two; in one of these latter an accessory thyroid had become hypertrophied, and in the other recurrence of the goitre had taken place.[1]

In France we see a revival of interest in supra-pubic lithotomy, with a prospect that this operation may be accepted as the best method of dealing with calculi of even moderate size and hardness, where for any reason Bigelow's operation is inadmissible. Especially will this be the case if the ingenious device of Duchastelet, or some other procedure for suturing the vesical wall, shall prove to be efficient. Hermetic sealing of the wound seems not to be absolutely essential, provided the urine be not allowed to accumulate in the bladder; but the period of convalescence may be much abridged by the employment of a trustworthy method of closing the vesical wound.

Digital exploration of the bladder through the perineum has become fixed as a valuable addition to our diagnostic resources in vesical disease. No more striking commentary on this expedient can be found than Sir Henry Thompson's statement that, in studying the specimens exhibited in the London museums, he has found sixty cases of vesical tumor, at least one half of which might have been relieved by operation. Although not a recent operation, the extent of its applicability seems not to have been hitherto appreciated.

One of the later topics of interest in England is the use of the wire suture in transverse fracture of the patella. With enthusiastic confidence in antiseptic principles, Lister assures us that the operation is demanded in recent as well as in ununited fractures. Curiously enough, more than twenty years ago, Cooper, of San Francisco, with no fear of bacteria to deter him, performed an almost identical operation, and claimed to obtain bony union invariably. He was in the habit of compelling the external wound to heal by granulation, the limb being firmly bandaged from the toes to the middle of the thigh.[2] There is an unaccountable discrepancy in opinion as to the results obtained by the ordinary way of handling this kind of fracture. Probably the

[1] Semon, F. *Lancet*, Lond., Dec. 1, 1883.

[2] *Med. Times and Gaz.*, Nov. 2, 1861, 467.

majority of surgeons will agree with Bryant, that in a large number of cases a useful limb may be secured without osseous union, and even with considerable separation of the fragments. So long as this can be said, nothing more is to be desired. We may, with Hutchinson, promote absorption of effusion by cold applications, or, as Heath suggests, the fluid which separates the fragments may be aspirated. It is evident, however, that a third element, and the most serious one, in preventing bony union can be removed only by exposing the fragments and clearing out the fibrous tissue which falls between them at the time the injury is sustained. Fortunately, utility of the limb, and not osseous union, is the objective point. There is no doubt that failure in attaining this end is in many cases due to premature unrestricted use of the limb. The fibrous band of union between the fragments has not had sufficient time to become thoroughly consolidated, hence it ruptures under a sudden strain, or it becomes excessively stretched, and the strength of the limb is thereby impaired. It should be remarked, however, that rupture of the band is less common than a new fracture through one of the fragments, generally the lower. Discussions on this subject have recently taken place at the Academy of Medicine in Ireland[1] and at the Société de Chirurgie.[2] The tendency of opinion among French and Irish surgeons is decidedly adverse to the operation in recent cases. Two obstacles to suture of the patella in old fractures should be referred to. The first is thinning of one or both fragments so as to preclude the use of the drill; the second and more serious one is the impossibility of approximating the fragments, even after division of the quadriceps tendon. The latter is illustrated by several cases: among them one by Jordan Lloyd (p. 24), one by Mansell Moullin in Turner's list,[3] and one under the care of Mr. Wheelhouse at the Leeds General Infirmary.[4] In the two former cases the operation

[1] *Lancet*, Dec. 1, 1883, 955.

[2] *Union méd.*, Nov. 15, 1883.

[3] *Lancet*, Nov. 17, 1883, 860; see also p. 22.

[4] *Lancet*, Dec. 15, 1883, 1042. The history of this case, reported by E. Ward, is of unusual interest, and is accompanied by remarks on a much neglected point—thorough cleansing and disinfection of the skin preliminary to antiseptic operations.

was practically abandoned; in the last apposition was procured by means of Malgaigne's hooks, which were not removed until the thirtieth day. Three cases of wiring of fractured patella, in the service of Dr. McBurney at Bellevue Hospital, have lately been reported by Dr. F. C. Fuller.[1] All were successful. In this article great stress is laid on the importance of suturing the lacerated capsule of the joint, on the grounds that it prevents extravasation into the cellular tissue between thc capsule and the skin, lessens the danger of adherent cicatrix, and adds strength to the tissues in front of the joint. These advantages seem to be more theoretical than practical. It appears to be a reasonable conclusion, therefore, that no surgeon who is not thoroughly experienced in antiseptic methods should undertake this operation. The possibility of suppuration, secondary amputation, or pyæmia is not to be lightly considered. One is justified in assuming these undeniable risks only in case ligamentous union fails to give proper support to the limb, and the patient is thereby cut off from gaining his livelihood.

In the field of syphilology nothing extraordinary has appeared. The relation between syphilis and rickets remains undetermined. The death of Parrot has removed the most ardent supporter of the theory that syphilis is the germ of rachitis, bad hygienic surroundings furnishing the favorable conditions for its development, but [2] the views of this observer find a zealous advocate in Gibert.[3] The latter concludes that when the mother is infected she gives birth to an infant presenting *early* symptoms of hereditary syphilis; when the mother is healthy, and the fœtus, infected by the father, does not contaminate the mother, syphilis develops in the child *late*, and assumes the form of rachitis. Of recent opponents of this theory, Cazin[4] is one of the more decided. His opinion that rickets is not a metamorphosis of syphilis, but that it is probably a result of infraction of hygienic laws, either on the part of the subject or of its ances-

[1] *N. Y. Med. Rec.*, Dec. 22, 1883, 675.
[2] *Bull. et mém. Soc. de chir. de Par.*, 1883, ix., 173.
[3] *Gaz. hebd. de méd.*, 1883, xix. and xxi.
[4] *Bull. et mém. Soc. de chir. de Par.*, 1883, ix., 306.

tors, is based on the following grounds: (1) A study of the antecedents of rachitis; (2) an actual examination of forty-nine rachitic patients; (3) certain views of pathology relating to consolidation of fractures—in rachitic subjects the process is generally completed in the usual time, whereas syphilis is a recognized cause of tardy repair and of non-union; (4) finally, the influence of treatment, specific remedies being positively harmful in rachitis.

The rôle played by syphilis in the causation of tabes dorsalis has been the subject of much controversy. The present status of the question may be summed up as follows: Ataxic symptoms may no doubt occur in the course of syphilis, but the specific lesions, which usually first attack the membranes and secondarily involve the cord, present nothing in common with the sclerosis of the posterior columns typical of locomotor ataxia.[1]

Whether the primary sore is merely a local lesion, or is the first expression of systemic infection, excision of chancre as an abortive measure is coming to be regarded as entirely futile. The few cases on record of so-called success lack authenticity. This is notably true of some of the forty-three cases reported by Bumm.[2] For instance, in three of his "successful" cases there had been no induration of the inguinal glands, although the intervals in the several cases between the discovery of the sore and excision were eighteen, thirty, and thirty-one days. His results are invalidated by the suspicion thus thrown on his diagnosis. The chief argument in its favor is that the operation substitues a healthy wound for an unhealthy ulcer, a point urged by Lassar.[3] At the same time this author thinks that it may give a chance for the prevention of secondary symptoms, and should be practised when feasible. From an experience in fifty cases, forty-four within two weeks and none later than thirty days after the appearance of the primary sore, Tomaschewski,[4] of St. Peters-

[1] **F. de Ranse.** *Gaz. méd. de Paris*, 1883, v,, 160, 173, 184, 194.

[2] *Vrtljschr. f. Dermat.*, H. 2, 1882, 259; also, *Monatsh. f. prakt. Dermat*, Hamb., 1883, ii, 65.

[3] *Berl. klin. Wchnschr.*, No. 23, 1883.

[4] *Lond. Méd. Rec.*, Feb., 1883, from *Wratsch*, Nos. 16 and 17, 1882.

burg, concludes that secondary symptoms are in no respect retarded or modified by excision of the chancre.

From this brief review it would seem that the year has not been remarkably fruitful in important additions to surgical resources, yet it is hoped that enough material has been gathered to give interest to the present volume.

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1.

GENERAL SURGERY AND SURGERY OF THE EXTREMITIES.

LIGATION OF ARTERIES AND VEINS. ANEURISM.

Some remarks on the deligation of large arteries by the application of two ligatures and the division of the vessel between them. W. J. Walsham.—*Brit. M. J.*, April 7, 1883.

The claim of novelty is not made for this method of ligating arteries since it is known to have been practised by the elder Bell, and even long ago by the Arabians. But it is considered to be by far the safest method. The failure of ligating operations is often attributed to the material used for ligatures, but a much more frequent cause is excessive separation of the sheath of the vessel so as to impair its nutrition. It makes little difference what kind of a ligature is used, provided the disturbance of the vessel be as slight as possible. All danger from this source is removed by the use of two ligatures, one applied above and the other below at the points where the sheath is separated from the vessel. Thus no part of the trunk of the vessel is deprived of its blood-supply. Another important advantage of the double ligature is the removal of tension from the vessel, the ends being placed in a state of rest. To the objection that this method necessitates dividing the internal and middle coats with the ligature, the author replies that he considers such division most desirable. The objection that the operation becomes more complicated by the application of a second

ligature, seems to be "a mere question of sentiment," and is of little moment, provided greater safety is ensured.

In the *Brit. M. J.*, April 21, 1883, J. Black calls attention to a possible objection to this method in the fact that abnormal branches from the posterior wall of an artery, the femoral for instance, may escape notice, until their existence is announced by hemorrhage after division of the vessel. (A case illustrating this accident may be found in this section under *Ligation of common iliac artery*, by Kümmell.)

On primary or immediate ligature of the femoral artery in popliteal aneurism, and on the division of the artery between two ligatures. T. Holmes.—*Brit. M. J.*, June 9, 1883, 1106.

Mr. Holmes expresses the opinion that all large, all rapidly growing, and all thin-walled popliteal aneurisms should be treated by ligature of the femoral, and by the method which least disturbs the artery. He prefers the ox-aorta ligature of Barwell, or the kangaroo-tendon ligature introduced by Stirling, although regarding the latter experience is not yet complete. Brief reports are given of three cases, recently under treatment at St. George's Hospital. All were successful, though one patient died in twenty-four days of rupture of a cerebral vessel. As a rule, compression as a means of cure, by genuflexion, by Esmarch's bandage, or even by the finger or by instruments, should not be long continued. If they do not succeed quickly, these methods should be abandoned, and the vessel should be ligated. The recent increased success of the cutting operation is believed to be due to antisepticism, in its broad sense, and in no small degree to the very slight disturbance of the artery involved in the modern operation. With regard to division of the artery between two ligatures, the author thinks that the extensive exposure of the vessel required is a strong objection. The advantage of decrease in risk of secondary hemorrhage, in consequence of removal of tension on the artery, is claimed without apparent reason. In any method of operating secondary hemorrhage is rare, only two cases having occurred at St. George's, and those after the use of the silver-wire ligature, which was obviously drawn too tight. The dangers

with catgut are that it may melt, break, or untie. It is not clear, therefore, how the risk of secondary hemorrhage is reduced by having two ligatures instead of one. The objections to the method are that it inflicts unnecessary damage on the artery, that its efficacy as a safeguard against secondary hemorrhage is very dubious, whilst it seems more likely to delay the healing of the wound and expose the patient to greater risks of phlebitis and gangrene.

Ligation of the common iliac artery. Kümmell.—*Centralb. f. Chir.*, No. 23, 1883.

The operation has hitherto been done fifty-five times. The indications for its performance have been hemorrhage from the external iliac, or from a large pelvic artery, or after wound, or ruptured aneurism; aneurism of the femoral or external iliac arteries; and, finally, prevention of hemorrhage during amputation at the hip and extirpation of tumors. In forty-one fatal cases the causes of death were either collapse, gangrene of the extremity, or septic infection. In only three of twenty-two fatal cases, in which the common iliac had been tied for aneurism, did death result from gangrene; whereas, in eleven of twenty-six fatal cases, in which the external iliac had been tied for aneurism, gangrene ensued. It seems, therefore, that the vitality of the lower extremity is much less imperilled by ligation of arteries nearer the heart. The collateral circulation is more readily established, and, even if it is possible to tie the external iliac, ligation of the common iliac is to be preferred in cases of high aneurism of the femoral and of the external iliac. A case in which the operation was performed by Schede is reported. It is one of extraordinary recovery from repeated ligations of the external iliac, of the common iliac, and of the femoral, followed by gangrene of the leg, chronic pyæmia, metastatic abscesses in the buttock and arm, and effusions into the right knee, elbow, and temporo-maxillary joints. The patient was a man of twenty-one years, who was operated on for inguinal bubo on each side. On the left side a mass of glands lying on the sheath of the vessels was excised. The wound was dressed with imperfect carbolized gauze, and soon became covered with diphtheritic deposit. Four days

after the operation, hemorrhage occurred from the femoral, which was divided between two ligatures, and the wound was dressed with corrosive sublimate. The wound did well for four days, when hemorrhage occurred from the proximal end of the artery. The bleeding persisted, in spite of a ligature applied to the external iliac and a second to the same vessel just below the bifurcation. The common iliac was then tied with catgut, and the hemorrhage ceased. The circulation in the limb seemed to be fully restored on the following morning, but ten days later serious hemorrhage took place from the distal end of the femoral, at the seat of the original ligation. The vessel was tied without effect three fourths of an inch below the bleeding point. Three large abnormal branches were then discovered springing from the femoral posteriorly between the ligature and the end of the vessel. These were tied, and the bleeding was controlled. Gangrene developed, and on the third day a line of demarcation appeared near the junction of the middle and upper thirds of the leg.

The accidents referred to above subsequently occurred, but, in spite of all, the patient recovered.

In the *Proc. Roy. Med. and Chir. Soc.*, Jan.–March, 1883, may be found several interesting cases of aneurism. One, reported by C. Heath, of the external carotid, was cured by ligation of the common carotid ; but the patient died, on the thirty-fifth day, of paralysis. Slight pulsation persisted in the aneurism until the seventh day, when the wound was found to be entirely healed. Nothing unusual occurred until the thirty-third day, when the patient suddenly complained of pain in the spine. She began to have disturbance of speech and dysphagia, and the day before death right hemiplegia developed. An embolus was found at the base of Broca's convolution, and five or six small patches of yellow softening beneath the superficial gray matter. The heart was hypertrophied, the mitral valve thickened, with vegetations on both surfaces. A firm clot filled the aneurism, which sprang from the external carotid, half an inch above its origin. The hypoglossal nerve was of a yellow color at one portion where it was stretched over the tumor.

A firm red clot extended three quarters of an inch above and a quarter of an inch below the carbolized silk ligature, which was embedded in connective tissue, and which microscopic examination showed to be unaltered.

H. Marsh reports a case of "ligature of the right subclavian and carotid arteries for aneurism of the aorta." Death occurred from rupture of the sac on the fifty-first day. The case is thought to illustrate the danger of disturbance of blood pressure and consequent dilatation of the arch in a new direction as a result of the operation. No post-mortem was obtained, but it is supposed that the aneurism was originally seated on the first part of the arch near the innominate; increased pressure after ligature led to rapid dilatation of the arch toward the left. The tumor induced absorption of the sternum and extended high in the neck.

"A case of aneurism of the arch of the aorta involving the innominate artery, with remarks on the distal ligature" is the subject of a paper by H. Morris. From the shape and position of the tumor in this case the aneurism was regarded as being chiefly, if not entirely, innominate, although the symptoms were in part those of aortic aneurism. Tufnell's treatment was tried for nearly two months with only temporary benefit. Compression of the carotid producing marked effect, while that of the third part of the subclavian was ineffective, ligation of the former vessel only was attempted. In the search for the common carotid, which could not be found, the internal jugular vein was wounded, and had to be tied above and below. Death took place fourteen days after the operation, from asthenia, due to diffused suppuration in the right side of the neck. At the autopsy the aneurism was found to be almost entirely aortic. The carotid artery was occluded by a plug of fibrine about one inch and three eighths from its origin, and the vessel was flattened and bound down by dense connective tissue. The left innominate vein was also occluded, so that all the blood from the head had to return through the right external jugular and the small anastomosing veins of the right side. The case shows (1) the impossibility of diagnosing some aortic from

innominate aneurisms; (2) the unreliability of any conclusion, drawn from the effects of distal compression, as to the method of operating; (3) that pulsation may be felt along the course of the carotid, even though that vessel be plugged, if, as in this case, the internal jugular vein become incorporated with the wall of the aneurism; (4) that cure of this aneurism would probably not have resulted from occlusion of the subclavian as well as of the carotid. The double distal ligature is held in a far too favorable light. Ligation of a single vessel accomplishes all that is necessary with less risk. The operation on the right side should be reserved for desperate cases. In suitable cases ligation of the left common carotid gives the patient a much better chance, because the method is more nearly allied to Brasdor's.

The reading of these papers was followed by an interesting discussion, in the course of which Mr. Savory called attention to the fact that pressure in the carotid region of either side produces not only diminished pulsation in the sac, but decrease of heart force and of arterial pulsation all over the body. This phenomenon is due to compression of the vagus, and may explain the lessening of aneurismal pulsation on pressure of the occluded carotid in Mr. Morris' case. Mr. Powell referred to a point in differential diagnosis between fusiform and sacculated aneurism, namely, a second "jog" transmitted to the ear on auscultation of the latter variety. Mr. Lister mentioned his experience with the carbolized silk ligature. He has found it only partially absorbed at the end of a year in a case of ligation of the external iliac, a small abscess having formed around the knot. He therefore prefers an absorbable material, in the absence of a *perfect* ligature, which he describes as one capable of being securely tied, not too firm in consistence, and incapable of absorbing organic fluids or of being itself absorbed.

Microscopic specimens of the ligature in Mr. Heath's case showed infiltration of round cells and some giant cells around the silk, the fibres of which were unaltered. Other parts of the wound had healed and showed no evidence of similar inflammatory changes.

The use of ligatures in the wounds of veins.—*N. Y. Med. Jour.*, Apr. 21 and 28, 1883.

At a meeting of the New York Surgical Society, Dr. L. S. Pilcher read a paper on the above subject. Dr. Benjamin Travers in 1811 seems to have been the first to draw special attention to the dangers attending injuries of veins, and he credits John Hunter with expressing the belief that the inner tunic of veins possesses a special liability to inflammation. Modern observers have disputed this view, Nicaise in 1872 claiming that primary inflammation of the internal tunic is rare, if it exists, and that inflammation generally begins in the cellular tunic, whence it may extend to the middle and inner tunics. Callender, in Holmes' "System of Surgery," still more emphatically denies the possibility of primary inflammation of the inner tunic, and affirms that the process is either a progressive coagulation of blood within the veins, or a diffuse periphlebitis, which never occurs in a person in good health, or as a direct result of the ligature. In a paper on "Wounds of the Internal Jugular Vein and their Treatment," published by Dr. S. W. Gross in the *Am. Jour. Med. Sci.*, 1867, the opinion was expressed that the dangers of ligation of that vessel had been greatly exaggerated, not a single instance of diffuse phlebitis following ligation having been found. Several observers have claimed that extensive denudation and contusion of a vein are more likely to be followed by thrombosis and suppurative periphlebitis than is ligation. Many surgeons, who are constantly in the habit of ligating veins without fear, hesitate to operate on varicose veins, recognizing that diseased vessels do not bear ligating as well as healthy ones. The author of the paper concludes that the doctrine that veins are more intolerant of irritation than other structures has been thoroughly refuted. There is an agency, however, that of micro-organisms, the importance of which is coming to be universally recognized, especially where the resisting power is defective, as in persons depressed and enfeebled from any cause. But the danger from this source may be averted by the use of careful antiseptic precautions. It is true that the ordinary ligature acts as an irritating foreign body, prevents primary union of the wound, and favors the entrance and development of morbific germs. The danger of these serious

consequences may be in most cases eliminated by substituting for the ligature the acupressure needle of Simpson, or the forcipressure forceps of Péan. But the antiseptic animal ligature certainly excels all other methods. The only question that may arise is as to its exciting effusion of sufficient plastic material to secure permanent adhesion of the walls of the vein. With reference to this point Dr. Pilcher made a number of experiments upon goats, ligating the internal jugular vein three times, and the femoral twice, using chromic gut in two cases and carbolized gut (three years in carbolized oil) in the remainder. Union by first intention was secured in every case. The changes in the veins, examined on the second, fourth, ninth, fourteenth, and twenty-fourth days after ligation, were found to be marked proliferation of the cells of the tunica interna, especially near the ligature; obliteration of the vessel by accumulation of these cells, and their subsequent transformation into connective tissue. The ligatures remained unchanged, but had produced no irritation of the tissues. From these results it is concluded that, in wounds involving only a portion of the side of a vein, lateral ligature, which has been strongly condemned by Gross, Malgaigne, and others, or where the wound is long, lateral suture, with the antiseptic animal ligature, offers a safe and valuable resource.

In 1882 Braun published twenty-nine cases of lateral closure of veins, twenty-four by ligature, three by forcipressure, and two by lateral suture (*Arch. f. klin. Chir.*, B. xxviii., 1882). Nine of the cases were fatal, two from pyæmia after forcipressure, and seven after ligature, four from hemorrhage, and three from pyæmia. The two cases of lateral suture are: one by Czerny, of the internal jugular, where he was obliged, by recurrent hemorrhage, to resort to acupressure; and a successful case of closure of the femoral vein by Schede. In addition to these one lateral suture of the femoral and eight of the internal jugular have been reported, all successful. The advantages of this method over ordinary ligation are the quickness with which it may be done without extensive disturbance of the parts, the prospect of primary union, and the preservation of the

functions of the vessel. The objections to the operation have been in large part removed by the introduction of antiseptic methods of treatment and of unirritating aseptic material for ligatures.

The importance of preserving the integrity of a large vein at the root of an extremity, as the axillary or femoral vein, is obvious, and it should be attempted even though complete antiseptic precautions may be impracticable. In case of incomplete wound of the internal jugular vein, the free collateral circulation through the intracranial sinuses, the superficial veins of the head and neck, and the sinuses of the spinal canal renders obliteration of the vein less objectionable; in the absence of antiseptic conveniences, this vein should, therefore, be ligated in its circumference and divided. (*Ann. Anat. and Surg.*, August, 1883.)

NEURECTOMY, NERVE-STRETCHING, AND NERVE-SUTURE.

Trigeminal neuralgia relieved by ligation of the common carotid artery and neurectomy. F. H. Gross.—*Am. J. Med. Sci.*, April, 1883.

The following is a summary of an interesting case of more than nine years' duration :

The disease occurred in a man fifty-five years of age at the time of his first attack, with a personal and family history free from taint. Various internal remedies, electricity, extraction of the teeth, were tried without effect. Morphia subcutaneously relieved the first attack, and the patient remained free from pain for more than three years. In subsequent paroxysms morphia gave only partial ease. The sufferings of the patient were intense, and surgical interference was determined upon.

In the first place the common carotid artery was tied, the operation being followed by immediate relief in the domain of the first and second divisions of the trigeminal nerve. In the latter region the period of immunity from pain was fully two years, while in the former there has been no recurrence. The effect upon the third division of the nerve was

only transient, the neuralgia returning during convalescence from an attack of pneumonia, which developed about three weeks after the operation. It is noticed that ligation of the artery produced no impairment of intellect; after the lapse of nearly two years and a half no disturbance of the brain function had been observed. Eight months after the ligation neurectomy of the inferior dental nerve was done, giving a period of relief lasting about one year and three months. The patient made great improvement in general condition, and had no trouble except slight hepatic disturbance. Two years after the ligation of the carotid and more than fifteen months after the neurectomy the pain recurred in the upper part of the cheek, the infra-orbital region, and on the ala of the nose, and a little later it returned in the lower jaw. Neurectomy of the superior maxillary was then done, and two months afterward, the pain persisting in the lower jaw, the operation on the inferior dental nerve was repeated. The latter nerve was found to be regenerated and reunited. No bad symptoms followed these operations, and the neuralgia was completely relieved. Three months after the final operation the patient was still exempt from pain.

Cases of stretching the facial nerve for tic convulsif. —*Lancet*, Lond., June 9, 1883, 1000.

At a meeting of the Clinical Society Mr. R. J. Godlee read a paper on the above subject, giving the conclusion of a case reported by Dr. Sturge and himself in vol. xiv. of the *Trans. Clin. Soc.*, and adding the history of another case. The former case, already reported, was one of right-sided tic in a lady of seventy-two. The result was almost complete relief for nine months, followed by return of spasm as the result of sudden and severe shock. The next case was that of a man thirty-six years old, who had suffered from bilateral tic for some years, without assignable cause. There was no history of syphilis, and no source of reflex irritation, except some stumps of carious teeth. Improvement took place while perfect rest was maintained. There was slight supra-orbital neuralgia on the left side. The supra-orbital nerve was first divided subcutaneously without good effect; then the left, and afterward the right facial was stretched. In both

instances the twitching recommenced after three months. Reference was made to a number of reported cases to show that the effect of the operation is, as a rule, only temporary, but one case having received permanent benefit. Many cases remain to some degree improved. The operation of stretching a small nerve on a hook differs from that of stretching a large nerve with the finger. In the former case there is more or less temporary solution of continuity of the nerve. In the latter case the result is probably due to a loosening of the nerve from its sheath, or to some effect upon the nerve-centres.

At a meeting of the New York Surgical Society (*N. Y. Med. Jour.*, Nov., 17, 1883, 555), Dr. Sands presented two cases of excision of a portion of the spinal accessory nerve for torticollis. Having found difficulty with De Morgan's plan of exposing the nerve by an incision along the posterior margin of the sterno-mastoid and then tracing it forward, he determined to try to reach the nerve at a point nearer its exit from the skull. This was accomplished by an incision along the anterior border of the sterno-mastoid, beginning at the mastoid process. The nerve was found where it crosses the internal jugular vein. In each case the result, though not perfect, was a great degree of improvement. In spasmodic torticollis it is usual to find other muscles, besides the sterno-mastoid, affected, as in a case reported by De Morgan. The cure is gradual and is not certainly permanent.

Notes of three cases of nerve-stretching for sciatica. R. P. Robbins.—*Med. News*, Phila., Sept. 29, 1883.

In the first case the patient, a man of forty-two, had already been relieved of one attack of sciatica by the persistent use of electricity. Treatment having failed in the present attack, the nerve was exposed by an incision in the upper third of the thigh and subjected to traction by means of both forefingers; after an interval of two or three minutes the stretching was repeated in the same way. A drainage-tube was inserted, the wound was closed with three silver sutures and dressed with oakum. After the operation the patient complained of the leg being "asleep." The drainage-tube was removed on the sixth day, and the wound healed with-

out interruption. The patient was allowed to leave his bed at the end of a week and a half. Six months after the operation there had been no recurrence of sciatica. In the second case, forcible flexion of the thigh gave temporary relief. The operation was done in the same way as in the former case. Temporary paresis followed; the pain was relieved at once, and had not recurred in six months. The results of the third operation are less important. The case was one of periodic sciatica in which recovery may have been in a measure effected by the use of quinine and by change of residence. The pain was relieved, but a mild relapse occurred about three weeks after the operation. The amount of traction on the nerve in these cases was not measured, but it was in no case sufficient to raise the leg from the table.

R. Winslow reports a successful case of nerve-stretching for sciatica in the *Maryland M. Jour.*, Nov. 15, 1882, and another case may be found recorded by J. G. Carpenter in the *St. Louis M. and S. Jour.*, Jan. 1883.

Sciatica cured by bloodless stretching of the sciatic nerve. Fiorani.—*Ann. univ. di med.*, Feb., 1883.

A case of sciatica in a woman, forty-nine years of age, which had for six months resisted the usual treatment, was treated by Trombetta's method of forced flexion of the thigh. A first attempt without an anæsthetic failed, it being found impossible to flex the thigh sufficiently. Yet the pain was relieved for twenty-four hours. The following day the manœuvre was repeated under chloroform. While the thigh was being forcibly flexed, the leg being extended and the foot against the side of the head, something was felt to give way. The pain was found to be relieved, but the next day the thigh and leg posteriorly became swollen and ecchymosed, and were very tender, especially in the popliteal space. These conditions disappeared in a few days, and the patient was discharged cured in ten days. Two months later there had been no recurrence. There is thought to be no danger of excessive tension on the femoral vessels in this operation, since in observations on the cadaver they have always been found relaxed. The muscles arising from the tuberosity of the ischium and attached to the tibia and fibula run the

greatest risk of injury from strain. The muscles should therefore be relaxed by complete anæsthesia. The quadratus femoris may be cut through by the nerve; the gemelli are not likely to be injured, because their tendinous portions only lie between the nerve and the bone. The tension on the nerve by this process is shown to be equal to a traction of eighty to one hundred and thirty kilogrammes (one hundred and seventy-six to two hundred and eighty-six pounds).

Nerve-stretching. Drs. Johnson and Wright.—*Jour. Am. Med. Ass.*, Nov. 3, 1883, 504.

The authors have collected twenty-two cases of nerve-stretching: eight were for traumatic tetanus, eight for sciatica, two for paralysis, one for locomotor ataxia, one for an obscure central nervous disease, one for dysæsthesia, and one for pain following a crushing injury to the left arm. One of the tetanic cases recovered; one was relieved, but died several days after the operation, apparently of paralysis of the heart; the rest received no benefit. The operation was done in from seven hours to four days after the receipt of the injury. In the successful case the cause was a nail wound of the hand, and the median, ulnar, and internal cutaneous nerves were stretched four days after the injury. In the case of locomotor ataxia the pains were relieved in a measure, but the patient died six weeks later. The best results were obtained in sciatica. Five of the eight cases were permanently cured. Two of these cases were due to pelvic cancer: one was cured, and the other relieved of sciatica by the operation, but both died of malignant disease within a few months. The authors add the details of a case of their own. It was one of very obstinate sciatica, of eight years' duration, in a laboring man, forty-five years of age. All known internal remedies, counter-irritation, and electricity seem to have been faithfully tried. The white-hot iron followed by applications of strong carbolic acid gave relief for a time. Temporary ease was also obtained from deep injections of chloroform. Finally the nerve was cut down upon, just below its usual point of bifurcation, and subjected to considerable traction in each direction. Nothing abnormal was seen. The operation was followed by alarming consti-

tutional disturbance, attended by extensive burrowing of pus in the thigh and calf, for which several counter-openings were required. From the time of the operation the patient had no more sciatica. Eleven months have elapsed, and he is able to resume his work, with no impediment, other than a slight halt due to the adhesive inflammation following the operation. The following are the prominent facts shown by these twenty-two cases:

1. The operation did good in only two of the fourteen acute cases, while more or less benefit was derived in seven of the eight chronic cases.

2. The nerves of the upper extremities were stretched in the acute cases, and those of the lower in the chronic.

3. The only chronic case in which failure was complete, was that of dysæsthesia of fourteen years' standing. Slight improvement was noted in a case of partial paralysis following meningitis.

4. The five chronic cases reported cured were those of sciatica.

5. No unpleasant results followed in any case, except in the one reported by the authors.

In the *Ann. univ. di med. e chir.*, for March, 1883, Omboni presents a table of five hundred and twelve cases of nerve-stretching. The operation was done for neuralgia two hundred and twenty-two times, with one hundred and forty-three cures, sixty-two ameliorations, sixteen failures, and one death from pyæmia. The sciatic was the nerve stretched in one hundred and two cases; adding to these two cases reported by Medini (*Bull. di sci. med.*, No. 3, 1883), one of which died of phlegmon of the thigh on the fourth day, and there appear one hundred and four cases, with seventy-one cures, twenty-five ameliorations, six failures, and two deaths. Omboni also gives nine cases of stretching of the sciatic by Trombetta's method,—forced flexion of the thigh with the leg extended; including two reported by Medini, the eleven cases show nine cures, one improvement, and one failure.

Of forty-one cases of contracture, twenty-five associated with clonic spasm, thirteen with tonic spasm, and three with-

out spasm, twenty-one were cured, sixteen benefited, and four were not relieved.

Seven operations for epilepsy show two cures—both in cases of reflex epilepsy—four improvements, and one failure. Of fifty-one operations for tetanus, nine were successful and forty-two resulted fatally, one death being from erysipelas. Eleven of the fatal cases were temporarily improved. Of forty cases of peripheral paralysis—six motor and thirty-four sensory—two were cured, thirty-six benefited, and two were not improved. For affections of the central nervous system nerve-stretching has been practised one hundred and forty-nine times, with five cures, one hundred ameliorations, twenty-seven failures, and seventeen deaths, of which ten were due to the operation. Ninety-nine cases of ataxia give two cures, seventy-eight improvements, seven failures, and twelve deaths, which is not an encouraging showing. The operation promises best in cases of peripheral neuralgia and in spasmodic muscular contractures.

Suture of the musculo-spiral nerve five months after its complete division. T. Holmes.—*Lancet*, June 16, 1883.

The patient had paralysis of the right wrist resulting from a wound received five months previous in falling through a skylight. The scar of an extensive wound was situated on the outer side of the back of the elbow. Sensation in the forearm and hand, which had been lost, had partially returned. Pronation and supination were possible with the elbow flexed, the latter was impossible in the extended position of the forearm, and the wrist and fingers could not be extended to the slightest degree. Decided loss of temperature was noticed over the outer aspect of the forearm, which was very much wasted. There was a tender spot at the end of the scar, just external to the biceps tendon, and three inches from its insertion. Esmarch's bandage was applied, and the lower end of the nerve which was atrophied, was found under the scar. The upper end, which had retracted about an inch from the lower, terminated in a bulb the size of a pea. A little was taken off the lower end, and a portion only of the bulbous upper end was removed. On extending the limb it was found possible to bring the ends together.

A catgut suture was passed on one side of the sheath and a suture of fine silk on the other, avoiding the nerve-fibres as far as possible. The bulbous end removed showed marked increase of endoneural connective tissue and atrophy of the nerve-fibres, but no fatty degeneration. The operation was done antiseptically, and the wound united by first intention. In a few days a tingling sensation was felt in the forearm. Power and normal sensation seemed to be beginning to return. It was about a year before improvement was obvious; from that time it progressed rapidly, until restoration was complete. The operation of nerve-suturing was brought into prominence by Wheelhouse, who united the ends of the sciatic nerve, which had been divided nine months before. (See Mr. Favell's Address in Surgery, *Brit. Med. Jour.*, Aug. 5, 1876.)

The operation has also been done in recent wounds, but differs under such circumstances from that done in older cases, since it is well known that nerves may regain their function, not only after division but after resection of a portion of their trunk. Brown-Séquard excised twelve centimetres of the sciatic and tibial nerves of a monkey, and observed almost complete reproduction in two months and twelve days. Similar restoration has been met with in man in cases of resection of a nerve-trunk for neuralgia. Yet such a result can hardly be expected when the ends of the nerve are widely separated and bulbous. The author refers to Tillmann's article in *Arch. f. klin. Chir.*, 1882, vol. xxvii., where thirteen cases of secondary suture are tabulated, and also to the Jacksonian Prize Essay on "Injuries of Nerves," by Mr. Bowlby, who has collected twenty cases. The latter observer thinks that after atrophy and subsequent regeneration of the distal end of the nerve there occurs, in unfavorable cases, a secondary atrophy. It is important, therefore, that suturing of the nerve-terminations should be accomplished before the occurrence of the secondary change. Success is often so long delayed that accounts published soon after the operation are worthless. Thus, in Tillmann's collection three doubtful cases were reported too early. Of Mr. Bowlby's twenty cases only six are classed as perfectly

successful. Experience is not yet extensive enough to furnish an absolute rule regarding the time after the accident for performing nerve-suture. If the wound is free from inflammation and Mr. Bowlby's theory of secondary atrophy is correct, it must be well not to postpone the operation very long. It is at least certain that no instance of tetanus, acute neuritis, or other harm from the operation has yet been recorded, and it may be accepted as a rule of practice to unite at once all ends of nerves seen divided in recent wounds. The question of passing the suture through the nerve or merely through the sheath is secondary. The material for the suture is important. Catgut is unirritating, but is not sure to hold long enough, and it may be well to reinforce it with one or two sutures of fine silk or horse-hair. It seems unnecessary to remove more than a small portion of the nerve extremities.

Suture and transplantation of nerves. E. G. Johnson.—*Nord. med. Arch.* (*Med. Times and Gaz.*, Sept. 8, 1883.)

The author reviews the literature of the subject, and gives the results of his own experiments. In sixteen cases he reunited with catgut suture the divided ends of the sciatic nerve. In rabbits the restoration of nerve-function was observed on the fortieth day, in dogs on the thirty-fifth day, and in fowls on the twenty-fifth day. In twenty experiments on rabbits, where the ends of the sciatic nerve were not reunited, renewal of function was not observed until after sixty days. The presence or absence of nervous influence was tested above the cicatrix by mechanical excitation, or by means of a weak induction current. In the experiments on rabbits, microscopical examination showed bundles of amyelinic nervous fibres passing across the cicatrix from the central extremity of the nerve to its peripheral part, on the fortieth day in case of suture, and on the sixtieth day in case of simple section. In experiments with transplantation the author has succeeded in inserting in the deficient interval of the sciatic nerve of two fowls, portions of the sciatic nerve of other fowls, and in the sciatic nerve of a third fowl a portion of the sciatic nerve of a rabbit. The first two fowls were killed at the end of twenty-eight and thirty-four

days respectively, and the third after twenty-three days. The transplanted portions were perfectly grafted on the original nerve, but nervous influence did not exist in any case. Microscopical examination showed decided contrast between the central portion of the nerve where the degeneration was but slight, the intermediate portion where the myeline was much subdivided, and the peripheral portion where scarcely a trace of myeline could be found.

Zederbaum, A.: Nerve-stretching and nerve-pressure.—*Arch. f. Anat. und Physiol.* Leipz., 1883, 161.

FRACTURES AND DISLOCATIONS.

On the treatment of fracture of the patella. J. Lister.—*Lancet*, London, Nov. 3, 1883.

The paper opens with an account of several cases of fracture of the olecranon, which were treated by wiring the fragments together. The first case was operated on five months after receipt of the fracture. The fracture was oblique from before backward; there was considerable interval between the fragments, and the arm was comparatively helpless; the forearm could not be extended without the aid of the other hand. A longitudinal incision was made, exposing the site of the fracture, the fibrous material was pared away from the fractured surfaces, and the fragments were drilled for the application of the suture. No difficulty was found in making the drill appear on the fractured surface of the proximal fragment; but the obliquity of the fracture was such that in drilling the other fragment the point of the drill entered the end of the humerus. The drill was therefore withdrawn and a needle inserted. Then with a gouge an opening was excavated on the fractured surface until the needle was exposed. It was then a simple matter to pass a silver wire along the drill-hole, and by means of forceps draw it through the excavation made by the gouge. The end of the wire was carried through the drill-hole in the opposite fragment, and thus the two fragments were brought in apposition. The ends of the wire were twisted and left in the wound, which healed without suppuration or fever.

The wire was removed in seven weeks, and the usefulness of the arm was entirely restored. In the second case the operation was done nine weeks after the injury. In this case the result was perfect, although the loop of wire, during an attempt at its removal, gave way near the twist and was left in the bone. It never caused any inconvenience. In the third case the fragments were sutured as usual, but instead of leaving the ends of the wire projecting from the wound, they were given one complete twist, cut off short, and hammered down upon the ulna. The benefit of this method is shown by the fact that the patient was allowed to use his arm in fifteen days, instead of being kept under treatment for several weeks until the wire could be removed. Other advantages of hammering down the twist are that it renders the wire more secure; and a source of disturbance in the wound is dispensed with. The time of healing of the wound is greatly shortened, and the organic band of union being fortified by the wire the use of the joint may be begun much earlier than otherwise. This practice is also of value in fractures of the shafts of the long bones. For the femur wire one tenth of an inch in thickness is required; for the olecranon a diameter of one twenty-fifth of an inch is sufficient. A case is given, in which the author made use of this procedure in operating for a badly united fracture of the femur. Eight cases of fractured patella treated with the wire suture are narrated, one of which occurred in the practice of Dr. Cameron, of Glasgow.

In this last case osseous union was not obtained, owing to the thinned state of the surfaces, but close approximation of the fragments and a thoroughly useful limb were secured. With regard to the other cases it is noticeable that in only three was there any deviation from normal temperature, and that but slight and temporary. Five of these cases were recent—that is, the operation was done in from three to fourteen days after the accident. In three cases the wire was cut short and hammered down. Drainage was provided for by passing a pair of dressing-forceps through the wound to the most dependent point at the outer aspect of the joint. The instrument was then forcibly thrust through the synovial

membrane, the fibrous capsule, and the fascia, until the point of the forceps was felt under the skin. An incision was then made to allow the instrument to protrude. The blades were expanded to enlarge the opening, without risk of causing hemorrhage. The drainage-tube was then seized with the forceps and drawn into the joint. The ends of the wire in the patella were twisted, the wound was closed with sutures, and a small drainage-tube inserted. The limb, enveloped in antiseptic dressing, was placed in a trough of Gooch's splint. Case three is especially interesting. In making passive motion, four weeks after the operation, the wire gave way and the wound was reopened. This necessitated a second operation six days later, and in eight weeks the patient was discharged with bony union, no attempt at passive motion being made. But in spite of this fact the natural actions of the limb, in the course of time, restored motion, so that the knee could be flexed to an angle of sixty degrees. The seventh case is also of interest. It occurred from direct violence in a man sixty-seven years old, and the lower fragment was small and comminuted. The wire had to be carried, not through the lower fragment, but through the ligamentum patellæ. Four weeks after the operation the wound was healed, and the knee could be bent to an angle of forty degrees. In case one an obstacle to union by ordinary methods of treatment was conspicuous—between the fragments were found extremely firm coagula, with fascial and periosteal fibrous tissue. With regard to the method of operating it is very desirable that the lower surface of the patella should be left quite smooth. It is difficult to make the drill emerge at corresponding points in the two fragments. To remedy this defect enough material is chipped away from above the lower wire to bring it to the level of the opposite side. The twist is always hammered down to one side. This method of treating recent transverse fracture of the patella is believed to be capable of restoring the joint to a perfectly natural condition, and it is justifiable, provided the entrance of septic mischief into the wound can be avoided. This, of course, can be done by the use of antiseptic dressings, and no situation in the body is better adapted to their applica-

tion. The author closes with some remarks on antiseptic theory and practice, which are a repetition of his well-known views.

In the discussion on Lister's paper (*Lancet*, November 10, 1883), Mr. Bryant expressed the opinion that the majority of cases of simple fracture of the patella do well under ordinary treatment. Even though the fragments may be widely separated, a very useful limb results. He should, therefore, hesitate to recommend the operation as a primary mode of treatment, but rather regarded its success as a sign of the value of the antiseptic method. Mr. Bloxam presented three cases, all of which had done well after operation, no febrile movement having been noticed. Mr. Royes Bell reported four cases in which a more or less useless limb had been restored by operation. Mr. W. Rose stated that he had done the operation in three cases with undoubted success. In one case slight suppuration occurred, but no bacteria could be found in the discharge. In conclusion, Prof. Lister remarked that the idea of cutting short the sutures and hammering down the twist originated with Van der Meulen, of Utrecht, who resorted to it in a case of recent fracture of the patella. He expressed his gratification at the universal acceptance of antiseptic principles. It makes little difference whether carbolic gauze, eucalyptus gauze, salicylic cotton-wool, or iodoform are used, although the latter is not protective against erysipelas. It is only important that the agent be properly used. Corrosive sublimate, being soluble in water, is easily washed away, and must be used in large quantity. Absorbent wool, made of wood shavings, and imbued with sublimate, as used in Germany, may be applied in large mass, and is very efficacious. It cannot be admitted that the ordinary results of treatment in fractured patella are satisfactory. With regard to the risk, all operations, even the simplest, are more or less dangerous under old methods.

On fractures of the patella, and on the chief cause of want of osseous union in transverse fractures, and how to obviate it. W. MacEwen.—*Lancet*, November 17, 1883.

In this paper the author considers the causes of non-

osseous union and the treatment of recent and of ununited fractures of the patella. The histories of four cases of fracture of the patella, two of them recent, and of one case of fracture of the olecranon are given. In two cases of fractured patella chromic gut was used for suturing the fragments; in the other two and in the olecranon case silver wire was used. No attempt at passive motion seems to have been made, yet in all cases the results were good. From these observations, the following conclusions are drawn: (1) The chief cause of non-osseous union of the patella in cases of transverse fractures is the interposition of fibrous and aponeurotic structures between the fractured surfaces. (2) If osseous union is to be secured, these tissues must be removed. (3) From the ease with which the two fragments may, in many cases, be kept in apposition, osseous union may sometimes be gained without suture, provided the intervening tissues have been removed. But suturing is advisable in every case, since it adds to the certainty of the result, and does not increase the risk of the operation. (4) The removal of the soft parts from between the fragments, and suturing the bone, should be done within forty-eight hours of receipt of the fracture. (5) A muscle may be lengthened, if necessary, without diminishing its strength, by making into its substance a series of V-shaped incisions. In one case of ununited fracture of the patella, of nine months' standing, with a gap between the fragments of six inches, this device was resorted to, with the result of permitting the fragments to be brought into contact.

In the *Lancet* of Nov. 17, 1883, may be found the history of a case by G. R. Turner, in which an ununited fracture of six months' standing was treated by the wire suture. Antiseptic measures seem to have partially failed in this case, and there were considerable suppuration and burrowing of pus. Osseous union with a stiff knee was obtained. A résumé of fifty cases, most of them unpublished, is given. During the discussion on this paper, which was read at a meeting of the Clinical Society, Holmes and Heath expressed their opinion of the justifiability of the operation in old ununited cases, but condemned it in recent cases.

Bryant produced a table showing the results in thirty-two cases of fractured patella treated in the ordinary way at Guy's Hospital. In his opinion the results of present methods do not authorize the adoption of a serious operation. Lister reiterated his confidence in the operation and asserted that the treatment which gives a perfect joint in the quickest time, with no more danger than pertained to many operations before the days of antiseptic surgery, is the best.

In the same number of the *Lancet*, p. 856, is the report of an operation for non-union of fractured patella by the Listerian method, performed at King's College Hospital by Mr. John Wood. The fracture was five years old, and the fragments could not be brought into apposition, even after division of the aponeurotic structures attached to the upper fragment and of the quadriceps tendon. Two silver-wire sutures were used. The wound was dressed antiseptically and remained aseptic throughout, but in spite of this fact the patient died on the fourteenth day of septicæmia. This and a case reported by MacCormac, both of them included in Turner's list above referred to, with the cases of Bull and Von Langenbeck, comprise four fatal cases as a direct result of the operation. A fifth case (Fowler's) died of carbolic-acid poisoning. In the cases of Wahl (*Deutsche med. Wchnschr.*, Berl., 1883, ix, 262, 281, 297,) and König necrosis of the upper fragment occurred.

In the *Lancet* of Aug. 11, 1883, the details of a case operated on by Sydney Jones are given. It was one of transverse fracture seven months old. The fragments were separated by an interval of two inches and half, and they could not be brought into apposition until the rectus muscle had been subcutaneously divided three inches above the patella, previous division of the aponeurotic attachments to the upper fragment having proved insufficient. There was a good deal of pain and febrile reaction with suppuration. The final result was osseous union with moderate motion. The limb, which had previously been almost powerless, was rendered very useful, and from the patient's anxiety to get increased flexion there was every prospect of a perfect result.

In the *Brit. M. Jour.*, June 9, 1883, 1118, E. Ward reports five cases of fracture of the patella treated by the wire suture. In case of an external wound, this was enlarged to suit the condition; otherwise a longitudinal incision was made. The joint was thoroughly irrigated, and the fragments were brought together with silver sutures. If the separation could not thus be overcome, Malgaigne's hooks were used. In one case, where tension was considerable, there was rise of temperature in the evening after the operation. Another case, in which dirt and grit had entered the joint, had a temperature for ten days ranging from 101° to 102°. The three remaining cases recovered with little or no febrile excitement.

On the operation for vicious union of fractured patella by suturing the fragments. Jordan Lloyd.—*Birmingham Med. Rev.*, April, 1883, 153.

In the case reported in this paper the fracture resulted from direct violence, three years and a half before the operation was undertaken. The fragments were separated by two and three-quarter inches, and could be brought within only one and a half inch of each other. A semicircular transverse incision was made, four and a half inches long, with its convexity downward and about half an inch above the upper fragment. The margins of the fragments were cut off with a Hey's saw. An interval of one and a quarter inch could not be overcome, and it was found impossible to gain any advantage by complete subcutaneous division of the quadriceps tendon, followed by division of the ligamentum patellæ and then by lateral incisions, one inch in length, at each side of the upper fragment. Malgaigne's hooks were then used, and still a space of one and an eighth inch remained. Attempts at bringing the fragments in contact were abandoned. They were simply strung together, still more than an inch apart, with stout silver wire. The operation was performed under strict Listerism. Antiseptic dressings were applied; a posterior wooden splint and an anterior Watson's interrupted splint were adjusted, and the whole was enveloped in two or three layers of plaster bandage. With the exception of some pain and very slight rise of temperature the first day,

and very limited superficial suppuration resulting from an attempt to remove one of the wires during the fifth week, no ill effects whatever followed. The wires were left in place, one having broken off in an effort to extract it. The wound was dressed only nine times in sixty-nine days. Considerable atrophy, especially of the anterior muscles, followed the operation. The fragments were separated by about three quarters of an inch; they were slightly movable on the parts beneath, and the joint could be flexed through several degrees. The patient asserted that the limb was stronger than at any time since the original accident. The author discusses the indications for the operation, and expresses the opinion that the question is not as to the degree of separation or the nature of union of the fragments, but refers rather to the extent of functional impairment. When the function of a limb is seriously impaired, is it justifiable to submit a patient to a not very dangerous operation, which has given satisfactory results in a large number of cases? He hesitates to accept it in recent cases of simple fracture, until milder measures have failed to approximate the fragments. The operation is considered most appropriate in chronic cases in young and middle-aged persons in good health: whose occupation requires a strong leg; where the fragments are not more than two inches apart; and where the fracture is not older than eighteen months. Antiseptic methods and thorough drainage of the joint are of the utmost importance. A longitudinal incision is preferable to the transverse, but the former necessitates additional openings for drainage. Passive motion is not advised; it has been proved quite safe to leave the work of relaxing the joint to time and nature. Subcutaneous division of bands of adhesion between the fragments and the condyles may be practised, their re-formation being prevented by occasional lateral movements of the patella. The first indication is to obtain firm union; the second and less important indication is to secure a flexible joint.

In the *Jour. de méd. de chir. et de pharmacol.*, Brux., April, 1883, is reported a case of old fracture of the right patella, treated by Sacré with osseous suture. The result was fibrous

union with anchylosis. The failure to secure bony union seems to have been due to an accident in the preparation of the carbolic solution used for irrigating the wound. The solution was supposed to be one of five per cent. in water, with glycerin, but was imperfect, so that undissolved drops of the acid remained in suspension in the water. Consequently an irritating, almost caustic, action was produced. There was considerable febrile reaction, with swelling and pain in the knee, and, moreover, signs of carbolic-acid poisoning began to appear. The patient vomited a good deal, and the urine had a greenish color and contained albumen and blood. The method of operating was in some points peculiar. A transverse incision was made midway between the two fragments down to the fibrous tissue uniting them. Then a bistoury was passed through beneath the fragments, and along the track of this incision was inserted a metallic plate, such as is used by Jobert in operating for vesico-vaginal fistula. Upon this plate the margins of the fragments were sawed through, exposing bony surfaces. All the fibrous tissue being removed, each fragment was perforated in three places, one centimetre from its margin, by means of the trephine of Laugier, care being taken not to penetrate below the sawed surfaces. Strong silver wires were passed and the fragments were easily approximated, the separation having been only about three centimetres. The knee was thoroughly irrigated, dressed antiseptically, and immobilized. The wires were removed on the twenty-fourth day.

Wire suture in compound fracture of the clavicle.

In the *Brit. Med. Jour.*, Jan. 6, 1883, p. 13, Dr. Whitson relates a case in which, at the end of a week after the fracture occurred, antiseptic treatment having meanwhile been followed, the fragments were so displaced that it was decided to wire them together. A stout wire was passed through holes drilled in the ends of the fragments, which were thus easily held in apposition. In about three weeks the wire was removed, osseous union having occurred, and the patient made a good recovery. It is advised in similar cases to avoid rough attempts to remove the wire, lest the

bone be refractured; rather allow the wire to eat its way out, even though a considerable time may be required to complete the process.

New treatment for fractured clavicle. M. R. O'Connor.—*Brit. Med. Jour.*, March 3, 1883, 406.

Two layers of flannel, stitched together along their edges, are fitted to the shoulders, so as to cover the surface from the base of the neck to the tip of the acromion, and from the spine of the scapula behind to the mammary line anteriorly. The outer layer of flannel being slit from the apex of the shoulder to the neck, two bags or pouches are formed, which are to be filled with soft plaster-of-Paris to the thickness of about one inch. While the arm is held in good position the plaster is moulded to the parts and allowed to harden. Elastic bands, passing from the lower angles of the pouches under the corresponding axillæ, hold the splint firmly, and the arm should be bandaged to the chest, until union is complete.

On some compound articular fractures. Lewis A. Stimson.—*Med. News*, Phila., June 2, 1883, and *N. Y. Med. Jour.*, June 9, 1883.

Attention is drawn to that class of cases in which the main feature is the implication of the joint, and the question for the surgeon is whether to try to convert the fracture into a simple one and save the joint, or by making a partial or complete excision, be satisfied with an inferior result with less risk to the patient. Three cases are narrated, one each of the elbow, knee, and ankle. The first case was a simple dislocation backward of both bones of the forearm with fracture of the head of the radius. The dislocation was easily reduced under ether. The fragment of bone, which was found to include about one third of the articular surface of the radius, was cut down upon and removed. The wound was washed with a solution of carbolic acid, 1 to 40, a drainage-tube was inserted, the wound sewed up, and a gauze dressing applied. On the third day, and on the eighth day, the dressings were changed. On the latter occasion the joint was moved through an arc of about 70° and the wrist was rotated. In the afternoon the patient walked about for

two hours without permission. The same evening the joint, which had hitherto been quiet and free from discharge, became painful, and the following day signs of beginning suppuration appeared, and on the eleventh day about two drachms of pus were pressed out of the wound. On the nineteenth day a counter-opening was made on the outer side of the arm. On the twenty-fourth day a large subcutaneous abscess, communicating posteriorly with the former, was opened on the inner side of the elbow. Within a month the wounds closed, but the joint had only slight motion. Adhesions were broken up under ether, but the mobility thereby gained was entirely lost within a week or two. The patient was not seen again for nearly a year, when flexion and extension were found to be almost complete ; rotation was entirely lost, yet the arm was strong and serviceable. The second case was one of compound transverse fracture of the left patella. The wound was enlarged, the fragments of bone were wired together without penetrating the articular surface, a drainage-tube was passed into the joint on each side, and an antiseptic dressing applied, the limb being placed on a posterior splint. The peculiar feature of this case was the development of a large abscess on the outer side of the thigh under the vastus externus, communicating imperfectly with the drainage-tube opening on that side and with the outer angle of the wound. This abscess was opened on the twentieth day by an incision six inches above the condyle. The fragments of the patella united so firmly as to prevent recognition of their independent mobility, and the whole bone is freely movable laterally. The general mobility of the joint is increasing. The third case was one of simple fracture of the left fibula with compound fracture of the internal malleolus. A small fragment of bone was removed from the surface of the wound; the limb was washed, but the wound was not injected, with carbolic solution ; antiseptic dressing was applied with side splints. The wound healed and the fracture was repaired, leaving the joint freely movable and painless in about five weeks. From these cases the author draws the inference that the less interference there is with such injuries the better will be the result, and that excision

should be avoided unless there exist special indications for operation.

Five cases of subcoracoid and one of subglenoid dislocation of the humerus reduced by Kocher's method. —*Lancet*, Lond., April 14, 1883, 634.

The surgeon sits on the left of the patient; the elbow-joint, flexed at a right angle, is firmly pressed against the side; the arm, still in contact with the body, is slowly and steadily rotated outward until firm resistance is encountered; the arm is then raised forward and a little inward, and lastly the arm is rotated inward, bringing the hand toward the opposite shoulder. In two of these cases an anæsthetic was used; in the remainder reduction was accomplished without causing very much pain. Kocher's paper, read at the meeting of the International Congress in London, refers only to subcoracoid dislocations; but the method was resorted to in this subglenoid case, and succeeded, after some trouble and with very firm pressure of the arm against the side, just as the arm was being brought forward. No anæsthetic was used in this case, although the patient was very muscular.

In the *N. Y. Med. Jour.*, Sept. 29, 1883, Dr. C. A. Jersey reports twenty-one cases of subcoracoid dislocation of the humerus reduced by Kocher's method, at the Chambers Street Hospital. In no case was ether used, and in seventeen cases the bone was easily replaced at the first trial. In several cases, as in most of those given above by Chisholm, the bone slipped into place as the elbow was being carried across the chest and before completion of the manœuvre. The operation was found to be facilitated by making continuous downward traction on the humerus, after the elbow had been applied to the side. The method recommends itself by reason (1) of the control obtained over the humerus by the position of the forearm; (2) of the advantage derived from relaxation of the edges of the rent in the capsular ligament; (3) of the absence of necessity for an anæsthetic; (4) of the absence of pain to the patient and discomfort to the surgeon, as compared with other methods.

Cabell, J. L.: Proper mode of reducing partial forward dislocation of the sterno-cavicular joints.—*Med. News, Phila.*, Sept. 22, 1883, 335.

Kelley, J. E : Method of reduction in dislocations at the elbow.—*Dublin J. Med. Sci.*, July, 1883.

On a case of reduction of luxation of the hip by means of incision of the capsule. Polaillon.—*Bull. gén. de thérap.*, Mar. 15, 1883.

The patient was a man forty-six years of age, who sustained a dislocation of the left hip by being thrown from a wagon. The thigh was slightly flexed, rotated inward, and adducted. The left knee was carried toward that of the sound side. The left buttock was prominent and widened. The head of the bone could be felt on moving the limb. The great trochanter was carried upward and behind the line of Nélaton. The distance from the head of the femur to the antero-superior iliac spine was nine centimetres; a horizontal plane through the antero-superior spine passed four centimetres above the head of the femur. The case was evidently one of dislocation on the dorsum ilii. The patient was anæsthetized with chloroform, which he resisted, and an attempt was made to reduce the luxation by the process of Desprès,—flexion of the thigh upon the pelvis, rotation outward, followed by extension and rotation inward. The luxation was thus converted into one of the thyroid variety, and repeated attempts to restore the head of the bone to the cotyloid cavity failed. Five days later chloroform was again given, and Jarvis' adjuster was used without success. After another interval of five days the process of Hennequin was resorted to. This method consists of extension on the lower part of the thigh in an upward direction, the weight of the body making counter-extension. By seizing the leg, which is flexed at right angles to the thigh, the operator may impart movements of rotation inward and outward to the thigh. This procedure also failed. The patient was now given bromide of potassium, from one up to four grammes a day, for eight days. Hennequin's manœuvre was then again tried, the patient having been given two grammes of chloral before the chloroform. Still reduction could not be accomplished. The head of the bone then was left in the thyroid foramen. About four weeks later Polaillon determined to remove the obstacle to reduction by a cutting operation. Accordingly,

under antiseptic precautions, an incision was made upon the coxo-femoral articulation, about ten centimetres in length, beginning at the antero-inferior iliac spine. A thick layer of fibrous tissue occupying the cotyloid cavity was the apparent obstacle and it was removed; but the reduction could not be made until the head and neck of the femur had been thoroughly freed from surrounding tissues and the muscles attached to the upper part of the great trochanter had been divided. The operation lasted three quarters of an hour; no artery was wounded. The patient survived only four days. At the autopsy the heart, liver, and kidneys were found in a condition, more or less marked, of fatty degeneration. All the tissues about the wound were gangrenous. The head of the femur was in the acetabulum, and could only with difficulty be displaced. The great trochanter was separated, this having been done at the final operation to effect reduction. The capsular ligament was extensively lacerated, and the round ligament was ruptured. The chief obstacle to reduction is considered by the author to have been the integrity of the anterior portion of the capsule and especially of the ligament of Bertin. The unfortunate result is attributed not to the operation, but to the condition of the patient's system as a result of excess in alcohol.

This operation has been attempted once by Volkmann, in 1876, and once by MacCormac, in 1878. In both cases it terminated in resection of the upper end of the femur. Volkmann's incision began at the iliac crest and passed by the great trochanter. MacCormac made a V-shaped incision. Polaillon objects to both of these as being too extensive, and prefers the one he practised in this instance. All the parts involved are thus fully exposed.

Rosenmeyer, L.: On the treatment of irreducible dislocations.—*Wien. med. Bl.*, 1883, vi., 505, 536, 602, 635, 668, 702.

Operative treatment of irreducible dislocations. G. Poinsot.—*Rev. de chir.*, Paris, Aug. 10, 1883.

This article begins with an historical review of the subject, and contains summaries of many cases reported by various surgeons. In conclusion the author divides luxations into three classes: recent, intermediate, and old. Operative in-

terference should be rejected in the first class of cases, except as regards section of of the tendo Achillis in luxation of the ankle, and section of the lateral ligaments in luxations of the thumb. In the second class subcutaneous section is the principal resource, arthrotomy being reserved for those cases in which the position of the bone involves dangerous compression, so as to threaten the usefulness or vitality of the limb. This is apt to be the case in certain dislocations of the shoulder and of the knee, as well as of the fingers. For old dislocations, in which subcutaneous section fails, arthrotomy, with or without resection, is suitable for ginglymoid articulations, as the elbow and the knee, and also for the ankle and the phalangeal joints. For enarthrodial joints, the maxillary, the shoulder, and the hip, osteotomy is preferable.

In the *Trans. Med.-Chir. Soc.*, 1882, H. Morris reports the following four cases: **(1) Impacted fracture of the neck of the right femur, with old unreduced dislocation of the the right hip.** These conditions resulted in flexion and adduction of the thigh, eversion of the limb, and the presence of the head of the bone on the dorsum ilii. In attempting to reduce the luxation by manipulation the impaction was released. Advantage was taken of this accident to correct the deformity of the dislocation, and the limb was thereby placed in better position. Subcutaneous division of the neck of the femur might be done safely and with advantage in cases of irreducible dislocation. Excision of the head of the femur has been done under such circumstances by H. G. Rawdon (*Liverpool Med.-Chir. J.*, Jan., 1882) and by W. Adams with excellent result. **(2) Unreduced dorsal dislocation of the hip with remarkably good movement of limb.** The good result was largely due to the patient's youth and to his persevering efforts to regain the use of the limb. The condition was not fully recognized until several months after the receipt of the injury. Mr. Morris formed the opinion that there had been a fracture of the rim of the acetabulum, and subsequent direct dislocation on to the dorsum ilii. His efforts at reduction fourteen months after the accident were not succesful, yet by persistent exercise the patient succeeded in

recovering almost perfect motion. The gait was defective, and the ability to stand on the displaced limb alone was very limited. **(3) Thyroid dislocation of the femur: reduction by manipulation. (4) Dorsal dislocation of the hip: reduction by manipulation.** These cases corroborate the views expressed by the author several years ago: *a.* That in all the ordinary dislocations backward without fracture, whether they are spoken of as "dorsal" or "sciatic," or, as Bigelow styles them, "dorsal above" and "dorsal below the obturator internus tendon," the head of the femur leaves the acetabulum in a downward direction through a rupture in the thin part of the capsule, and emerges therefore below the internal obturator tendon; *b.* That herein we have the rationale of the success of the methods of reduction by manipulation; *c.* That posterior as well as anterior dislocations occur whilst the limb is abducted.

AMPUTATIONS AND EXCISIONS.

Periosteal osteoid sarcoma of humerus; amputation at shoulder-joint; rapid recurrence; subsequent excision of entire scapula and outer extremity of clavicle; recovery. W. J. Conklin.—*Am. Jour. Med. Sci.*, Jan., 1883.

A married woman, thirty-seven years of age, presented herself with a hard, resisting tumor—except at one or two points, where it was slightly elastic,—lobulated, and involving almost the entire shaft of the humerus. The growth began about six years before as a small nodule, just below the insertion of the deltoid. For the last fifteen months the tumor had increased rapidly in size and had been very painful. Amputation was advised and declined. Eleven months later the tumor had nearly doubled in size, and had become so painful that the patient was ready for operation. The diseased arm had a circumference of seventeen inches at insertion of deltoid, and nineteen and a half inches at axillary line, the sound arm measuring nine inches and ten inches at corresponding points. Motion at the shoulder-joint was very limited, in consequence, as afterward appeared, of outgrowth from the tumor impinging on the neck of the scapula. Am-

putation at the shoulder-joint was performed. The articular surface of the scapula seemed to be healthy, but three months later the disease recurred in the glenoid cavity, which it rapidly filled, extended along the spine of the scapula, involved the coronoid process, the external clavicular articulation, and dipped down into the axilla. An incision was made over the clavicle, and that bone was divided with the metacarpal saw three inches from the acromion. A second incision was made from the posterior limit of the tumor along the spine of the scapula to its internal border. Finally the incision over the clavicle was extended to the inferior angle of the scapula, bisecting the second incision. The flaps were rapidly dissected up, and the scapula was then separated from its muscular attachments. The axillary artery was accidentally wounded just above the origin of the subscapular; it was seized and compressed until completion of the dissection. Ligatures were then applied to the axillary, the suprascapular, and to a muscular branch at the lower part of the wound; two or three small vessels were twisted. The subclavian was not compressed during the operation, it being thought better to tie the arteries as they might be divided in the course of the dissection. Two or three hardened and enlarged glands were removed from the axilla. The flaps were trimmed off and secured with sutures. The wound healed by first intention, except at the point where the drainage-tube was inserted. Hemorrhage was not excessive, the shock of the operation was slight, and convalescence was uninterrupted, except for a trifling disturbance due to premature closing of the drainage-opening. Fourteen cases of excision of the scapula, with and without portions of the clavicle, after amputation of the arm, have been reported. In six the record shows no recurrence of disease after intervals varying from two to thirty years.

On a method of controlling hemorrhage in amputation at, or excision of, the hip-joint. Jordan Lloyd. —*Lancet*, May 26, 1883.

The limb to be operated on is emptied of blood by elevation and friction toward the trunk. "A strip of black india-rubber bandage, two yards long, is to be doubled and passed

between the thighs, its centre lying between the tuber ischii of the side to be operated on and the anus. A common calico thigh-roller must next be laid lengthwise over the external iliac artery. The ends of the rubber are now to be firmly and steadily drawn in a direction upward and outward, one in front and one behind, to a point above the centre of the iliac crest of the same side. They must be pulled tight enough to check pulsation in the femoral artery. The front part of the band, passing across the compress, occludes the external iliac, and runs parallel to and above Poupart's ligament. The back half of the band runs across the great sacro-sciatic notch, and by compressing the vessels passing through it, prevents bleeding from the branches of the internal iliac artery." The ends of the elastic band may be held by an assistant, or, what is considered less desirable, they may be secured by tapes and held by a bandage passed over the opposite shoulder. The band should be fastened by a pin to the compress over the external iliac artery. It may be prevented from slipping out of the sacro-sciatic notch by a tape tied to it near the tuber ischii and passed up under the sacrum and held in that position by an assistant. This device is claimed to be superior to the rectal lever, because of its simplicity, its security in spite of movements of the patient, freedom from danger of injuring the rectum, and its applicability where the lever cannot be used on account of stricture of the rectum, intra-pelvic growths, or arterial abnormalities. The author seems to have employed it with satisfaction in several cases, among them an excision of the hip and four hip-joint amputations.

Subperiosteal amputation at the hip-joint.—*Lancet*, Lond., Feb. 17, 1883, 277.

At a meeting of the Clinical Society, Mr. Shuter reported a case of the above operation, where reproduction of bone in the stump was claimed, a point upon which there was considerable difference of opinion. In any case the stump was an unusually good one, and particularly well-adapted for the adjustment of an artificial limb. The operation was performed by a circular incision through the junction of the upper and middle thirds; a longitudinal incision was then

made on the outer side of the femur down to the bone; the periosteum was stripped up and left in the flaps, and the head of the bone was disarticulated. The patient made a rapid recovery.

In remarks on the operation Mr. Davy gave an account of a recent accident which had occurred with his rectal lever. It happened in amputating the right hip in a man aged forty, and he himself applied the instrument. Peritonitis developed the same evening, and the patient died the next day. A small linear rent was found in the rectum. The lever was used with usual care, and the accident was due to extraordinary shortness of the meso-rectum. The speaker had been present at seven autopsies after the use of the lever, and never before had discovered any evidence of injury to the rectum. He knew of forty cases where it had been used, twenty on the right side, and in these cases there had been sixty-five per cent. of recoveries.

A case of hip-joint amputation, in which Davy's rectal rod was successfully used.—*N. Y. Med. Rec.*, April 7, 1883. 385.

At a meeting of the Practitioner's Society Dr. Weir gave a history of a case of round-celled sarcoma, originating in the bone, and involving the femur from the knee to the trochanter, in a boy seven years of age. The tumor followed a severe fall upon the right knee about a year before the operation. Owing to the extent of the disease circular division of the soft parts was resorted to. In these cases hemorrhage may be controlled by means of an abdominal tourniquet, by the use of Trendelenberg's transfixing rod, or by the employment of a rectal rod, suggested by Davy in 1878. In the present case the rod was used. A syringeful of oil having been injected into the rectum, the rod was readily passed on the right side for about eight inches; the end of the rod being tilted up, the right common iliac artery was compressed. The instrument slipped once during the operation, and there was a spurt of blood, but altogether there was a loss of not more than two and a half ounces. The wound was dressed with bichloride of mercury. The patient made a good recovery, but owing to the nature

of the tumor its recurrence is anticipated. The use of the rectal rod to compress the ureter in order to determine the comparative condition of the two kidneys is referred to.

Tripier's medio-tarsal amputation. T. M. Markoe.—*N. Y. Med. Journ.*, Feb. 24, 1883, 216.

This method of amputating the foot has been resorted to for the purpose of avoiding the retraction of the flap, so often met with after Chopart's amputation. The action of the calf muscles is clearly a powerful element in the production of this deformity, but there is another important factor, to overcome which is the object of Tripier's operation. This factor is found in the anatomical arrangement of the bones of the foot. The foot as a whole being regarded as a lever, the traction of the muscles on the short arm is resisted by the long arm at the ball of the foot. The long arm having been removed by section at the astragalo-scaphoid joint, the power exerted at the heel continues unopposed, the astragalus becomes forced downward to the ground, and the os calcis is tilted on its transverse axis, so that its anterior face looks directly downward. Tripier proposed to obviate this by making a section of the os calcis at the level of the sustentaculum tali and at right angles to the long axis of the tibia, thus providing a flat bone surface parallel with the ground, the relations of which the weight of the body will tend to preserve. The operation has thus far been performed but few times, but great success is claimed for it by its originator. The method of operating is as follows: An incision beginning at the outer border of the tendo Achillis, on a level with the outer malleolus, passes downward and forward, about one inch below the malleolus, along the outer border of the foot, toward its dorsal surface, to the base of the metatarsal bone of the little toe; it then passes over the dorsum to the base of the metatarsal bone of the great toe; from this point it crosses the sole, making a convex flap at least an inch longer than the dorsal flap, and joins the first part of the incision at an oblique angle at the outer margin of the foot. These flaps are dissected up sufficiently to permit disarticulation at the astragalo-scaphoid joint, and

horizontal section of the os calcis below the level of the sustentaculum tali. It is advised to divide the bone from within outward, so as to assure the safety of the posterior tibial artery, upon which the vitality of the plantar flap depends. After cutting away sharp edges of bone, the flaps are united with many sutures, drainage-tubes are inserted and a supporting dressing is applied to the stump. Dr. Markoe reports a case in which he performed this operation for caries of the anterior tarsal bones. Unfortunately the disease extended, and secondary amputation of the leg was required. During the discussion of the paper Dr. McBurney referred to the importance of retaining the stump in proper position for a considerable time after Chopart's operation, as a means of preventing retraction of the flap. Dr. Sands also mentioned this point and expressed the belief that the prejudice against Chopart's operation is not well-founded, citing the statistics of Max Schede in support of his view. The risk of extension of the disease, where the operation is done for caries, offers an objection to both Chopart's and Tripier's operations. In the present state of antiseptic surgery the suggestion, made many years ago by Hancock, to operate on the foot as a whole, without reference to the articulations, would seem to be useful.

Irregular trans-tarsal amputation. D. Mollière.—*Lyon méd.*, July 1, 1883.

The author relates a case of crushing injury to the foot, which he treated by amputating through the tarsus without regard to the articulations. He was able by means of three irregular flaps to form a stump, which included the scaphoid, a part of the cuboid, and some fragments of the cuneiform bones. The arteries were twisted; two small drainage-tubes were inserted, the wound was closed with numerous metallic sutures, and antiseptic dressings were applied. The dorsal flap, which was cutaneous, sloughed to some extent, but cicatrization rapidly progressed, and an excellent stump resulted, resembling that after Lisfranc's operation, but a little shorter. The mobility of the tibio-tarsal joint was perfect, and the patient could walk with ease upon the stump. A better result has not been seen after Chopart's, Lisfranc's,

or Sedillot's operation. The idea of regarding the foot as homogeneous was suggested by a study of the methods and results of ancient surgeons. No attention was given to the disposition of the articulations, or of the tendinous sheaths. The main object was to preserve as much of the foot as possible.

Syme's amputation. W. S. Savory.—*Lancet*, Feb. 3, 1883.

Mr. Syme attached great importance to the line of incision across the sole. "The foot being placed at a right angle to the leg, a line drawn from the centre of one malleolus to that of the other, directly across the sole of the foot, will show the proper extent of the posterior flap. The knife should be entered close up to the fibular malleolus, and carried to a point on the same level of the opposite side, which will be a little below the tibial malleolus." He was in the habit of dissecting the flap from below upward. Mr. Savory is in favor of reversing the order, opening the joint from above and working down. In this way there is less danger of injuring the heel flap and less temptation to sacrifice any portion of it. The incision across the sole should be vertical, thus preserving the entire heel.

In the *Lancet*, Lond., March, 1883, p. 361, is recorded a case by Bennett May, in which retraction of the heel flap after Syme's amputation occurred, so that eighteen months after operation the cicatrix bore all the weight. Achillotomy released the flap and allowed the stump to be remodelled with the cicatrix in its proper place.

Excision of the Shoulder.—In the *Rep. Superv. Surg.-Gen. Mar. Hosp. Serv.*, 1883, 157 and 159, may be found a report by H. W. Austin of a case of excision of the shoulder-joint for caries with good result; also one of exsection of the head and two inches of the shaft of the humerus, together with the glenoid and part of the neck of the scapula. In the latter case the wound had entirely healed at the end of two months, and the patient had almost perfect use of the arm, forearm, and hand. But the man's general condition was poor, and a few weeks later a

portion of the wound reopened and began to suppurate profusely. The scapula was evidently diseased, and its complete extirpation became necessary. The patient survived the latter operation only fifteen hours, never having completely rallied from the shock.

Resection of the wrist. G. Nepveu.—*Rev. de chir.*, May 10, 1883.

The author bases the following conclusions on an analysis of sixty cases, which he has collected: (1) Carpal, radio-carpal, and carpo-metacarpal resections for disease are not dangerous operations, especially when performed antiseptically. (2) Good results are frequent, as regards removal of the disease and restoration of the usefulness of the hand. (3) Perfect results are rare, having been obtained in hardly one quarter of the cases. (4) Serious results are quite frequent. The operation itself may be directly or indirectly fatal; it sometimes fails to arrest the disease, and amputation becomes necessary; the local result may be good, but the patient may die of pulmonary tuberculosis. (5) The failure of the operation is in part due to the unfavorable conditions under which it is often performed. Resection of the wrist is contraindicated in old people, in phthisical subjects, and as a rule in scrofulous patients; also in cases of osteo-arthritis, particularly if associated with tubercular deposit, which require amputation. (6) To get the best result, the operation should be limited in extent, as little as possible of the bone and of the dorsal and plantar layers of the ligamentous and periosteal tissues being removed. (7) Surgical interference should be postponed until all conservative measures have been tried. Rest, compression, blistering, drainage, prolonged antiseptic baths have succeeded where operative treatment has been prohibited by the constitutional condition.

The author evidently believes that the sphere of this operation is very limited, and he does not consider it at all applicable to traumatic cases.

Resection of the wrist by two lateral incisions. Polaillon.—*Union méd.*, July 22, 1883, 129.

This operation was done in a woman, thirty-nine years of age, for non-malignant disease of the right wrist. The portions of bone removed comprised the entire carpus, the ends of the radius and ulna, and of all the metacarpal bones except that of the thumb. Esmarch's bandage was used, and the carpal bones were all easily removed. The ends of the metacarpal bones and of the radius and ulna were excised with cutting forceps. All the tendons were preserved. With a blunt curette fungous masses were then removed from the cavity, which was thoroughly irrigated with a twenty per-cent. solution of carbolic acid. The wounds were united with metallic sutures, drainage-tubes were inserted, and a Lister dressing applied. Primary union was secured except at one point of the radial wound, where a fistulous track remained for some time and discharged small pieces of bone. Ten months later the hand was found to be very useful, and its efficiency was constantly increasing.

Some experience in excision of the hip-joint.—*N. Y. Med. Jour.*, April 28, 1883, p. 470, and May 5, 1883, p. 493.

In a paper read before the N. Y. Surgical Society, Dr. C. T. Poore gave his opinions, based on an experience derived from eighteen cases of excision of the hip. Suppurative disease of this joint begins in osteitis, or osteomyelitis of the head of the femur, the acetabulum being involved secondarily. Many of the cases had been under mechanical treatment for a year or more without relief, and, occurring among the poorer classes, were not the most favorable for operation. In all cases a long incision was made over the trochanter major; in thirteen cases the head of the bone was removed above, and in five below, the trochanter minor; in four, after some months, the end of the femur was excised. Two of the patients remained in hospital; eleven died, and five recovered. The causes of death were: Exhaustion, one; tubercular meningitis, one; septicæmia, one; phthisis, one; amyloid degeneration, seven. The immediate effect of the operation was in all cases good, but death ensued in from two months to four years; in one case the operation-wound having meanwhile entirely healed. In all cases of recovery the family history was comparatively good. The disease had

existed six years in one, three years in one, and two years in three cases. In two cases, at the time of the operation, there was enlargement of the liver, and one of these had albuminous urine and hemoptysis. Cure seemed to be permanent in three cases; the other two were lost sight of. The degree of shortening varied from three fourths of an inch to seven inches, the latter measurement taken five years after leaving hospital. The amount of shortening depends in the first place on the extent of bone removed, and secondly on the degree of atrophy resulting from disuse. As regards the question of mechanical or operative treatment, Dr. Poore thinks that much can be done by the former in cases giving a good family history, an early operation not being demanded. But in patients with tubercular antecedents and in hospital practice excision should be resorted to soon after the formation of abscess. Amyloid change is a serious complication, but not necessarily fatal. It is observed, however, that the seven cases resulting fatally from amyloid disease came from families having marked tubercular diathesis, and it appears from the study of these, and of other cases in which no operation was done, that there is a predisposition among children of tuberculous parents to develop amyloid changes in the course of hip-joint disease.

Dr. Sands agreed with Dr. Poore regarding indications for operation, and remarked that the operation should be done even though a radical cure could not be expected, the resulting palliation of symptoms justifying the procedure.

Dr. Briddon thought that a fatal termination might be expected in a majority of the cases in which perforation of the acetabulum occurred, and he believed that the carious condition of the bone in hip-joint disease is tubercular. All of his own cases were children of phthisical parents. The president (Dr. Markoe) said, in deciding the question of treatment, it should be remembered that no case is absolutely hopeless, even after perforation of the acetabulum and the formation of intra-pelvic abscess, and cited a case in point from his own experience.

In the *Boston City Hosp. Rep.*, 1882, 281, eight cases of excision of the hip are recorded. Only two patients received

any benefit from the operation. Of twenty-one cases previously treated at the hospital twelve were relieved or cured.

Resection of the knee. L. Ollier.—*Rev. de chir.*, Paris, April and May, 1883, 268, 339.

The former high mortality after this operation—seventy-five to eighty per cent.—led the author of this paper to prefer amputation above the knee, in which the mortality, in cases of the class requiring such surgical interference, was forty per cent. Antiseptic surgery has, however, reduced the death-rate in resection of the knee to fourteen per cent. Of seven recent cases only one was fatal, and in that case death resulted from the shock of the operation. Iodoform is used in conjunction with the Lister dressing. At the Lyons clinic, during six months, twenty-two capital operations (amputations and resections) were done without a single case of infection. Resection of the knee may be required for three classes of cases; for disease of the joint, as osteoarthritis, or fungous synovitis; for traumatism, as fracture or gun-shot wound involving the joint; for remedying deformity, as from anchylosis in a bad position. The operation is not approved of in children under eight and a half years, on account of the extreme shortening which is likely to result, and because of the tendency in children to spontaneous cure of articular disease. In older subjects the operation is indicated, not only as a means of saving life, but also for the purpose of removing a source of suppuration which is gradually impairing health, and indefinitely confines the patient to his bed. The operation prevents these dangers, and enables the patient to move about in three or four months. In operating Ollier endeavors to preserve the periosteum and the capsule of the joint, not with the expectation of forming a new joint, but for the purpose of retaining as far as possible a substantial support for the extremities of the resected bones, and thus favoring osseous union. Bony union is desirable, in order to sustain the weight of the body, as well as to prevent recurrence of local disease. A transverse or an H-shaped incision is made in front of the joint, the longitudinal cuts being in front of the lateral ligaments, and the transverse at the lower border of the patella. Two

openings are made for drainage, one in front of the biceps tendon, and the other behind the tendon of the sartorius. The ligamentum patellæ is divided. The flap is dissected up with the patella, which, if diseased, is removed, its periosteum being preserved as far as possible. The lateral ligaments and the extensor tendons are not divided. This constitutes the first stage of the operation. In the second stage the crucial ligaments are cut through, and the lower end of the femur is extruded through the wound and stripped of its coverings to the point where it is proposed to make the section. The end of the tibia is treated in a similar way. In the third stage, all diseased tissue having been scraped away, the surfaces of bone are united with two wire sutures. The ends of the divided ligamentum patellæ are sutured together, a series of sutures is applied to the incision in the skin, antiseptic dressings are used, and the limb is placed in a splint. The patella should always be removed if it presents the slightest suspicion of disease, but in traumatic arthritis, particularly in children, it may with safety be left. There is an advantage in the latter course; in case of failure of firm bony union, the presence of the patella gives to the limb greater strength and usefulness. The granular masses springing from the synovial membrane should always be removed in cases of tubercular disease, and the actual cautery should be applied to the surface; in traumatic or rheumatic cases the superficial portions only of these masses may be removed, the remaining portions becoming converted into firm cicatricial tissue. Amputation is preferable to resection where one observes large masses of caseous material and pale granulations extending beneath the periosteum. In traumatic cases the results of resection have been greatly improved by antisepsis, and at the same time the field of resection has been much limited. Still, conservatism is not to be thought of in comminuted fracture of the epiphyses and where a foreign body occupies the joint. Resection must then be resorted to, and the author suggests in such cases making a longitudinal median incision, dividing the patella into two lateral halves, and so exposing the interior

of the joint. Fragments of bone and foreign bodies may be removed, or the operator may, if necessary, proceed to resect. In two of the seven cases reported in this paper, resection of the knee was done for anchylosis, in one case the result of acute traumatic arthritis, and in the other due to extension of inflammation from the juxta-epiphysial region. Hitherto surgeons have practised cuneiform excision of the femur above the joint, or resection of the joint itself, the latter being the only operation practicable where disease of the bones is still present. Ollier would advise the substitution for cuneiform section of supra-condyloid osteotomy or femoral osteoclasis. Osteotomy performed antiseptically is not especially dangerous, but osteoclasis is safer, and should be selected if the affected knee is not flexed beyond a right angle.

The author concludes as follows: (1) Antiseptic dressings have completely changed the indications and prognosis of resection of the knee. Whereas formerly the operation had a very restricted field, it is now in many cases substituted for amputation. (2) In young subjects, on account of the shortening likely to result, and indeed, at any age, expectant treatment, or the use of drainage, scraping, arthrotomy, etc., should first be tried. Except in severe forms of tubercular arthritis, resection is always to be preferred to amputation. (3) The gravity of resection is no greater than that of amputation, success being the rule rather than the exception, a fact illustrated by the cases related in this paper. (4) The attempt should always be made to secure bony union, but in view of possible failure of anchylosis as much supporting tissue as possible should be left. (5) The subperiosteal method tends to the above result, the extremities of the bones being surrounded by ossifiable tissue. (6) Observations are, as yet, too few to furnish a reliable estimate of the value of resection of the knee in military practice. (7) In operating a transverse and two lateral longitudinal incisions are advised. These incisions should be less extensive than in Park's operation, and the lateral ligaments should be avoided. Near the posterior margin of each condyle an opening should be made for drainage. (8) It

is usually necessary to remove the patella, preserving, if possible, its anterior periosteal covering. The divided ends of the ligamentum patellæ should be reunited by suture. (9) In operating for comminuted fracture of the articular extremities a median longitudinal incision is the best. (10) In osseous anchylosis, supra-condyloid osteoclasis is the operation of choice, and it is especially applicable to traumatic or rheumatic cases, when flexion does not exceed a right angle, and in the absence of multiple and deep-seated cicatricial bands in the popliteal space. (11) Supra-condyloid osteotomy is to be preferred when there may be any risk of wounding the popliteal vessels or nerves by osteoclasis. If cicatricial bands are numerous and deep, and if the leg is flexed beyond a right angle, total resection of the condyles of the femur must be done. (12) The latter operation is the only resort also in case disease of the bone is still present. When the knee is flexed beyond a right angle it is necessary to remove not only a wedge-shaped piece of bone, but also a considerable thickness of the posterior portion of the femur. Otherwise, the divided surfaces of bone cannot be brought into contact without making excessive tension on the structures in the popliteal space and perhaps interfering with circulation in the leg.

In the *Lancet*, Jan. 20, 1883, 101, is the abstract of a paper on transpatellar excision of the knee, read by Mr. Golding-Bird at a meeting of the Clinical Society. The operation was done for osteitis of the right knee of one year's duration in a boy of thirteen. The patella was sawed through transversely and the fragments were turned up and down. The articular surfaces of the femur and of the tibia were then excised in the usual way, and the patella was replaced and reunited with carbolized silk sutures. Primary union was obtained, and the patient was left with one inch shortening and a movable patella. By this method of operating the joint may be more readily manipulated and examined. The attachments of the quadriceps femoris being preserved, there is no danger of backward displacement of the tibia, and hence no necessity for prolonged use of a posterior splint. Moreover the power to throw the leg for-

ward naturally in walking is retained, which is not the case when the ligamentum patellæ has been sacrificed. Several speakers suggested that in most cases the method is impracticable, because the patella itself is involved in the disease. Freedom of the patella from disease is an argument against excision. Mr. Lister observed that Volkmann many years ago advocated transpatellar excision. In cases similar to the present one he had found antiseptic incision and scraping away of the diseased synovial and osseous tissues to result in preservation of the normal length of the limb and even of motion at the joint.

Excisions of the tarsus, with a report of two successful removals of the entire tarsus. P. S. Connor.—*Am. Jour. Med. Sci.*, Oct., 1883.

The author gives the histories of two of his own cases, and a table of one hundred and eight cases of partial and complete excisions, showing ninety-six recoveries, one result unknown, and eleven deaths. The following questions are asked: (1) Is excision a safe operation, or at least attended with no greater mortality than the alternative—amputation? (2) Is it likely to put an end to the disease, or is recurrence of the morbid process in the unremoved bones of the foot to be expected? (3) Will the patient, after recovery from the operation, be left with a serviceable limb? From a study of the collected cases the answer to the first question must be that the operation is not much, if any, more dangerous than an ankle-joint amputation, and not very much more so than a middle tarsal operation. As regards recurrence of disease, the statistics show that it took place in only three cases. The more thorough the removal of diseased bone, the less probability of development of inflammation in the remaining bones. The third question is the most important. It appears that the result is given as *very good* in forty-five cases, and *good* in twenty-three. In ten cases the operation was a failure, amputation being required in seven. The shape of the foot is, of course, changed but the occurrence of talipes may be prevented by proper attention to the position of the foot during the period of healing. Many of the patients could walk as well as ever after the operation. In many

cases the ankle motions were to some extent preserved, even after complete or nearly complete excision. Osseous regeneration was believed to have taken place in eight cases.

As to the method of operating, no definite rules can be laid down. One or two lateral incisions, although rendering the removal of the bones more difficult, will ordinarily give the best result. A dorsal cut necessarily divides the tendons, but this disadvantage may be counteracted by suturing their ends, and even if left to make their own attachments a good result may follow. Preservation of the periosteum is of doubtful value, since this membrane becomes largely destroyed in the prolonged process of suppuration following the operation. Age is no contra-indication to the operation; it has been done in a patient as young as four years and in one as old as sixty, both recovering with useful feet. In unhealthy and debilitated subjects and in cases of extensive crushing, amputation is generally preferable to excision.

Resection of the Ankle. P. Vogt.—*Centralbl. f. Chir.*, No. 19, 1883, 289.

In operating for chronic disease of a joint it is of the utmost importance to expose the entire extent of the articular surface, otherwise some portion of disease may escape detection. In the case of the ankle-joint the ordinary bilateral incisions (von Langenbeck) give only an imperfect view of the tarsal surfaces and of the synovial pouches, unless a considerable part of the tibia and fibula are removed. Vogt proposes to obviate these difficulties by adopting the following method: An incision is made anteriorly, beginning at the lower part of the leg between the tibia and fibula and extending to the dorsum of the foot at Chopart's line. The long extensor tendons are dissected up and retracted inward. The short extensor is divided and drawn outward with the outer lip of the wound. The blood-vessels to the external malleolus are then divided between two ligatures. The capsule of the joint is next opened by a vertical incision; the anterior ligaments being detached, the head and neck of the astragalus are exposed, and, after division of the astragalo-

scaphoid ligament, its anterior and outer surfaces are brought into view. A transverse incision, from the middle of the primary incision to the tip of the outer malleolus, is then made, the tendons behind the malleolus being undisturbed. The soft parts having been thoroughly divided, the anterior and posterior astragalo-fibular and the calcaneo-fibular ligaments are cut close to the malleolus. Division of the calcaneo-astragaloid interosseous ligament now permits the operator to force outward the astragalus by means of an elevator passed behind its neck, or the bone may be dragged out with lion-toothed forceps. Separation of the astragaloid attachment of the lateral ligament and of the calcaneo-astragaloid ligament completes the extirpation of the astragalus and freely exposes the articular cavity. In this way all diseased regions become accessible, with the least possible disturbance of surrounding parts and without sacrificing the tibia and fibula to an unnecessary extent.

A new method of resecting the ankle. F. Busch.—*Centralbl. f. Chir.*, No. 41, Oct. 14, 1882.

An incision is made across the sole of the foot, in front of the tuberosity of the os calcis, from one malleolus to the other. The soft parts are divided to the bone; the tissues are detached and drawn forward, thus exposing the sides of the joint. The interior of the joint is now reached by sawing through the os calcis along the line of the external wound, the section being made obliquely forward, toward the anterior margin of the calcaneo-astragaloid articulation. The posterior segment of the os calcis is retracted after division of the ligaments. In a case in which this method was followed, the astragalus was extirpated, and diseased bone was removed from the extremities of the tibia and fibula and from the upper surface of the os calcis. The posterior fragment was replaced and secured with two wire sutures. Antiseptic precautions were observed. As regards the result in this case, a useful joint with slight shortening was expected. There need be no obstacle to union of the fragments of the os calcis, and the plantar cicatrix, being in front of the prominence of the heel, is not likely to give rise to inconvenience.

II.

SURGERY OF THE HEAD AND NECK.

TREPHINING.

Trephining for late symptoms following fracture of the skull: cerebral localization. Polaillon.—*France méd.*, Paris, April 12, 1883.

The report of a case of trephining done by Silvestrini in a boy of fifteen years presents several interesting features. The patient sustained a fracture of the skull from the kick of a horse in the left fronto-parietal region. There was marked depression of bone. The boy was unconscious for two hours, and afterward complained of constant headache and an irresistible desire to sleep. Yet he was able to return to his work. In the course of two months right hemiplegia suddenly developed. The paralysis was attended by convulsive movements of the extremities of the affected side, the spasms recurring three or four times during the day. This condition lasted for fifteen days; then gradually improved until the patient recovered the use of his limbs. For five months his health continued good, in spite of persistent headache and somnolence. At the end of that period, seven months and a half after the accident, the headache became more aggravated, and the convulsive movements reappeared on the right side of the body, at first infrequent, soon they recurred ten to fourteen times every hour. At this time Silvestrini recognized paralysis of motion of the right upper and lower extremities and com-

plete paralysis of the lower facial muscles on the right side, the movements of the upper facial region on both sides being preserved. There was no impairment of sensation in the affected regions. Urine and fæces were voided naturally. The spasms were epileptiform, and lasted several minutes. Intelligence was abolished during the attacks, but was perfect in the intervals. Aphonia was complete: the patient comprehended perfectly what was said, but was able neither to articulate nor to express himself in words. From these symptoms and their mode of development Silvestrini inferred the presence of pachymeningitis, caused by the injury, and the occurrence of hemorrhage two months after. This clot was absorbed, but the inflammation progressed, and a second hemorrhage took place seven and a half months after the accident. From the seat and nature of symptoms it was concluded that a clot or hematoma was compressing the left cortical motor zone of the brain, and that trephining was indicated. The direction of the fissure of Rolando was first marked out by a line drawn from the posterior part of the bregma and terminating at the middle of a line connecting the auditory meatus and the fronto-zygomatic (?) suture. Polaillon points out the fact that a line so drawn passes in front of the fissure of Rolando. Therefore, with such a line as a guide, the crown of the trephine would be applied too far forward to fall upon the motor centre for the extremities, and too high for the centre of articulation. The operation of tephining was done without accident. A crucial incision having been made in the dura mater, that membrane was seen to be thickened, opaque, and softened. The arachnoid and pia mater were normal, and the brain was pale and motionless. A dark, almost fully organized clot, which extended toward the motor centre for the extremities, was removed piecemeal. For three days marked amelioration of symptoms was noticed; the spasms diminished in frequency and in duration; the aphasia improved to some degree, but the paralysis of the face and of the extremities remained unchanged. On the fourth day an acute suppurative meningitis developed, and the patient died in forty-eight hours. At the autopsy two

abscesses were found in the cerebrum, one at the foot of the ascending frontal convolution, and the other at the lower extremity of the fissure of Rolando. Silvestrini believes these abcesses to have formed during the fatal attack of meningitis. On the other hand, Polaillon, in view of the ordinary slow evolution of such abscesses, believes that they were developed at the appearance, and were the cause of the aphasia and of the facial paralysis, since they were seated near the centre for speech and in the region of the centre for motion of the lower half of the face (Charcot and Pitres). Had this view been held at the time of the operation, the trephine would have been reapplied at the lower part of the fissure of Rolando, and, if necessary, the brain might have been punctured. Thus at least one of the abscesses found at the autopsy would have been opened, and the other would have evacuated itself spontaneously through the opening made by the trephine. However, in view of the vagueness of our knowledge of cerebral localization in man, the conservatism of the surgeon is not to be condemned. It appears, therefore, that the motor centre for the upper and lower extremity was compressed and irritated by a clot, whence paralysis of the extremities and epileptiform convulsions. The centre for articulation was the seat of an abscess, whence aphasia. Finally, the position of the second abscess confirms the opinion of Charcot and Pitres, who place the centre of motion for the lower half of the face behind the centre for speech, and below the inferior extremity of the fissure of Rolando.

Is trephining a dangerous operation per se? W. J. Walsham.—*St. Barth. Hosp. Rep.*, Lond., 1882, 212.

The question is answered decidedly in the negative. Statistics which seem to prove that it is dangerous are fallacious.

In six hundred and eighty-six cases of trephining the mortality was 39.3 per cent. To arrive at a just conclusion there should be excluded those cases in which the operation was done for a condition itself endangering life. There are then left one hundred and twenty-two cases, showing a mortality of 10.6 per cent., and several of

these fatal cases cannot rightly be attributed to the operation. The percentage should, therefore, be still further reduced. Moreover, the risks of the operation may be greatly lessened by careful avoidance of injury to the membranes of the brain, and by attention to sanitary and antiseptic precautions.

The question of trephining in injuries of the head. Henry B. Sands.—*Med. News.*, Phila., April 28, 1883; and *N. Y. Med. Jour.*, April 21, 1883.

Seven cases are reported, which occurred in Dr. Sands' service at the Roosevelt Hospital. The term trephining is used to include the employment of Hey's saw, chisel, elevator, or gouge-forceps, as well as the trephine, in the elevation or removal of fragments of bone. The operation was done once for simple fracture with depression, four times for compound fracture with depression, and twice for epileptic and paralytic affections following an injury. The first case was one of extensive depressed fracture of the right temporal and of both parietal bones, the patient being semi-comatose and partially paralyzed on the left side. A large piece of the temporal, and fragments of the parietal bone, were elevated and removed, on the second day after receipt of the injury. The dura mater was torn and brain-substance had escaped. The superior longitudinal sinus was wounded during the operation, but the bleeding was arrested by pressure. The patient remained unconscious and died two hours later. Had the extent of the injury been suspected, the operation would probably not have been done. In considering the question of trephining in simple depressed or comminuted fracture, the frequency of recovery without operative interference, no alarming head-symptoms being present, is remarked upon. In such cases trephining, with a view of averting cerebral mischief, is not advised. In the case of considerable displacement of the fragments, early trephining has been advocated on the ground that the bone may die and induce intra-cranial inflammation. But it is never certain that the comminuted pieces of bone are completely detached, and, even if they are, they may acquire new vital connections. This latter view is confirmed by the

experience of Prof. Macewen, of Glasgow, who, having operated for depressed fracture, laid a loose piece of the inner table in the trephine aperture, and the wound healed without sign of irritation or inflammation. Necrosis may occur and may cause fatal complications, but it is rare in simple fractures. Trephining, in cases of depressed fracture without head-symptoms, for the purpose of removing fragments which are assumed to have penetrated, seems to the author equally unnecessary. In the absence, therefore, of exact means of diagnosis, and in view of our inability to foretell the result of a given case, the conversion of a simple into a compound fracture, with its attendant risks, is unjustifiable. Dr. Sands expresses himself as being a "firm believer in the excellence of antiseptic surgery," but he regards the unbroken skin as a better protection to deeper parts than the best surgical dressing. Moreover, the accidents which are liable to happen, even to a careful operator, are strong arguments in favor of conservatism.

It is difficult to determine the propriety of operating when "head-symptoms" are present, owing to the very uncertainty of the symptoms. Usually they are of short duration, when due merely to depression of bone. Prolonged signs of compression are usually the result of serious damage to the brain, or to hemorrhagic extravasation, both conditions, except in the case of hemorrhage between the dura mater and the cranium, being beyond the reach of the trephine. There are two conditions, however, which demand resort to the trephine. One is where the fracture is limited and from its situation, or from the occurrence of monoplegia, monospasm, or hemipleiga, there is reason to infer penetration of the motor tract of the cerebral cortex by a splinter of the inner table. The second case is where hemorrhage between the dura mater and the cranium is compressing the brain. The blood may come from a venous sinus, or most frequently from the middle meningeal artery, and symptoms of compression may occur in a few minutes, or may be delayed several hours. Of the four cases of compound depressed fracture three were limited in extent, and were not attended by signs of serious injury to the brain. The operation was

successful in the latter cases, and should always be resorted to in similar cases soon after the injury. One of these four cases was hopeless when admitted, and operation was useless. Trephining is indicated in cases of this class when the depression is marked, but of limited extent, and in cases of punctured fracture, the inner table being extensively splintered and depressed. The paper concludes with two cases in which trephining was performed at a period remote from the date of the accident. In the first case the operation was done nine years after an injury to the head. The prominent symptoms of implication of the brain were epileptic attacks, loss of power in the left hand, and mental impairment. Near the right parietal eminence was a depression one and one fourth inch in diameter. A piece of bone four and one half by five centimetres was removed with trephine and gouge-forceps. Iodoform dressing was applied and renewed at the end of a week, when nearly complete union of the wound was found, and recovery took place without a bad symptom. Nine months later the patient was reported to be somewhat improved, the epileptic seizures being less violent, the headache less intense, and the weakness of the hand less marked. Little if any permanent benefit is anticipated, it being more rational to attribute the symptoms to structural changes in the brain, produced by the primary injury, than to the slight diminution in the cranial cavity from depression of its wall.

The second case was one of epilepsy following a blow over the left parietal region. There were no signs of fracture or concussion, and the fits began two weeks after the accident, and were limited to the right upper extremity. An exploratory operation was decided upon about four months after the injury. A button of bone about one fourth of an inch thick was removed with the trephine, applied nearly opposite the Rolandic line. Nothing was found except thickening of the dura mater. A large hypodermic needle was inserted to the depth of an inch in three different places, but nothing was withdrawn. Resistance to two of the punctures suggested the idea of a tumor. The patient died on the eighth day, having been delirious most of the time since the opera-

tion. At the autopsy a gummy tumor one inch in diameter was found in the posterior central convolution, and the convolution just behind it. It lay just under the wound, and at that point the dura mater was adherent to the pia mater. There was no meningitis. Syphilis had been positively denied, and no specific lesions were discovered during life. It is a question whether the injury was the exciting cause of the tumor or resulted from a fall occurring in a fit caused by a pre-existing gummy tumor. The case is also interesting as regards the relation of trephining to cerebral localization. Aphasia, impairment of vision, facial paralysis, and partial paralysis of the tongue were present, but were preceded for a considerable interval by paresis of the right arm. It was therefore thought that the former symptoms were due to secondary changes, and that the primary cause would be found in the centre controlling the movements of the upper extremity, a conclusion which was verified by the autopsy. In the discussion which followed the reading of the paper, (*N. Y. Med. Jour.*, May 5, 1883, p. 496,) Dr. Post mentioned among others two cases of children in which coma supervened in the course of half an hour or an hour after receipt of an injury to the head. He had supposed the occurrence to be a sign of hemorrhage. In both cases recovery took place after trephining, but to his surprise no hemorrhage was found. Dr. L. A. Stimson was opposed to dividing the soft parts or trephining in cases of simple fracture, without positive indications, yet he did not think the operation a grave one if the dura were left uninjured. He considered the operation warrantable, even in the absence of positive symptoms, as an explorative measure when serious cerebral disturbance is manifested. He related a case in support of this view, and an analogous case was also cited by Dr. J. L. Little. Dr. Little also referred to a case of secondary abscess of the brain, producing symptoms of compression, in which there was absence of depression of bone and of head-symptoms in the first instance, so that no operation was performed. Four weeks later it became necessary to remove fragments of bone and puncture an abscess deeply seated in the brain. Dr. Sands explained that he did not wish to be

understood as opposed to trephining in every case of simple depressed fracture. He would, however, restrict the operation to those rare cases of *limited* injury, or where a fragment of bone is pressing on the dura and causing direct mischief. Generally the injury is so extensive and of such a character that operation is unavailing.

EXCISION OF THE TONGUE.

Removal of the entire tongue with scissors by the Whitehead method. W. H. A. Jacobson.—*Lancet*, April 14 and 21, 1883.

Two cases are cited, both of which were unfavorable for operation and proved fatal in the course of a few months, but in both there was decided temporary relief. The author reviews the details of Whitehead's method. In the first place, he recommends turning the patient's head well to one side, so as to allow the blood to collect in the pouch of the cheek, where it can be readily sponged up; or the patient may be propped up and the chin depressed, so as to keep the blood away from the fauces. But the latter position will be found less convenient for the surgeon, less safe for the patient, and less effective in providing for the accumulation and removal of the blood. Dyspnœa is an invariable complication in the early stage of the operation, but by removing the gag and pushing the anæsthetic it can soon be overcome. Chloroform is preferred to ether, as exciting less secretion from the mucous membranes. The double ligature passed through the tongue may, with advantage, be held by the operator himself rather than by an assistant. The position of the tongue being thus under control, a better view is gained of the cavity of the mouth, and it is easier to keep up that firm traction which tends to check bleeding from the smaller vessels in the substance of the tongue.

Especial importance is attached to the use of straight and blunt scissors. Cutting with curved scissors is apt to give unequal depth, and thus involves more risk of hemorrhage and cellulitis. Sharp-pointed scissors are disposed to catch in the soft tissues and give much annoyance. Hemorrhage

may usually be arrested by pressure with a sponge. Oozing is controlled by steady traction on the tongue. In rare cases the lingual or ranine arteries may require twisting, or possibly, owing to softness of the tissues, the application of a ligature. The author does not wholly approve of Whitehead's suggestion, "to pass a loop of silk through the remains of the glosso-epiglottidean fold of mucous membrane, as a means of drawing forward the floor of the mouth, should secondary hemorrhage take place." It is thought to be an unnecessary source of annoyance to the patient and of local irritation, in view of the very slight danger of secondary hemorrhage. In speaking of other methods of operating, the *galvanic écraseur* is condemned for the following reasons: (1) The apparatus is expensive and cumbrous. (2) It causes an extensive slough, which exposes the patient to the risk of septicæmia and of secondary hemorrhage, which may be very difficult to arrest, owing to the sloughy condition of the parts. (3) The traction on the wire, as it is tightened, is apt to draw it dangerously near the seat of disease. (4) There is risk of breaking the wire. The *thermo-cautery* is sometimes used, but it shares with the galvanic écraseur the disadvantage of searing the parts and so altering their appearance and feeling that the surgeon is apt to overlook diseased portions. Objections 3 and 4 apply to the ordinary *wire écraseur*, although the danger of breaking the wire may be reduced by splitting the tongue in the median line and dividing each half separately, as recommended by Mr. Morant Baker. In addition, the wire leaves the parts much more bruised than if they had been cut with scissors. The swelling of the tongue as the wire is tightened is, moreover, apt to complicate matters by aggravating the dyspnœa. Syme's operation of dividing the symphysis is extremely severe, and is apt to be followed by necrosis and tardy union of the bony surfaces. It seems to be unnecessary, because all disease in the floor of the mouth can usually be reached with a tenaculum and scissors, and diseased glands may be removed, if necessary, by an incision in the submaxillary region. Incision through the cheek gives more room, but the scar may be objectionable, and the wound may add to the

patient's discomfort. Billroth's method of preliminary ligation of the lingual arteries is by no means easy of execution, owing, in some cases, to enlargement of glands and infiltration of the tissues, or to vascular abnormality, Billroth himself having by mistake tied the lingual vein. The author concludes that Whitehead's operation is equally safe, while it is far simpler and more speedy than any other.

Excision of the tongue and floor of the mouth: ligation of both lingual arteries. C. K. Briddon.—*N. Y. Med. Jour.*, June 9, 1883.

At a meeting of the N. Y. Surgical Society, Dr. Briddon reported a case of epithelioma, involving the under surface of the tongue chiefly on the left side, and the floor of the mouth. No hereditary taint could be discovered. The patient, who was a man sixty-five years old, noticed three months previous something growing on the under surface of the tongue. It was not very painful, but interfered with eating and talking, and impeded protrusion of the tongue. There had been no hemorrhages; spontaneous pain darting toward the ear had been observed. The patient had not had syphilis, but had been an inveterate smoker. The excision was preceded by ligation of the linguals. On the right side this was accomplished without much difficulty. Great assistance was derived from traction made on the greater cornu of the hyoid bone by means of a thread passed under and around it. On the left side the submaxillary gland was indurated, although not to a degree requiring its removal, and interfered with the search for the artery. Carbolized silk was used for ligatures. The usual method was followed in removing the tongue, the knife for the first incision, blunt scissors for dividing the attachments of the tongue, and the sharp spoon for scraping the soft parts from the posterior surface of the front of the jaw. A few small bleeding points were secured. For three or four days there was considerable swelling below the jaw on the left side. A mouth-wash, consisting of borax, glycerin, and tincture of benzoin, was used hourly, and in six days the patient was sitting up in bed and doing well.

Four cases of excision of the entire tongue by scissors. Frederick Treves.—*Lancet*, April 21, 1883.

The operations were all done by Billroth's method, only one resulting fatally, and that from pneumonia on the fifth day. They were all cases of epithelioma. In one the whole of the disease could not be removed, and although relief followed the operation, recurrence took place in two months. No difficulty was found in ligating the lingual arteries, which were reached by curved incisions, beginning below the angle of the jaw opposite the anterior edge of the masseter muscle, running down to the level of the hyoid bone, and ending behind and below the symphysis menti. The artery was exposed by cutting through the hyoglossus muscle in the floor of the digastric triangle. In performing this operation, Mr. Treves warns against unnecessary disturbance of the submaxillary gland, and care should be taken to avoid including any portion of it in a ligature, otherwise healing of the wound may be much retarded. Bleeding is slight, and may be arrested by pressure, or by a light touch with the cautery. For the first three days the patient is fed by a tube passed through the nose. On the fourth day he is able to take nourishment by the mouth, and he usually finds it convenient to hold the head very much on one side, so as to allow fluid to run by the side of the glottis into the œsophagus. For the first week the mouth is kept constantly washed with iced permanganate-of-potash water. The following advantages are claimed for Billroth's operation: 1. It is comparatively simple, and requires no elaborate apparatus. 2. More of the tongue can be excised than can be removed with the écraseur, and an extensive excision can be performed without dividing the jaw or cheek, and without opening the floor of the mouth. 3. It is bloodless. (The author thinks there is great risk of hemorrhage in Whitehead's operation.) 4. The wound is clean; there are no sloughs to separate, producing fetid discharge and prolonging convalescence. 5. The operation can be done quickly. 6. The incision in the neck, for the purpose of ligating the artery, enables the surgeon to detect and remove infiltrated glands, which might not be felt through the skin.

Epithelioma of the tongue; operation by the Roux-Sédillot method. Verneuil.—*Gaz. d. hôp.*, Paris, July 5, 1883.

The operation was done for extensive disease involving not only the tongue but also the left pillar and the velum; the ganglia also were infiltrated. The object of the operation was merely palliative, the patient's sufferings being intense. The operation is done by making a vertical incision in the median line, and a transverse incision along the jaw. Through the latter infected ganglia are removed. The lower jaw is divided in the median line with a saw, and the segments are drawn to each side, so as to thoroughly expose the parts. After all diseased tissue has been removed, the jaw is restored to its normal position, and thorough drainage is provided for the wound. The operation has two after-dangers: death from septicæmia, owing to the great extent of the secreting surface and the special liability to decomposition of the secretions; death from inanition. Swallowing is difficult, if not impossible, and there is risk of fluids entering the larynx and setting up pneumonia. To avoid this the patient is fed through a flexible tube passed through the nostril. Most patients cannot endure the retention of this tube, and it must be passed each time food is to be given.

Removal of entire tongue, submaxillary, and sublingual glands, and the lateral wall of the pharynx, by Kocher's method; cure.—*Med. News*, Nov. 24, 1883, 573.

A case was presented by Dr. Bull, at a meeting of the New York Surgical Society, in which the above extensive operation had been performed. The patient was forty-one years old; he observed a small ulcer on the left side of his tongue about four months before admission to hospital. At the time of operation the disease involved the left side of the tongue, as far back as the palato-glossal fold. The ulceration was indurated and sloughy. The submaxillary gland was enlarged to twice its normal size, but was not hard or tender. There was severe pain in the ulcer during the night and while eating. Preliminary laryngotomy was done, and the pharynx was stuffed with sponges having strings attached. By means of a triangular flap the facial artery and vein were tied and the submaxillary gland was removed, then the lin-

gual artery and vein were tied, and the sub-lingual gland and the left half of the tongue were removed with scissors, as far back as the hyoid bone. The right half of the tongue was removed in the same way, as well as the mucous membrane of the pharynx, beyond the posterior pillar and down to the level of the hyoid bone, including that covering the inferior and posterior part of the pterygoid muscle. A hard enlarged gland was removed from the carotid sheath. Hemorrhage was slight, all the large vessels being tied before their division, the forci-pressure forceps being freely used, and several bleeding points being touched with the thermo-cautery. The wound was left open, covered with iodoform gauze, absorbent cotton, and rubber tissue. The pharynx and mouth were stuffed with gauze, saturated with Thiersch's solution of boracic acid one part, salicylic acid six parts, water five hundred parts. During the first twenty-four hours two enemata of beef-peptonoids were given; after that the stomach-tube, with a funnel attached, was passed twice a day for the introduction into the stomach of milk, and later beef-tea, soup, and milk-punch. After the sixth day the gauze in the mouth was discontinued, and the iodoform gauze was renewed once or twice daily, the granulations being sponged with boro-salicylic acid. There was no constitutional disturbance; on the fourth day the patient sat up, on the seventeenth day he took food without the tube. In seven weeks the wound was entirely closed.

New method of amputating the tongue. G. Fiorani. —(*Ann. univ. di med. d' Omodei*, vol. 259, p. 386); *Rev. de chir.*, Paris, Jan., 1883.

Encouraged by his success in a case of ablation of a portion of the tongue by means of the elastic ligature, Fiorani resorted to a similar method in removing the entire organ. The patient was placed sitting in a chair, with his head supported against the chest of an assistant. A vertical median incision, involving only the skin and cellular tissue, was made in the suprahyoid region, one centimetre and a half in length. A trocar, eleven centimetres long and one and a half millimetres in diameter, was then passed through the

wound into the pharynx at the side of the base of the tongue, the finger of the operator pressed into the lateral furrow beside the tongue serving as a guide. Through the canula of the trocar a wire loop was passed, by means of which a loop of thread was drawn from the mouth through the wound in the neck. By a similar manœuvre the ends of this thread were drawn through on the opposite side of the base of the tongue. An elastic ligature, eighty centimetres long and four millimetres in thickness, was then passed through the thread-loop, its middle resting in the loop. By traction on the ends of the thread-loop the elastic ligature doubled was drawn through the wound in the neck over the base of the tongue. One portion of the double elastic ligature was then drawn forward and slipped over the tip of the tongue into the floor of the mouth. Finally the ends of the ligature were pulled tight and tied. The pain is said to have been severe for only fifteen or twenty minutes. Inflammatory reaction was modified by the use of ice externally and in the mouth. A gangrenous odor was perceptible about the third day, and was combatted especially by the use of iodoform. About the tenth day the tongue became detached. The author believes that the mortality after amputation of the tongue may be greatly reduced by this method of operating. An historical review of the surgery of the tongue with relation to cancer concludes the article.

The surgical affections of the tongue. Thomas Bryant.—*Guy's Hosp. Rep.*, vol. xli., 1883, p. 101.

This paper is accompanied by plates and by reports of cases illustrating the various diseases considered. Under congenital affections, **hypertrophy** or macro-glossia is described as an affection of slow growth, usually bilateral, but sometimes limited to one half of the tongue. It may lead to deformity of the teeth and jaws, and is usually painless; it is not rarely seen in idiots and in children with ill-formed crania. A case occurred at Guy's in a boy six years of age, the right half of the tongue being affected. It yielded to mercurials, but two relapses occurred at intervals of three years each, which were similarly treated with success. The papillæ were much enlarged and the submaxillary

glands were swollen during the relapses. According to Arnott, this disease may be due: (1) to muscular hypertrophy; (2) to a nævoid condition; (3) to thickening and induration from a prolonged sub-inflammatory state; (4) to enlargement of the lymphatics. The treatment should be first mercurial, and if that fails, surgical, by excision of a wedge of the tongue or removal of the redundant portion by the knife or écraseur. In acquired hypertrophy the iodides are useful. A case of twelve years' standing, and inflammatory in character, occurring in a gentleman twenty years of age, was cured by iodism. Two cases of **nævi** are given: one in a child, where the nævus was spontaneously cured by a process ef degeneration continued through a period of several years. The second case was one of congenital nævus in a young woman of twenty years. The tumor was about the size and color of a black cherry. It was removed by transfixion of its base with a double ligature. This method of treatment is thought to be the best in cases requiring operation. In the former case a curious complication was observed, probably a result of lymphatic obstruction. A painless swelling appeared in the right submaxillary region at a period when the nævus was far advanced in degeneration. It extended toward the angle of the jaw and down into the neck. It was thought to be a cyst, but on incising it no sign of a cyst-wall could be found; it was merely a collection of thin albuminous fluid in the deep connective tissue. Irrigation with iodine water and the insertion of a drainage-tube produced a cure. Several cases are referred to under **congenital tumors** of the tongue other than nævi. They are rare, and occur in the form of warty growths which may be cut off or destroyed by caustics, or as gummata in subjects of hereditary syphilis. A case of pedunculated fibro-cellular growth is also noted, and one of hypertrophied racemose glandular structures at the base of the tongue, recorded by Hickman, which caused death by suffocation sixteen hours after birth. Six cases of **inflammation** and **suppuration** of the tongue are detailed. In general and deep-seated inflammation life may be endangered by suffocation. Excluding cases of salivation, this is

a rare occurrence. Local inflammation, acute or chronic, is more common and more amenable to treatment. It may follow an injury, or may occur in a low condition of the system. Frequently no cause can be discovered. Release of pus by incision and acupuncture in the absence of suppuration, saline purgatives, and tonics seem to give the best results. Troublesome hemorrhage may follow the use of the knife. Two cases of **hydatid cyst** giving rise to suppuration are referred to. A chronic, painless, globular tumor of the tongue, suddenly increasing, should suggest the possibility of hydatid cyst. Simple puncture of the cyst and escape of the hydatid is all that is required. **Chronic superficial glossitis** is, in many cases, due to irritating causes, such as alcohol and hot tobacco-smoke from pipe or cigar. The tongue may be swollen and at points ulcerated. The epithelium is lost or thinned and the papillæ are obliterated by distention. The corium and submucous tissues are thickened. Complete recovery may ensue, or the patches may persist and become the seat of cancer.

Ulcers of the tongue may be superficial or deep. The former include aphthous and dyspeptic ulcers; those associated with chronic glossitis; ulcers caused by imperfect teeth, and some due to syphilis. Deep ulcers are always either syphilitic, cancerous, or tuberculous. The aphthous ulcer is met with in children, and in adults as a result of gastric or intestinal irritation. The simple or dyspeptic ulcer may be a sequel of the former, but is commonly a result of chronic glossitis. In treatment the diet should be carefully regulated. Milk food with alkalies, animal broths, and diluted wines, where stimulants are required, are beneficial. Meat should be used sparingly, and beer and spirits should be prohibited. Locally boracic acid and chlorate of potash are of service. Of tonics, the barks or the mineral acids may be indicated. Ulcers from local irritation are very common, and may be very obstinate, unless their cause is recognized and removed, and they may doubtless assume a malignant character. Syphilitic disease of the tongue may appear congenitally as a mucous patch associated with other constitutional symptoms, as a deep

fissure (Barlow, *Trans. Path. Soc.*, Lond., vol. xxxi.), or as a superficial ulceration. In acquired syphilis the tongue may be affected with mucous patches, or with an extensive gummous infiltration, the breaking down of which leads to superficial sores, or to fissures, or to deep irregular ulcers which result in indurated and irregular cicatrices. The gummous material may be deposited in the form of single or multiple globular tumors, which usually appear many years after the primary inoculation. If left to themselves these tumors enlarge, soften, open by ulceration or sloughing, discharge their contents, and present a ragged cavity or fissure, which heals by granulation, leaving an irregular yellowish-white cicatrix with marked and characteristic deformity of the tongue. Under treatment the mass may soften and be re-absorbed. The process is likely to be attended by wasting of the substance of the tongue, and loss of the papillæ at the seat of the infiltration. Relapses are prone to occur, and not infrequently cancer develops in a syphilitic tongue. Mucous patches are commonly multiple, and usually occupy the upper surface and edges of the organ. They appear either as moist papules with whitish tops; as red circular or irregular excoriations; or as raised granulating surfaces. They occur early or late in syphilis and are apt to reappear. The treatment of a syphilitic tongue should, of course, be constitutional. The routine practice of applying nitrate of silver cannot be too strongly condemned. Cancer of the tongue is always epithelial, begins as a blister, crack, ulcer, wart, or superficial tumor, on the tip or side of the tongue, and is usually single. This situation of the disease is met with in five out of every hundred cases of cancer in general; it is more common in the male sex and after the age of forty-five. The lesion is at first localized but tends to spread, and sooner or later involves the lymphatic glands. The ulcerated surface is sloughy and ragged, and has raised, infiltrated, and everted edges. A definite cause may sometimes be discovered, as local irritation, antecedent syphilis, or ichthyosis; or the affection may originate in scars from previous injury. In order to ensure permanent cure early removal of the entire disease with infected glands is essential.

The means employed are various. The author prefers the galvanic écraseur. Statistics of operations at Guy's are cited to prove that this is no more fatal than the operation with ordinary wire or chain. Excision by means of scissors or the knife is valuable. The objection urged to the galvanic écraseur that it produces a slough from which there is danger of septic poisoning and especially of lung complication, seems to the author not to hold, because it is well known that pulmonary disease is a common occurrence in the course of cancer of the tongue, where no operation has been done; moreover, the cancerous ulceration is already sloughing, and presents conditions for septic absorption which cannot be increased by the operation. The burned surface may be rendered aseptic by means of iodoform, or, as suggested by Morris, by repeated applications of colloid styptic. Syme's operation by division of the lower jaw, has never been found necessary. Most tongues can be removed through the mouth by drawing the organ well forward with a thick ligature. There is no advantage in splitting the tongue. More room may be gained by incising the cheek from the angle of the mouth. Bleeding need excite no alarm; it can be controlled by torsion, or merely drawing the tongue forcibly forward sometimes causes the artery to retract into the muscular tissue, when the hemorrhage will cease. Demarquay's method of ligating the linguals seems to the author unnecessary, although it may be good practice *after* the operation for the purpose of controlling severe hemorrhage. Ligation of the arteries with a view of inducing wasting of the organ, where the disease cannot be removed, and division of the gustatory nerve on the inner side of the lower wisdom-teeth for the relief of pain, are recommended. Removal of the tongue is considered justifiable even when the disease is no longer local, since life is certainly prolonged, and in the event of recurrence the affection is apt to develop in the lymphatic glands of the neck, where it gives comparatively less annoyance. Tubercular ulceration of the tongue begins as a papule and occurs in feeble subjects. The base and edges may be infiltrated, but they are not indurated like those of cancer, and the edges are not everted.

The secretion from the ulcer is often cheesy. The histories of several cases illustrating this form of ulcer and the microscopic appearances of the lesion are given.

Ichthyosis of the tongue, first described by Hulke (*Trans. Clin. Soc.*, 1868), is often called psoriasis. It occurs in three varieties, which may be called, as suggested by Morris, the **papillomatous,** the least common form, in which the papillæ are much hypertrophied, and may be covered with a horny epithelium; the **smooth tesselated,** in which the papillæ are absent and the surface of the tongue is smooth, bluish-white, and delicately furrowed; the **raised plaque,** in which the tongue presents a whitish or yellow raised patch made up of epithelial elements, when wet having a yellow wash-leather aspect and a harsh feel, and when dry a brown appearance and a horny touch. The lesion is met with in middle life, more commonly in men, and may involve the buccal mucous membrane as well as the tongue. It is often associated with cancer, and may lead up to it; its assumed syphilitic origin may be confidently denied. It is more frequently seen in the intemperate; the use of tobacco does not seem to predispose to it. The treatment is usually excision, since the disease is seldom seen in its early stage, when it might be benefited by arsenic internally, lotions of boracic acid or chlorate of potash, milk diet, and abstinence from wines, spirits, and smoking. The paper concludes with notes of several cases of cysts of the tongue, tumors of doubtful nature, and of one case of aneurism by anastomosis.

TRACHEOTOMY.

Some notes on tracheotomy. W. E. Steavenson.—*St. Barth. Hosp. Rep.*, 1882, 309.

Particular attention is drawn in this paper to the disturbance excited by withdrawal of the tube after tracheotomy. Seven cases are related in illustration of this point. There was more or less dyspnœa from muscular spasm in every case, although more pronounced in younger children. Its severity seemed quite independent of the interval since the operation. It was apparent that the condition resulted

from "mental agitation caused by dread of suffocation," and not from tracheal obstruction. **(Thos. Smith.** *Trans. Roy. M.-Chir. Soc.*, vol. xlviii., 1865, 227. **On the obstacles to the re-establishment of natural respiration after the performance of tracheotomy. Cases with remarks.)** By the exercise of the greatest patience, the child being reassured, the tube was in five cases removed for a little while at a time, and finally altogether dispensed with. In one case death occurred at evening, the tube being in place and no cause of death being apparent. On post-mortem examination there were found œdema and thickening of the mucous membrane of the glottis, and inflammation extending to the larger bronchi. The lower aperture of the larynx was somewhat constricted, and on the anterior wall of the trachea, one inch below the tracheotomy wound, was a well-marked scar with some contraction. The paper includes a tabulated list of fifty-seven tracheotomies performed by Steavenson and others for diphtheria, croup, laryngitis, and various causes, with forty-three deaths and fourteen recoveries. Of the forty-four diphtheritic cases thirty-six were fatal. Post-mortem examinations were made in forty-one cases. Anterior mediastinal emphysema described by Champneys (*Trans. Roy. M.-Chir. Soc.*, vol. lxiv., 1881, 87) was found in three, but it was particularly sought for in only nine examinations. Under the age of five it is advisable to operate above or through the thyroid body, on account of the presence of the thymus. Trousseau's dilator has been found a useful instrument in inserting the tube. A temperature of 70° is recommended after the operation, the bed-clothing being raised on supports around the patient, and moisture supplied from a steam-kettle with a long spout. A disinfectant may be added to the boiling water. Small pieces of flannel wrung out in boiling water and held over the mouth of the tube facilitate the expulsion of dry mucus. Small turkey's feathers are found useful for cleansing the tube, but care should be taken to see that they are unbroken. For dissolving the mucus and cleansing the tube a solution of soda (gr. x — ʒ i) acts very well. The tube should be removed as early as possible. In one case the œsophagus was

wounded during tracheotomy by inserting the knife too deeply. Unless this child was fed while he was lying on his back, fluid would trickle into his trachea and produce violent coughing. By adopting this course the wound soon healed, and the child recovered. Tracheotomy may be done at any age, however early. The prognosis is not good in diphtheria under two years, only two successful cases being found in the list.

The different methods of performing tracheotomy. L. Greffier.—*France méd.*, Paris, Feb. 24, 1883.

The chief interest of this paper is in connection with the description of tracheotomy by one stage, which is called the method of St. Germain. It is reserved for cases of emergency, where there is not time for the observance of all the details of the methods of Trousseau and Hodgen (*Ann. d. mal. de l' oreille et du larynx*, Sept., 1882). The larynx being firmly grasped between the thumb and middle finger of the left hand, while the index finger resting against the lower border of the thyroid cartilage acts as a guide for the incision, a sharp-pointed bistoury is plunged directly into the trachea. The nail of the left index finger is now placed in the wound, and a blunt bistoury being substituted for the sharp one, the incision is extended as far as desired. The trachea is dilated and the tube inserted, the whole operation occupying not much more than two minutes. The only difficulty in connection with the operation relates to the depth to which the bistoury may be thrust, without wounding the posterior wall of the trachea, or the œsophagus. Saint-Germain fixes the depth in very young children at one centimetre, and in older children at one centimetre and a quarter to one and a half. As suggested by Dubar, these distances may be indicated by grooves on the blade of the bistoury. The nail of the right index finger, placed in a groove, prevents the knife from penetrating too deep. Labbé has devised a bistoury similarly graduated and furnished with a collar, which may be fixed at a desired point. The larger size of the vessels in the adult prevents the ordinary employment of the rapid method, available with safety in the infant. Moreover, conditions requiring rapid trache-

otomy in the adult are rare. The method of Krishaber, inter-crico-thyroid laryngotomy, has been described by Launay (*Thèse de Paris*, 1882). In this process the soft parts are divided with the thermo-cautery. When the crico-thyroid membrane is reached a bistoury is used to make the opening, since there is no further danger of hemorrhage, and the wound made by the knife heals much more kindly than that left by the thermo-cautery.

Tracheotomy in cases of croup and diphtheria. H. Lindner.—*Deutsche Zeitschr. f. Chir.*, 1882, Bd. xvii., H. 6, 439.

One hundred and six cases are collected, in which tracheotomy was done by the author himself, or under his direction. In one case death occurred on the operating-table, and in another the operation was done merely to keep the patient alive until the arrival of the parents. Of one hundred and one cases, sixty-three died and thirty-eight recovered. In seventy-nine cases, where obstruction was the prominent symptom, forty-four were fatal; twenty-two, in which there was intense systemic infection, died. The author's tables seem to indicate decreasing fatality with increasing age. In the second year the mortality is 88.8 per cent.; in the third year the percentage of recoveries is fifty-five. No positive conclusion should be drawn from these figures.

Retraction of the scrobiculus cordis is considered the first indication for operative interference. Delay much beyond this stage increases the probability of a fatal result; and, on the other hand, if an operation is proposed at an earlier period and declined, the surgeon may see the patient recover, to the discredit of his judgment and of the operation. Unfortunately, the child is often brought to the surgeon too late. Superior tracheotomy was done in all cases but five: in one case the operation was done below the isthmus of the thyroid; in two cases the isthmus was divided, and considerable hemorrhage followed in these, as well as in one other case, in which a much swollen thyroid gland was lacerated. Lindner prefers the high operation in the case of infants and young subjects, in whom the thymus

is well developed. He has never seen profuse hemorrhage or other serious complication in superior tracheotomy. Except in cases of extreme asphyxia, chloroform is recommended. No disadvantage attends its use; on the contrary, under full anæsthesia, the cyanosis diminishes and the breathing becomes so quiet that the operation may be done with deliberation. In the after-treatment Lindner formerly used inhalations of lactic acid in two-per-cent. solution. Recently he has used only pure steam, believing that no inhalation can favor separation and discharge of the false membrane, but that the moisture merely prevents the accumulation of firm and dry secretion below the canula. Continuous and forcible application of hot steam, especially when lactic acid or any conducting agent has been added, is dangerous, and in this connection reference is made to Heidenhain's experiments with reference to the causes of pneumonia after tracheotomy. Dry air of high or low temperature was found to be harmless; on the other hand, moist air heated to 130°, or more, was observed to induce lobular pneumonia. Lindner has found aspiration of service in clearing the air-passages after tracheotomy, when the disease has extended to the bronchi and the patient is unable to eject the secretions. Eight out of nine cases, in which he resorted to it, resulted successfully, and several of the cases were severe. The observations of Dr. Jurasz led him to try apomorphia, with a view of exciting secretion from the bronchial mucous membrane. It has acted so well in some recent cases as to obviate the necessity of tracheotomy. The tube should be removed as soon as the air-passages are sufficiently free. Under good nursing, and surgical aid being accessible, this is practicable earlier than otherwise. The tube may be permanently removed when the patient breathes freely and can speak with a clear, strong voice while the tube is out. Next to systemic infection, pneumonia is the most frequent complication after tracheotomy in croup and diphtheria. A rise of temperature above 102° on the first or second day after the operation is an almost fatal sign. Post-diphtheritic paralysis impairing deglutition is considered a temporary sequence, and not re-

quiring special treatment. Ulceration of the mucous membrane from pressure of the tube may be avoided by using a canula large enough to fill the calibre of the trachea. The shield of the ordinary tube is thought to be too broad.—*Lond. Med. Rec.*, May 15, 1883.

Croup and tracheotomy: easy operation with the "mandrin trachéotome." Phelippeaux.—*Ann. de gynec.*, Paris, April, 1883.

Inferior tracheotomy, except in special cases, is nowadays rarely practised. It is a difficult operation by reason of the proximity of large vessels and the depth and mobility of the trachea. Superior tracheotomy is usually preferred, as being less dangerous and more rapid. The surgeon is often called upon to operate in haste, and many instruments have been devised to open the trachea and introduce the canula at the same time. Among them are the tracheotomes of Rizzoli, Woelker, Girault, and Jacolot.

Phelippeaux' instrument consists of a steel shaft, three to four millimetres thick, and having the length and curve of the ordinary tracheal canula, into which it passes. At either end this shaft is much thicker and accurately fits the canula, having three or four longitudinal grooves for the passage of air. Thus, the escape of air through these furrows indicates to the operator that the end of the instrument has entered the trachea. The distal end of the shaft projects beyond the end of the tube and is wedge-shaped, terminating in a cutting edge. The proximal ends of the shaft and of the canula are arranged for attachment to a plate, whereby the parts of the instruments are firmly fixed, and there can be no slipping of the cutting shaft within the canula. The inventor gives minute directions as to the method of using the instrument. His actual experience with it seems to have been very limited.

Tracheotomy as a preliminary to certain operations.—*N. Y. Med. Journ.*, March 24, 1883, p. 326.

At a meeting of the New York Surgical Society a paper was read on the above subject by Dr. Charles McBurney. The operations referred to in the title are, in general, those about the head, involving risk of the passage of blood or

diseased material into the lungs or stomach. The sitting position, with the head upright or hanging forward permits some of the blood to flow from the mouth, but some inevitably finds its way backward into the trachea and œsophagus. Moreover, in this position there is greater danger of syncope, it is difficult to keep the patient supported, the use of artificial respiration and the rapid performance of tracheotomy, if called for, are awkward. Rose's position of the head is inapplicable in operations involving the naso-pharyngeal region, on account of the accumulation of blood in that cavity. Not infrequently, too, spasm of the glottis is excited by the tension on the larynx and trachea. In both of these positions the process of anæsthetization must be stopped when the operation is begun, and the operation must be suspended at intervals in order to give more anæsthetic. To Trendelenburg is due the credit of having devised a complete apparatus for use in preliminary tracheotomy. The objections to it in practice are that the bag intended for inflation around the tube in the trachea may be over-distended, and in consequence rupture, or that it may obstruct the tracheal end of the canula. In some cases violent cough is excited by the lateral pressure of the bag upon the tracheal wall. Dr. F. Lange's instrument seems to overcome these objections better than any other. The objects of preliminary tracheotomy are: First, to prevent the passage of blood into the trachea; second, to facilitate the use of the anæsthetic; third, to obviate the necessity of opening the trachea during the operation; fourth, to permit a continuous, rapid, and complete operation; fifth, to secure to the patient after the operation a free supply of pure air. These advantages of preliminary tracheotomy may be secured without the use of the long and heavy tube of Trendelenburg, by substituting a pharyngeal for a tracheal tampon. Kocher recommends the use of an ordinary tracheal canula and packing the pharynx with a large sponge, to which a string is attached to facilitate its removal. To prevent the passage of fluid through the sponge and into the trachea, Dr. McBurney suggests covering the under surface of the sponge with thin rubber. The performance of pre-

liminary tracheotomy some weeks in advance of the main operation is advocated by Schüller. McBurney is not satisfied that any real advantage is gained, except in cases where impairment of health is resulting from dyspnœa. The tube should be left in after the operation not only so long as there is danger of occlusion of the glottis by inflammatory swelling, but throughout the suppurative stage, in order that the air-supply to the lungs may be uncontaminated. In the subsequent discussion considerable difference of opinion prevailed regarding the necessity and danger of preliminary tracheotomy. Dr. Sands had used Trendelenburg's canula once with satisfaction, although it excited some cough. He had noticed also that it failed at times to prevent blood from passing into the trachea. From his experience in numerous operations he was led to believe that the entrance of blood into the trachea might be prevented by having the patient's head inclined slightly forward, by operating quickly, and by avoiding profound anæsthesia, whereby sensibility of the larynx is abolished and, in consequence, efforts to expel the blood are not made. He did not consider that tracheotomy is likely to be followed by pneumonia. Dr. Weir, on the contrary, thought that there was considerable risk in tracheotomy, and he should not resort to it unless the subsequent operation was likely to be an excessively bloody one and the risks unavoidable by position, slight anæsthesia, etc. Dr. Briddon called attention to the value of Nussbaum's method of narcosis in these cases—the use of morphine hypodermically as an adjuvant to the anæsthetic. He was in the habit of using chloroform, of which but a very small quantity was required when morphine had previously been given. He preferred using the small tracheal tube and packing the fauces with sponge. Dr. Gerster stated that he had used Trendelenburg's canula in one instance, and that soon after beginning the operation the tracheal bag ruptured. At a subsequent meeting (*Med. News*, Phila., Feb. 24, 1883, p. 229) Dr. L. A. Stimson presented a substitute for the tracheotomy tube in operations such as had been considered, which had been devised by Dr. McBurney and himself. It consists of a tube six or seven inches in length, and of the

diameter of a No. 38 urethral sound, about an inch and a half of its extremity curved to almost a quarter of a circle, and provided with a flange one eighth of an inch in width, perforated with openings for the passage of threads. A sponge with impervious tissue on its under surface is fastened securely to the curved part of the tube. After production of anæsthesia the tube is passed into the mouth, so that its extremity reaches only to the pharynx. Dr. Stimson had recently used it with satisfaction in excision of the right and part of the left upper maxilla for carcinoma.

In the *Boston City Hosp. Rep.*, 1882, Dr. G. W. Gay reports twenty-one cases of tracheotomy: Eight were for croup or diphtheria, and were all fatal; four were for foreign body, two fatal; three for specific disease, relieved; one each for cut throat, cancer of the larynx, and œdema of the glottis from a burn—all resulting fatally; one for blood in the air-passages during an operation on the face, relieved; and two preparatory to removal of the upper jaw, successful. Out of twenty cases of tracheotomy for croup and diphtheria done in this hospital in fifteen years, only five recovered. The rule is to open the trachea for the relief of dyspnœa in diphtheria, even though no case with marked enlargement of cervical glands and with discharge from the nose has been known to recover. In the after-treatment steam is used less profusely than formerly. Ether is usually given.

THYROTOMY.

Notes on two cases of tumor of the larynx, in one of which the tumor was successfully removed by thyrotomy. D. N. Knox.—*Glasgow M. J.*, April, 1883.

In one of these cases there was a history of laryngeal catarrh of four years' duration. The patient was a man twenty-six years old. Owing to œdema of the parts surrounding the rima glottidis, the presence of laryngeal growth was not detected until about one week before death, when a papillomatous mass was seen projecting upward. After death, which was caused by exhaustion, the dyspnœa having been several months previous relieved by tracheotomy, the

larynx and upper part of the trachea were found filled with an epitheliomatous mass. The cricoid had been eroded posteriorly, and an opening had formed into the œsophagus. In the other case, a man of forty-one, there was a history of laryngeal catarrh for thirteen years. A papilloma was discovered and partially removed with forceps. About a year later the symptoms became urgent, and the tumor being apparently sessile and difficult of removal by endo-laryngeal operation, thyrotomy was resorted to. Preliminary tracheotomy was done, and a tampon canula similar to Trendelenburg's was introduced. With a view to obviating impairment of vocal function, so frequent a result of thyrotomy, the thyroid cartilage was not completely divided. The upper third was left, so that at the conclusion of the operation the parts resumed their natural relations, and no necessity was found for deep sutures. The limitation of space involved in this method of operating was in a measure compensated for by section of the cricoid, the incision being made from below upward, and by the use of a laryngeal mirror at the lower part of the wound, which brought the tumor—the size of a horse-bean—fully into view. It was attached to the left vocal cord and to the commissure, and was removed with small curved scissors. The progress of the case was satisfactory, and within four weeks the use of the voice was almost completely restored. The hemorrhage during the operation was not very free, yet is believed to have been sufficient to have caused serious inconvenience but for the tracheal tampon. The author is decidedly in favor of preliminary tracheotomy, and prefers this method of operating to ordinary thyrotomy and to the relatively blind method of removal of these growths with endo-laryngeal forceps.

On thyrotomy for removal of foreign bodies, etc. Timothy Holmes.—*Med.-Chir. Trans.*, 1882, p. 177.

The paper begins with the report of a case in which a bone became impacted in the ventricle of the larynx. There was considerable dyspnœa at first, but it soon passed away. Attempts to remove the foreign body failed, though it could be seen and could be felt with the forceps. Five days after

the accident tracheotomy was done, and three days later, the bone being still immovable, thyrotomy was performed. Semon's modification of Trendelenburg's canula was used, and seemed to entirely prevent the passage of blood into the trachea. There was very little hemorrhage. The tampon-canula was removed the day after the operation. There was a good deal of irritation of the upper air-passages, but trouble in the lung was not discovered until six weeks later, when signs of consolidation in the right lung and congestion of the left were found. Death occurred nine weeks after the operation. Examination of the larynx showed perfect repair of the thyrotomy wound, except at a single point. The vocal cords were exactly on the same level, as though they had never been disturbed. One cord was slightly ulcerated. The piece of bone, which was easily removed through the wound was three fourths of an inch square, bent at a right angle, and had a sharp spine projecting from one corner. The author reviews several similar cases and formulates the following conclusions: 1. Very large substances may be impacted either in the ventricle of the larynx, or between the two alæ of the thyroid cartilage, without causing any symptoms of immediate urgency. 2. When such foreign bodies are rough or pointed, they sometimes give rise to a spreading inflammation of the mucous membrane, and in such cases should be removed as soon as possible. 3. If they can be seen and touched they can usually be removed, either whole or piecemeal, with the laryngeal forceps. 4. When this is found impossible without tracheotomy, an opening should be made through the crico-thyroid membrane and upper rings of the trachea. 5. After this operation it is quite possible that the spasmodic condition of the parts about the glottis may subside and a renewed attempt at extraction be successful. 6. If this is impossible, the foreign body may be either extracted or displaced from the trachea wound, so that a preliminary tracheotomy is always advisable. 7. On the failure of such attempts the thyroid cartilage is to be laid open in the middle line partially, from below upward, if the body is small and can be felt lying near the wound, entirely and better from above down-

ward, if the body is large, firmly impacted, and lying altogether out of reach from the tracheotomy wound. 8. The operation of thyrotomy involves little danger to life, and not much to the integrity of the voice; at least, the risk of damage to the vocal cords is much greater from the protracted irritation of the foreign body than from the sequelæ of the operation.

LARYNGECTOMY.

On extirpation of the larynx. Prof. Burow.—*Archives of Larnygol.*, N. Y. April, 1883.

Fifty-nine cases of extirpation of the larynx have been collected, in the majority of them the operation having been done for carcinoma. The operation is strongly opposed by most surgeons, and Reyher, whose experience includes six extirpations of the larynx, has never had a favorable result. Patients who survived the operation and escaped pneumonia died of recurrent disease. Burow advocates expectant treatment, and the performance of tracheotomy, when the dyspnœa requires it. Tracheotomy is not dangerous; it gives rest to the larynx, as stated by Fauvel, and thus the progress of the disease is retarded; the patient is in a far more comfortable condition after tracheotomy than after extirpation, and, a fact of no little importance, consent to the latter operation can be obtained only by giving the patient full knowledge of the nature of his disease. Thyrotomy or *partial* excision of the larynx for malignant disease should not be considered. The author summarizes his views as follows: (1) Total extirpation of the larynx for carcinoma has, as regards danger to life, as well as in the matter of absolute cure, hitherto given discouraging results, the mortality being 40 % after the operation, and reaching 70 %, when deaths due to relapse are included. (2) Nevertheless the operation may be attempted, provided the patient is under sixty years of age and in good general health, and provided the disease does not extend beyond the larynx and involve glands, muscles, etc. (3) In other cases, where dyspnoea is present, tracheotomy should be performed. (4) The prog-

nosis in sarcoma is much more favorable. The operation may also be justified by marked impairment of the calibre of the larynx due to benign tumors. (5) Syphilitic disease, necrosis of the cartilages, and papilloma do not require total extirpation of the larynx. The paper concludes with a tabulated résumé of cases in which the operation has been performed, and with the history of a case in which extirpation was done by the author for carcinoma of the larynx. The patient was forty-five years of age, and had been suffering with some throat trouble for five years. Finally dyspnoea became so extreme that tracheotomy was required, and in the course of a few months thyrotomy was performed by Schönborn, who excised diseased tissues from the larynx. A few months later tracheotomy was again done for the relief of dyspnœa, and examination of the larynx showed it to be occupied by a diffuse tumor covered with normal mucous membrane. The calibre of the glottis was excessively reduced so that respiration was almost impossible, and deglutition was also much impaired. Externally a hard tumor, the size of a filbert, was seen situated over the anterior commissure of the thyroid. The disease was strictly limited to the laryngeal structures. Extirpation of the larynx was decided upon. Trendelenburg's tampon-canula was used, irritation of the trachea being avoided by postponing inflation until anæsthesia was complete. Two curved incisions meeting above and below the external tumor, and a third transverse cut across the thyro-hyoid membrane were made. Bleeding was checked as the operation progressed, and the tracheal tampon was effectual. The wound was washed, at the end of the operation, with iced water and a solution of aluminium acetate. The end of the trachea was drawn up and attached to the soft parts with two silkworm-gut sutures. An œsophageal tube of red rubber (Jacques') was introduced, and the wound was packed with cotton wet with the aluminium solution. For four weeks the patient was fed through the tube, which was retained *in situ* for the first few days, and afterward introduced as needed. An artificial larynx was used with satisfaction, and the progress of the case was in every way en-

couraging, when, about four months after the operation, the patient suddenly died. At the autopsy the lungs were found in a condition of acute œdema. The trachea contained fifty to sixty grammes of fresh, partly coagulated blood mixed with viscid mucus, which extended down into the larger bronchi. The source of the hemorrhage may have been a granulating surface, the size of a pea, surrounding the sutures which supported the trachea, and which had not yet cut their way through. The lungs were healthy, except for old tuberculous nodules at the apices. There had been no recurrence of the disease, and the track of the wound was smoothly cicatrized.

In the *Med. News*, Phila., July 7, 1883, 20, is an abstract of a paper by J. Solis Cohen on the question "Does excision of the larynx tend to the prolongation of life?" He gives tables showing the results of the operation for sarcoma and for carcinoma. Of sixty-five complete operations four were performed for non-malignant disease; one for cicatricial syphilitic stenosis, with death "some weeks after from pneumonia" (Watson); one for necrosis, death from marasmus in five days (Rubio); one for polypi of the larynx (Ruggi); and one for papilloma of the larynx (McLeod). Five operations were for sarcoma; one patient lived nearly seven months (Lange); one lived nearly fifteen months (Czerny); one nearly seventeen and a half months (Foulis); one was alive nearly two years after the operation (Caselli); and one was alive and well six and a half years after operation (Bottini). The list of deaths after laryngectomy for carcinoma includes forty cases. Seventeen of these deaths occurred within the first eight days, and five more within the second eight-day period. A very large proportion of deaths resulted from pneumonia. Although this accident has generally been attributed to ingress of aliment and septic materials into the air-passages, the author suggests that it may be due to disturbance and exposure of the pneumogastric nerve. It is often observed to follow surgical interference in the cervical region, even when the air-passage has not been opened. The danger from pneumonia generally seems to be over after the second week. At the

fourth month death from recurrence may be looked for. Nine cases were reported living at from seven to twenty-four months after the operation. In conclusion, excision of the larynx in hopeless cases of sarcoma seems to be worthy of serious consideration. For carcinoma the operation offers little hope. From a comparison of the results in the above cases with a number in his own experience in which he did tracheotomy, Cohen is satisfied that the simpler operation gives a much better chance of prolonging life. In tracheotomy there is little shock, very slight danger of pneumonia, and much less risk of septic infection. Life is not likely to be sacrificed in any instance, and existence is much more comfortable after tracheotomy than after laryngectomy.

THYROIDECTOMY.

Thirty-one extirpations of goitre. G. Julliard.—*Rev. de chir.*, Paris, Aug. 10, 1883.

The risks of this formidable operation have been much lessened by the introduction of antiseptic methods. The difficulties of the operation itself the author has found to be reduced by certain details which he is in the habit of observing. In the first place he dispenses, if possible, with an anæsthetic for two reasons: (1) It disturbs respiration by exciting bronchial secretion and cough, and (2) it is apt to cause vomiting, which, if occurring during the operation, retards the surgeon, and, if after the operation, irritates the wound. If an anæsthetic must be used, chloroform, combined with morphine hypodermically, is preferred; the anæsthesia is never complete, and ceases after the first incisions; in most of the author's operations the patient was fully conscious to the end. Local anæsthesia is objectionable, on the ground that a degree of insensibility sufficient to annul pain is likely to injure the tissues and prevent union by first intention. Two methods of operating are described: That by simple linear incision and that by multiple incisions (*méthode à lambeaux*), either crucial, or in the form of the letter H or of the letter V with its point directed downward, or of

the letter M. Rose makes the V-shaped incision, or a T with its horizontal branch at the level of the hyoid bone.

To get the full benefit of this method, the incisions must include all the parts down to the tumor. Repair of such a complicated wound is necessarily very protracted, and, moreover, muscular fibres which have been divided transversely retract and lead to considerable cicatricial deformity. The author therefore prefers the linear incision in the median line; it gives plenty of room, muscular fibres are drawn aside instead of divided, and repair of the wound is found to take place with rapidity and with little or no deformity. The incision is also favorable for drainage of the wound. The subdermoid tissues are divided layer by layer until the tumor is reached. The capsule is incised and enucleation of the mass is accomplished for the most part by means of the finger. Whenever unusually firm adhesion is met with, it is divided with blunt scissors, always between two ligatures. The latter precaution is essential as a preventive of the entrance of air into a vein, as well as of hemorrhage. To facilitate the application of double ligatures, the author has devised, as a substitute for Deschamp's needle, a pair of crossed forceps with curved ends, which when opened push apart the tissues, and thus enable the operator to place the ligatures at a safe distance from the point of section of the blood-vessels. Catgut is considered the best material for ligatures; such a large number being required—often as many as sixty or eighty—the least irritating substance is the best. Enucleation of the tumor from within the capsule is preferred to removal of the goitre with its capsule, except in cases of malignant disease. In some cases the capsule is not easily recognized, and the rule then is to keep close to the mass without wounding its parenchyma, from which dangerous hemorrhage might result. After removal of the tumor the walls of the cavity readily approximate above, whereas below there may remain a retro-sternal pouch, which is a source of danger for several reasons: (1) the floor of this pocket is formed by the cellular tissue of the mediastinum, a region especially prone to inflammation; (2) being at the most dependent part of the

wound, it receives the secretions from the entire surface; (3) it is found practically impossible to drain directly from the deeper part of this cavity. Therefore union throughout by first intention is aimed at by the careful use of antiseptic precautions, and especially by abstaining from too free irrigation of the cavity of the wound, which irritates the surface and excites oozing. Moreover, at the bottom of the wound lie delicate nervous structures, which are in danger of being injured by the process of washing out the cavity. A case in point is cited (RIEDEL: **Extirpation of goitre; injury of the recurrent nerve by washing out the wound with carbolic acid—death from pneumonia**—*Centrabl. f. Chir.*, No. 45, 1882). To obviate the necessity of such thorough cleansing of the wound the author uses the antiseptic spray throughout the operation, and soaks up the clots and discharges from the surface of the wound with carbolized sponges handled with the utmost caution and gentleness. In closing the wound one or more drainage-tubes of moderate calibre are carried from the upper to the lower part, no direct attempt being made to drain the pouch behind the sternum. The dressing is of the greatest importance, and should be antiseptic and compressive. To combine these ends the wound itself is first covered with a small piece of protective; the neck is completely enclosed anteriorly with several large sponges, antiseptically prepared, which are held in place by antiseptic gauze and muslin bandages; finally a rubber bandage covers the whole dressing. This sponge dressing has the advantage of providing elastic support, and of moulding itself nicely to the parts, thus preventing the access of air to the wound; it is, moreover, absorbent, and finally the author claims that it prevents the so-called "carbolic erythema" of the skin, which is in reality due not to the carbolic acid but to the resin in the antiseptic gauze. After the operation the patient is compelled to keep in an upright position in bed as long as possible, at least during the first forty-eight hours, for the purpose of favoring drainage of the wound. Rest of the larynx and of the wound should be secured by absolutely prohibiting the use of the voice. Swallowing

should be avoided; especially in cases where the larynx is temporarily paralyzed, the act should be carefully performed, and water only should be given. About the fourth or fifth day wine, milk, and bouillon are permissible. Solid food is reserved for the period when normal deglutition is restored. The dressing is usually changed on the second day, the drainage-tube is replaced by a smaller one, and some of the sutures are removed. On about the fifth day a second change is usually required. The permanent removal of the drainage-tube and of all the sutures of course depends upon the condition of the wound.

Of thirty-one operations related by Julliard only five resulted fatally. The cause of death was in one case undiscoverable, the patient dying suddenly as the first incisions were being made. The tumor was very large, and the dyspnœa was so extreme as to threaten death by suffocation. In the second case death was caused by an embolus, which appeared to have been derived from a thrombus of the internal jugular vein near the point of application of a ligature. The third death was caused by catarrhal pneumonia due to entrance of milk and of bouillon into the air-passages, the larynx being paralyzed and no special care having been taken to prevent such an accident. In the fourth case the goitre was of immense size, was extremely vascular, had numerous prolongations, and presented no well-defined capsule. The extirpation of such a tumor is declared to be utterly impossible. The patient died shortly after the completion of the operation. The fifth case was also one of excessively large goitre, and the operation was found to be very difficult. A part of the right recurrent laryngeal was firmly attached to the tumor and was removed with it; the left was also found to have been divided, after having been ligatured with a mass of blood-vessels. The pneumogastrics were intact, but were surrounded with extravasated blood. The patient bore the operation well and appeared to be in good condition, but absence of the radial pulse was noticed at the end of the operation, and in an hour and a half he began to complain of dyspnœa and cough with copious frothy expectoration. Three hours later he died cyanosed.

Of the remaining twenty-six cases all recovered, the wound healing by first intention, except at the site of the drainage-tube, and in certain cases in which there was accumulation in the retro-sternal pouch.

In reviewing the accidents resulting from the operation, aphonia is first referred to, in at least one case, evidently due to section of the recurrents. In other cases it seemed to be caused by mere exposure of the nerve, or by traction upon it, or even by rough cleansing of the wound. In two cases secondary alteration of the voice, gradually developing some time after the accident, was attributed to compression from cicatricial contraction, a theory which is sustained by the fact that the phenomenon was observed in cases where considerable suppuration took place, and hence more cicatricial deformity resulted. In one of the author's cases, secondary abscess developed in consequence of premature removal of the drainage-tube. Among the remote accidents are enumerated anæmia (BOREL: **Statistics of extirpations of goitre since 1877.**—*Corr.-Bl. f. schweizer Aertze*, July, 1882), and certain remarkable psychical disturbances (REVERDIN: *Rev. méd. de la Suisse rom.*, Oct., 1882), which are indicated by decided change of disposition and mental impairment. In some cases a sort of cretinism seems to develop. The anæmia is profound and is apt to be accompanied by œdema of the hands and face without albuminuria. In one case the swelling of the face and hands was not œdematous, but was a sort of elephantiasis. The author's experience leads him to conclude that partial extirpation should be done when practicable, since all his accidents have been with cases of complete extirpation. Unfortunately, however, it often happens that partial ablation fails to relieve the symptoms. The author is of the opinion that goitre should be looked upon as a dangerous disease, and one often demanding surgical intervention. On the other hand, many goitres reach an enormous size without causing any thing more than inconvenience. Iodine is regarded as a valuable remedial agent, and should, in every case, be tried before any operation is resorted to.

As to the operation itself, its results are as satisfactory as those of most capital operations. It is thought to be justifiable in all large and prominent tumors, not deeply seated, simply for the purpose of modifying deformity, since in these cases, no respiratory disturbance being present, partial extirpation is sufficient. In other cases, if iodine has failed to affect the size of the tumor or the symptoms arising from it; if respiration is disturbed; if attacks of dyspnœa occur, even moderate in degree and at long intervals; if the tumor is deeply seated and immobile, the patient is in more or less danger, and the goitre should be extirpated, partially if possible, completely if necessary. The operation should not be too long deferred, since its difficulties increase with the growth of the tumor. Six of Julliard's cases were cystic in character, and a comparison is drawn between the different methods of treating cystic goitre. The method of closing the cyst by exciting suppuration is apt to be very prolonged; there is risk of gangrene, of purulent infiltration, and of septic infection; moreover sinuses are likely to result, and relapses frequently occur. The treatment by injection of iodine into the cavity has certainly been successful, but it is open to many of the objections already referred to. The author divides goitrous cysts into three classes: hemorrhagic and multilocular; unilocular, with irregular cavities, numerous prolongations, thickened and rigid walls, and not containing pure serum; unilocular, with serous contents in a regularly spherical cavity, prominent, movable, and superficial. The last variety only is amenable to iodine injections, and to treatment by simple antiseptic incision; but the results are equally good with extirpation, and the latter method does not leave the patient in danger of relapse, and does not expose him to the risks attending violent inflammation and suppuration. Finally, extirpation requires but little more time than antiseptic incision, is scarcely more painful, and is no more dangerous, and the relapses and fistulæ, often seen after incision, never occur. Many of the thirty-one histories, which conclude the paper, are of unusual interest.

Excision of goitre.—*Bost. City Hosp. Rep.*, 1882, p. 130.

Five cases of bronchocele are given by Dr. Cheever, in four of which excision was practised. In two cases the tumor was single and of moderate size, and the operation was devoid of difficulty. In two of the remaining cases the tumors were also single, but were quite large and very vascular. An incision was made along the anterior border of the sterno-mastoid muscle, and a second transverse incision across the body of the tumor. Numerous vessels were ligated. The tumor having been enucleated, its base was perforated with double silk ligatures, which were tied on each side. The mass was cut off, and its stump was cauterized with the galvano-cautery. In one case the following peculiarity was met with: The apex of the lateral lobe of the thyroid had insinuated itself between the carotid artery and the internal jugular vein. The latter vessel had been lifted forward, and was found just under the anterior edge of the sterno-mastoid muscle. The carotid artery and the pneumogastric nerve lay entirely behind the tumor. The principal source of hemorrhage was the tumor itself, rather than the thyroid arteries. Attention is directed to the danger of including the recurrent laryngeal nerve in tying off the tumor. One case of double cystic bronchocele, too large to permit of operative interference, was treated by a double seton passed through the cysts, and resulted fatally from pyæmia.

Case of excision of large bronchocele, with preliminary tracheotomy. Bennett May.—*Brit. M. J.*, June 23, 1883.

The patient was a woman, forty-two years old, who had been the subject of goitre for twenty years. The tumor suddenly began to grow and produced dyspnœa. Parenchymatous injections of iodine and of ergotine, and internal treatment with hydrofluoric acid, iodine, ergotine, and iron did no good. Paroxysms of alarming dyspnœa, apparently due to direct pressure on the trachea, and also to implication of the laryngeal nerves, occurred especially at night. Tracheotomy was attempted, but the trachea could not be found, being evidently displaced by the growth. The middle of the mass was then incised, and greatly to the surprise of the operator, no bleeding occurred. The trachea was finally

discovered, deflected to the left, and at too great depth to permit of the use of the ordinary trachea tube. A large piece of rubber tubing was employed. The tumor was not encapsuled, but adhered to the tissues, from which it was dissected with great difficulty. There was little or no bleeding throughout. An occasional large vein was ligatured before division. After removal of the tumor a trachea tube was inserted, and the wound was thoroughly drained and dressed. In spite of every precaution, the patient died on the fourth day, apparently of suppurative bronchitis. The tumor was of mixed type: it was probably an adenoid tumor undergoing sarcomatous change. The author considers that the operation is frequently deferred too long. In the present instance the result might have been different had the operation been done earlier, before the dimensions of the tumor necessitated opening the trachea.

Extirpation of goitre.—*Deutsche med. Woch.*, 1883, April 11, 224, and April 18, 240; also article by Kocher in *Arch. f. klin. Chir.*, B. xxix., H. 2, 254.

Kocher considers preliminary tracheotomy unnecessary, and even harmful by increasing the risks of the operation. The great dangers are from hemorrhage, injury to important nerve structures, especially the recurrent laryngeal, and septic poisoning. All vessels are divided between two ligatures. Softening of the trachea from pressure has never been observed by the author. As a result of the loss of the thyroid gland, the red blood corpuscles become deficient, and other symptoms of anæmia develop. The character of the drinking-water seems to have nothing to do with the causation of goitre. Extirpation has been done 340 times since 1877, 103 times by Kocher himself. Of recent operations, done with antiseptic precautions, a large proportion was successful. The deaths in cases, where the operation was done for malignant disease, have been greatly in excess of those occurring after removal of benign tumors. The statistics show that total extirpation is not more fatal than partial operation.

Bardeleben states that he also has discarded preliminary trachetomy. He has had a rather limited experience, but

he has never seen cachectic symptoms follow total excision; on the contrary, the condition of the patients seemed to improve. He has met with one case of extreme softening of the trachea. Maas had found the trachea increased in length and narrowed, so that, although he is not in the habit of performing preliminary tracheotomy, he was obliged to resort to it in one instance, on account of threatening asphyxia. This surgeon is of the opinion that the operation is more necessary the older the patient. It would seem to have been done in some cases unnecessarily, since out of 522 cases he had seen only twenty-three which required operation.

Wölfler believes that the only indication for operation is disturbance of function, or dyspnœa. The operation is too dangerous to be undertaken merely for cosmetic effect, and indeed the resulting cicatrix, with the depression of the skin, is often more disfiguring than the original disease. The operation is not contra-indicated by pregnancy up to the sixth month; after that period, dyspnœa should be relieved by tracheotomy, and further surgical interference deferred. Adenoma is the most common variety of tumor, and it may undergo colloid degeneration. Papillary cystic adenoma more nearly approaches malignancy and requires complete extirpation. Hemorrhagic goitres are most dangerous. Sixty-eight cases, five ending fatally, were referred to. Forty-eight were between the ages of twelve and thirty, the remainder between thirty and sixty-five. Septic infection was the usual cause of death, but one patient died from the entrance of air into the inferior thyroid vein. Wölfler has had no experience with the cachexia referred to by Kocher. With regard to this cachexia Kocher states that he has seen it only in young subjects. (Beilage zum *Centralbl. f. Chir.*, No. 23, 1883.)

In a critical review of extirpation of thyroid in *Arch. gén. de méd.*, Aug. and Sept., 1883, E. Le Bec presents a number of cases.

Sudden death from goitre. J. Seitz.—*Arch. f. klin. Chir.*, Bd. xxix., H. 1, 146.

The above accident occurred in a young woman of twenty who had a bronchocele of moderate size, which was merely an-

noying from the deformity it occasioned. Slight alteration of the voice in coughing was noticed, and Seitz proposed to make a laryngoscopic examination before operating; but meanwhile the patient suddenly died. At the autopsy nothing abnormal was found, except enlargement of the left recurrent laryngeal nerve, and flattening at a point where it was compressed by the hypertrophied gland, which had extended to the vertebral column and between the trachea and œsophagus. It is questionable whether paralysis or irritation of the nerve was the cause of death. It is certain that spasm of the muscles which close the glottis may be a cause of death, and one attack of dyspnœa from such a cause is sufficient reason for surgical interference. Seitz maintains that paralysis of the muscles which open the glottis may also result fatally. Other possible causes of death mentioned are rupture of a cyst into the trachea or pharynx, sudden enlargement of the gland, apoplexy in the gland, compression of the trachea, either directly or from contraction of the overlying muscles. The author quotes a number of cases of sudden death from various causes.

(See article by A. Wölfler on the development and structure of the thyroid gland in the same number of this Journal.)

ŒSOPHAGOTOMY.

Two cases of successful internal œsophagotomy. Louis Elsberg.—*Arch. of Laryngol.*, N. Y., vol. iv., No. 1, p. 56.

In the first case, that of a man twenty-seven years old, the stricture of the œsophagus was due to severe scalding of the mouth and throat in childhood. Recovery unexpectedly followed, and the dysphagia present immediately after the accident gradually diminished, until by the exercise of care small morsels of solid food could be swallowed. About thirteen years ago the difficulty increased, but was relieved by bougies. About three months ago the stricture began to recontract, and resented every attempt at dilatation, until not even a drop of water could pass. Auscultation of the œsophagus gave negative results. The patient was very

averse to the use of a bougie, but finally permitted the introduction of a small metallic urethral sound. The fauces and pharynx were excessively deformed by cicatrices. The obstruction was found within half an inch of the beginning of the œsophagus. On the extreme left was an opening not more than a millimetre in diameter. An ethereal solution of iodoform was applied, and nutrient enemata were ordered, the patient being prohibited from attempting to swallow. This plan was pursued for several days. Incision of the stricture was then resorted to; a somewhat flexible urethrotome was introduced, and eight or nine cuts, nearly an inch in length but rather superficial, were made from above downward and all toward the right. There was no pain, and bleeding was slight. The patient urged the beginning of dilatation at once. Accordingly hard-rubber olives, measuring four and five millimetres, were passed down to the stomach. There were then some bleeding and pain, which lasted twelve hours. The next day the olives were used again up to nine millimetres. The latter gave great pain, and three days later could not be passed, so that five more incisions were made in the stricture. From that time dilatation made steady progress. Cure was complete in the course of a month, and has remained permanent. The second case was one of combined organic and spasmodic stricture in a woman. The former was located three inches below the level of the cricoid, more than an inch in length, and admitted an olive six millimetres thick. In this case two incisions were made from below upward. There were some pain and bleeding, which ceased on sucking ice. Dilatation was not very well borne, but a cure was accomplished in about six weeks.

Œsophagotomy. C. Gussenbauer.—*Ztschr. f. Heilk.*, Prag., March 20, 1883, 33.

Two cases are related in which the author performed internal combined with external œsophagotomy. The first case was one of double stricture, one in the cervical and the other in the thoracic region, caused by sulphuric acid taken with suicidal intent. The upper stricture was cut externally by an incision in the neck at the level of the cricoid cartilage. The lower stricture was cut internally in several

directions, a fine filiform bougie having first been passed. The patient rapidly recovered, and became able to take solid food. Recontraction took place owing to neglect of bougies, and the operation had to be repeated, the second time a good result being obtained.

The second case was that of a child to whom by mistake a teaspoonful of a fifty-per-cent. solution of carbolic acid had been given. The situation of the stricture was very low, and even the finest filiform bougie could not be passed through it from the mouth. Accordingly the œsophagus was opened at a low point, and after repeated trials a small bougie was passed through the stricture. The internal operation was then done, as in the previous case, and the result was equally satisfactory. From this experience the author concludes that so-called impermeable strictures of the œsophagus do not invariably require gastrostomy. In every case the comparatively milder operation of external and internal œsophagotomy should first be given a trial. Strictures in the thoracic region, and even at the cardia, as in the last case, may be cured.

In the *Boston City Hosp. Rep.*, 1882, 285, Dr. G. W. Gay reports a case of œsophagotomy for the removal of a fish bone which had been impacted in the œsophagus for forty-eight hours. For four days the patient was sustained by stimulating enemata. Fluid food was then permitted, but none came through the wound, although there was still some suppuration, and ten days after the operation the wound was entirely healed. There was no difficulty in the operation; the foreign body could be felt protruding from the œsophagus at the bottom of the incision in the neck, and it was withdrawn by means of forceps, being made to cut its own way through the wall of the œsophagus. The external wound was closed with sutures, and healed in part by first intention.

Gastrostomy, œsophagostomy, and internal œsophagotomy in the treatment of stricture of the œsophagus. Morell Mackenzie.—*Am. J. Med. Sci.*, April, 1883, p. 420.

This paper contains the history and a description of each of these operations, with a comparison of their advantages

and disadvantages. Gastrostomy was first proposed and fully described in 1837 by Egeberg, a Norwegian surgeon, but was actually performed for the first time by Sédillot in 1849. The operation should always be done under strict antiseptic precautions and in three stages. The situation of the stomach should first be clearly defined, and assistance may be gained in this particular by inflating the organ with air, by pumping in ether, or by generating gas within the stomach itself by giving an acid and shortly afterward an alkali. The first stage of the operation is to open the abdominal wall; the second, to transfix the stomach and secure it to the abdominal wound; the third, to open the stomach, after an interval of several days. The incision recommended is one from two to three inches in length about a finger's breadth from and parallel with the left costal margin, the middle of the incision being about three quarters of an inch within the rectus. The fibres of the rectus muscle are then divided vertically for about an inch, as advised by Howse, so that the muscular fibres will act as a sphincter around the gastric wound. The peritoneum is opened on a director on a line with the cut in the rectus, hemorrhage having been controlled by torsion or ligature. The omentum or the colon may present at the wound. The former cannot well be mistaken for the stomach, and the latter may be recognized by its longitudinal bands, the *appendices epiploicæ*, and the thinness of its walls. The stomach is then to be stitched to the abdominal wall by one set of silver wire sutures, as practised by Verneuil; or by a double set, as used by Howse, one of carbolized silk passing through the serous and muscular coats of the stomach and through the skin three fourths of an inch from the wound, the inner set of fine wire or carbolized silk, uniting the serous coat to the skin close to the edge of the incision. The object of the double circle of sutures is to provide greater area for adhesion. While this process is being carried out the stomach is supported by two long needles, which transfix the viscus, and whose ends extend considerably beyond and rest upon the edges of the abdominal wound. The third step of the operation is deferred by Mr. Howse to the fifth or sixth day, and

by others to the end of a week or even a fortnight. Owing to the congested state of the gastric wall, considerable hemorrhage may occur as the stomach is punctured, which may be avoided by using the thermo-cautery point. An India-rubber tube may be retained in the wound by means of a silver wire suture, or the opening may be first made only large enough to admit a No. 6 catheter, and be gradually dilated to No. 32. A pad of lint steeped in carbolized oil (1–60), and above it a pad of boracic lint should be kept over the wound with a body bandage. Nourishment should be given frequently and in small quantity. Trendelenburg advises that the patient should first masticate the food and then blow it to the gastric fistula through an elastic tube, thus combining the pleasure of eating with the advantage of the salivary function to digestion. Mackenzie has found records of eighty-one gastrostomies: sixty-seven for cancer, twelve for cicatricial stenosis, and two for syphilitic stricture of the œsophagus. The mortality is very high, but the advantages of the operation are the ease of its performance; the freedom from immediate risk; the certainty (except in very rare cases of disease of the stomach itself previously overlooked) of establishing a fistula distant from the seat of stricture; and finally, the fact that the fistula is hidden from sight.

Œsophagostomy appears to have been first suggested by Stoffel in 1700. The first recorded instance of its performance is one alluded to by Tarenget in 1786, the name of the operator being unknown. In performing the operation the surgeon, standing behind the patient's head, makes an incision on the left side from the sterno-clavicular articulation to the level of the hyoid bone. The anterior edge of the sterno-mastoid being exposed, the patient's head is slightly raised so as to relax the tissues of the neck. The sterno-mastoid being retracted, the omo-hyoid is exposed and should be divided near its hyoid insertion. The carotid sheath is held to one side with the sterno-mastoid, and the trachea is drawn to the right. The left lobe of the thyroid body is raised and pushed inward. The trachea and œsophagus are now fully exposed, or, if the latter tube cannot be identi-

fied, the dissection should be continued to the prevertebral muscles, when a sound should be passed to or into the stricture to serve as a guide. The gullet is opened by a vertical incision two and a half to five centimetres long, and it is gently drawn to the surface of the wound by sutures passed through either edge of the wound. A curved tube, measuring about three inches below and one above the bend, is fixed in the wound with tapes. The food should be liquid and may be injected with a syringe, or poured in through a funnel. The alleged advantages of œsophagostomy are the comparative freedom from shock, a claim not supported by statistics ; and the facility it gives for dilating the stricture, although no case on record shows that an œsophageal stricture has been successfully dilated through an opening in the neck. The disadvantages are its difficulty, owing to the depth of the gullet, to the fact that it is often firmly bound down by disease, and to the extreme toughness of its walls in some cases of cicatricial stenosis ; the great danger of an operation in close proximity to many important structures ; the uncertainty of making the opening below the stricture, the extent of which cannot always be accurately determined ; and, finally, the disfigurement of a fistula in the neck.

Internal œsophagotomy has much to recommend it, but unfortunately it is seldom applicable, owing to the extent and character of strictures of the œsophagus. Maisonneuve was the first surgeon to resort to it. He operated four times, once successfully. Since then the operation has been done thirteen times. The incision should always be made from below upward. The division can be safely made only on the posterior wall of the œsophagus and in its upper three fourths. Various instruments have been devised by Dolbeau, Trélat, and Mackenzie. The latter consists essentially of a gum-elastic bougie having a concealed blade in its terminal metal cap or bulb, which is controlled by a wire running through the bougie to a metallic button at the other end. Pressure on the button causes the knife to protrude. A week after the operation the process of dilatation should be begun. The advantages of internal œsophagotomy are

the very slight amount of shock; after thorough division, gradual dilatation can be carried out and a cure effected; no external wound. Its disadvantages are that it cannot be used in the case of impassable strictures; it is often impossible to get beyond all points of obstruction (sometimes the strictures extend far down, and again the obstructing ridges are vertical, and hence cannot be divided); the walls of the œsophagus may be so thickened that limited incision does no good; the dangers are considerable, the walls of the œsophagus are thin, vital organs are in close relation, and the gullet may be adherent to surrounding parts. In one case there was fatal and in another very alarming hemorrhage. Mackenzie gives the particulars of two cases of stricture of the œsophagus, in one of which he made the internal cut, and concludes his paper with the opinion that the operations are of relative value in the order in which they have been reviewed. He expects better results from gastrostomy with more extended experience and as the operation comes to be regarded as less of a last resort. Œsophagostomy is likely to find more favor "with the adventurous surgeon than with the careful practitioner." In syphilitic strictures, which are apt to be limited, it offers better prospects. The ultimate effects of internal œsophagotomy will probably be found to be less beneficial than those of gastrostomy or of œsophagostomy.

III.

SURGERY OF THE CHEST AND ABDOMEN.

Empyema in children treated by removal of a portion of rib. W. Arbuthnot Lane.—*Guy's Hosp. Rep.*, vol. xli., 1883, p. 45.

In chronic empyema excision of portions of one or more ribs is practised, the cure which results being attributed by some to the perfect drainage, by others to the falling in of the ribs, which obliterates the cavity. Mr. Lane is disposed to believe that the latter may be an element in the cure, but that the expansion of the lung and the elevation of the diaphragm are more important factors. In view of the frequent failure of intercostal drainage it is proposed to adopt removal of the rib as an *early* operation. Especially in children the simpler method is less effective on account of the narrowness of the intercostal spaces. A soft tube is compressed, and a hard one causes pain and may induce necrosis of the ribs, an annoying complication. The most favorable point for operation seems to be at the ninth rib in the axillary line, or, in general, at the rib above the lowest space where pus is obtained by exploratory puncture. An incision is made along the rib to be excised, care being taken to avoid displacing the skin by raising the arm. Otherwise the openings in the skin and through the rib will not coincide, and the drainage-tube cannot be retained perpendicular to the surface. Three quarters of an inch in length of the rib is then removed with cutting forceps, the periosteum having first been stripped up. The cavity is then opened and thor-

oughly washed out, a single irrigation frequently being sufficient. A short India-rubber drainage-tube is held in the opening, with wire sutures passed through the intercostal tissues, and with safety-pins attached to pieces of elastic which surround the chest. A thick gauze dressing is held in place with an elastic bandage, which keeps up equable pressure and prevents the air from getting under the dressing during movements of the body, in coughing, etc. The drainage-tube should be merely long enough to make its inner end flush with the outer wall of the cavity. If the opening is found to have been made not at the most dependent part of the abscess, a second should be made in a more favorable situation. Interference with the opening from reproduction of bone, so often a source of trouble in resection of the rib, occurred in but one case. Five cases are narrated in which this operation was performed. In three the results were very satisfactory. Perfect expansion of the lung resulted, and the symmetry of the chest-wall was restored. In one case death resulted on the eighth day from bronchitis, and in one on the twenty-second day from suppurative pericarditis. The children were all under six years of age.

Powell on pleuritic effusion.—*Lond. Med. Rec.*, May 15, 1883.

In a review of Douglas Powell's articles in the *Med. Times and Gaz.* (vol. ii, 1882, 489, 601, 686), Robert Saundby refers to Powell's statement, that resection of ribs in acute empyema has several times been done by Thomas of Birmingham, as being a "misconception." It appears that the operation was resorted to by Thomas in order to permit contraction of the cavity in certain *chronic* cases. Saundby asserts that the procedure in acute empyema is quite irrational, unless some cause, such as deformity of the thorax, prevents entering the cavity through an interspace. Among the prominent signs of effusion Powell enumerates (1) absolute dulness on percussion; (2) displacement of the heart, an important early sign; (3) absence of vocal fremitus. In pleuritic effusion puncture at the sixth interspace in the mid-axillary line is recommended,

provided fever be absent, if the family history be unfavorable, if the fluid reaches as high as about the second rib, or if the fluid be purulent. In the last-mentioned condition, however, an opening at the seventh or eighth interspace in the posterior axillary line is preferred, the fluid being siphoned off rather than aspirated. If the fluid is found to be not perfectly sweet a free incision under antiseptic precautions may be made, and the cavity irrigated with various antiseptics.

Surgery of the lungs. W. Koch.—*Deutsche med. Wchnschr.*, Aug. 5, 1882.

In two cases of phthisis a portion of rib was exsected, the phthisical cavity was exposed, emptied, and, after having been washed out antiseptically, its walls were cauterized with the galvano-cautery. In one case the operation was twice repeated, in the second, death resulted from septicæmia. The operation is thought to be justified in (1) chronic gangrene with bronchiectasis, (2) acute gangrene surrounded by an area of hepatized lung so that the dead tissue cannot be eliminated, (3) impacted foreign bodies, (4) fetid bronchitis without bronchiectasis, (5) localized tuberculosis.

In *Union méd.*, Sept. 2, 1883, reference is made to the experiments of Domenico Biondi on various animals. In fifty-seven cases the entire lung was removed, thirty of the subjects surviving. The failures were attributed to imperfection in the antiseptic dressings. Five cases, in which only a portion of one or both lungs was removed, were successful.—(*Gior. internaz. delle sc. med.*, f. 3 and 4, 248.)

Resection of the lung in Italy.—*Med. News*, Phila., Sept. 1, 1883, 240.

This operation was performed on July 6th by Prof. Ruggi, on a woman aged thirty, for a vast phthisical cavity of the right lobe. The entire upper lobe was removed through an opening in the anterior superior wall of the thorax. The second and third ribs were excised for a distance of nearly three inches, the pleura opened and detached from the lung without the least respiratory or circulatory trouble. The operation lasted about one hour and a half. Though the

pulse, respiration, and temperature remained normal for thirty hours, the patient sank and died in a few days.

GASTROSTOMY.

Fibrous stricture of the œsophagus; gastrostomy; operative success; death from inanition.—*Bull. et mém. Soc. de chir. de Par.*, April 10, 1883.

In connection with the relation of the above case Tillaux calls attention to the position of the stomach, as regards the abdominal wall, and to the best method of making the incision as demonstrated by Ch. Labbé. The convexity of the stomach never rises above a line drawn between the cartilages of the ninth ribs. The stomach may always be found within a triangle formed by this line, the left border of the ribs, and the anterior margin of the liver. The best incision in gastrostomy is one five to six centimetres in length, parallel with the border of the ribs, about two centimetres from the costal margin, and extending toward the xiphoid appendix from the line drawn between the ninth cartilages. At the autopsy in this case a stricture was found seven centimetres long and ending fifteen centimetres below the cricoid cartilage. Peri-œsophagitis and several recent abscesses existed; several enlarged glands were discovered. The œsophagus was contracted below and somewhat dilated above the stricture; it was adherent to the aorta, whose arch was a little dilated. The stricture was found to be composed simply of fibro-elastic tissue, and no cause for its development could be discovered. The patient survived the operation seventeen days.

Annular cancer of the lower end of the œsophagus; stricture; gastrostomy.—*Gaz. d. hôp.*, Paris, Aug. 7, 1883.

A man seventy-eight years old was operated on by Le Fort for an almost complete obstruction of the œsophagus, which began with sharp epigastric pain and dysphagia about six months previous. For more than a fortnight before the operation no nourishment whatever had reached the stomach. The patient was, therefore, very poorly prepared for surgical interference, and he survived the operation only twenty-four

hours, very incomplete reaction having taken place. No signs of peritonitis were found, and the adhesion of the stomach to the abdominal wall was already quite firm. The operation presented nothing unusual, but was done in one stage. For fear of stimulating peristalsis, and so disturbing the relations of the abdominal wound, the surgeon refrained from introducing nutriment into the stomach. In reviewing the statistics of gastrostomy, the author observes that, although when done for cancer the result is almost always fatal, yet the operation is justifiable, since it may prolong life, and certainly obviates a painful death from inanition. When performed for non-malignant stricture of the œsophagus, the results are much more favorable. In any case the operation should not be too long postponed, and in cancer it should be resorted to as soon as the difficulty in swallowing becomes marked.

A successful case of gastrostomy. F. King Green.—*Lancet*, Feb. 3, 1883.

The patient, a lady fifty-six years of age, had suffered at intervals for many years from slight dysphagia. The difficulty gradually increased, until, at the time of operation, she could swallow only thin liquids, and these with great effort. Occasionally food regurgitated. An œsophageal tube met with firm resistance at the level of the cricoid cartilage, and on its withdrawal was covered with bright-red blood. The thyroid gland was indurated and enlarged, and seemed fixed with the trachea posteriorly. There were tenderness on pressure and enlargement of glands in the anterior cervical region. There was slight inspiratory stridor and the pulse was intermittent. Emaciation was marked. Nutrient enemata were ordered. The operation was divided into two stages. In the first the abdominal wall was opened one finger's breadth from the left costal margin. It is thought that this incision might with advantage be made more distant from the ribs, on account of the tendency of the outer lip of the wound to become inverted. The anterior wall of the stomach was stitched to the edges of the abdominal wound with eight catgut sutures. Methyline was administered during the operation, which was done antiseptically. On the sixth day, no

unfavorable symptoms having meanwhile developed, the stomach was opened and a rubber tube was inserted. The next day two pints of fluid food were given, through the tube, in divided portions. In twelve days the patient was able to ride out. Respiration began to be impeded and finally the dyspnœa became so urgent, probably from pressure on the recurrent laryngeal, that tracheotomy was required on the twenty-third day. Again the patient made a rapid recovery and in three weeks was out of doors. Fifteen weeks after the first operation her condition was one of comparative comfort, laryngeal symptoms having vanished. In reviewing the subject attention is drawn to the contrast between results in gastrostomy for traumatic and for malignant stricture of the œsophagus. Of the former class but two out of seven were fatal. Early operation is urged, and decided preference is given to Howse's method of dividing the operation into stages. In twenty cases so treated life was prolonged in several for from four to five months, and the patients are still living. Of twenty-two cases, in which the operation was completed at once, all died, the longest survival being to the fortieth day.

In a critical review in *Arch. gén. de méd.*, Nov., 1883, A. Blum has tabulated 131 cases of gastrostomy beginning with the operation of Sédillot in 1849.

A case of gastrostomy for carcinoma of the œsophagus, with a brief analysis of the results of 137 cases of a similar nature. S. W. Gross.—*Med. News*, Dec. 1, 1883.

The patient was a man sixty-four years of age, who had suffered for five months from symptoms of obstruction of the œsophagus. The bougie was arrested at a point eleven inches and a half from the incisor teeth. The man was in poor condition, but he preferred to accept the risks of the operation rather than die of starvation, which was impending. The usual incision along the left costal margin was made, and nothing unusual was met with during the operation. The patient reacted well, but an unfavorable change occurred on the fourth day, and death took place ninety-nine hours after the operation. At the autopsy the stomach was

found firmly attached to the abdominal wall, and there was no peritonitis. The liver was hob-nailed and the large vessels of the belly and thorax were extensively calcified. The œsophagus was involved in an ulcerating epithelioma, the middle of which was crossed by the left bronchus. The post-œsophageal glands were carcinomatous, and had been invaded by the ulcerative process of the neoplasm. Of the one hundred and thirty-seven operations which have been collected by Gross, only forty-two prolonged life beyond a month. Thirty-seven patients died within forty-eight hours. In thirty-one cases the causes of death were peritonitis in seventeen ; pleurisy, bronchitis, and pneumonia in nine ; gangrene of the stomach in four ; and uræmia in one. The remaining twenty-seven cases died of exhaustion before the expiration of a month. Statistics show that the results of the operation are improving. The author refers especially to the case of Mr. Whitehead, reported in the *Brit. M. Jour.*, 1882, i., 133. In this case the stomach was opened on account of carcinoma, involving the pharynx, by extension from the tongue, which had been excised. Tracheotomy had previously been required for the relief of dyspnœa. There was an interval of eleven days between the stages of the gastrostomy. One year after the operation, the patient was still alive ; the submaxillary, cervical, and sublingual glands were much enlarged, but were painless. The patient could swallow, and had discontinued the use of the gastric fistula. Pain, incessant before the operation, was no longer experienced. Very little inconvenience was felt, although the patient was not expected to survive much longer.

RESECTION AND DIVULSION OF THE PYLORUS.

Resection of the pylorus.

This operation has been performed thirty-six times for carcinoma, three times for pyloric stenosis from ulcer, and once for obstruction resulting from swallowing caustic soda. In the cases of malignant disease there have been only nine recoveries, and in two of these (Mikulicz and Heinecke) too short a time has elapsed to permit a definite conclusion.

The majority of the deaths occurred within a few days, or even a few hours. It is noticed that recovery occurred in every case (four) of colloid carcinoma, three patients being alive, respectively, at the end of one month, ten months, and thirty months, while one died of recurrence in less than four months. In eight cases there were neither adhesions nor glandular involvement; adhesions, most frequent to the pancreas, were met with in thirteen cases; carcinomatous glands, most common in the great omentum and surrounding the pancreas, in thirteen instances; and secondary nodules in the mesocolon or omentum in three. The time consumed in the operation varied from one hour and a quarter to five hours.

It appears, therefore, that the mortality from pylorectomy is seventy-five per cent., and that even in uncomplicated cases it is fifty per cent. The most frequent cause of death is shock, collapse, or failure of heart-action. The successes of the operation demonstrate its possibility, but the reported recoveries, judged by the usual criterion—good health at the end of three years,—fail to show a final cure. Deducting the two recoveries reported at the end of a month, and one at the end of four months, but including among the failures three cases of recurrence, and among recoveries three cases of non-recurrence at the end of nine, ten, and eighteen months, thirty-three operations show 91.66 per cent. of failures against 8.33 per cent. of successes. Nevertheless, the operation seems to be justifiable in carcinoma provided the pylorus alone is involved, if the tumor is small and not complicated by adhesions or glandular involvement, particularly if it be of the colloid variety, and when the patient is in condition to bear the severe shock of a prolonged operation. Unfortunately these conditions are seldom present. Early diagnosis is very difficult; firm adhesions have been found in the case of apparently movable tumors. In one case Billroth found a lymphoma behind the pylorus, where the symptoms pointed clearly to stenosis from pyloric carcinoma. This surgeon admits that but one case in fifty or sixty is suitable for resection. Including twenty incomplete operations by Billroth, several by other surgeons, as

well as four cases of gastro-enterostomy, one of gastrostomy, and one of duodenostomy, resorted to to prevent starvation, where the pylorus could not be removed, with the complete operations, seventy-two cases appear showing the result of having prolonged life for seventeen months in four cases, or 5.5 per cent. From the unexpected and insurmountable complications met with in so large a proportion of cases, the difficulty of shaping the wound of the stomach to that of the duodenum, the obstacle to proper insertion of the sutures, and the excessive shock from such an extended operation, it is doubtful whether pylorectomy should be accepted as an established surgical procedure. The cases of stenosis from ulcer have been operated on by Rydigier, whose patient was in good condition seven months later; by Lauenstein, whose patient died on the seventh day from gangrene of the colon, due to ligation of the mesocolon; and by Van Kleef, whose patient was living at the end of six months. The operation for stenosis resulting from the action of caustic soda was performed by Billroth; death occurred on the sixth day from peritonitis, due to giving way of six of the sutures. Adding these four to the thirty-six performed for cancer by Billroth (7), Bardenheuer (3), Molitor (2), Péan, Rydigier, Nicolaysen, Wölfler, Berns, Jurié, Czerny, Lücke, Kitajewsky, Weinlechner, Gussenbauer, von Langenbeck, Hahn, Caselli, Southam, Fort, Krönlein, Tillmanns, Richter, Sydney Jones, Superno, Bigi, Mikulicz, and Heinecke, gives a total of forty pylorectomies, with twenty-nine deaths and eleven recoveries. In addition, a portion of the stomach has been successfully excised by Cavazzini for chondroid fibroma, and Koehler has extirpated a portion of the anterior wall of the greater curvature for carcinoma in a patient who died of collapse in six hours.—(*Med. News.*, Nov. 24, 1883; *Lancet*, March 24, 1883.)

In *Bull. gen. de therap.*, Mar. 15, 1883, Kahn reviews the subject of resection of the pylorus and gives a table of twenty-seven operations published up to the end of 1882. Among the first experimenters in the field of surgery of the stomach were Karl Merrem (1810), Gussenbauer and Winiwater (1874), and later, Kaiser and Werth. The first surgeon to operate on the human subject was Péan

(1879). Rydigier followed him in 1880. Both of these operations were unsuccessful. In 1881 interest in the operation was revived by the success of Billroth, although his patient died four months later of recurrence of the disease. The author unhesitatingly condemns the operation, and in addition he cites several instances to prove the inutility of explorative incision. The cases of Langenbeck and Gussenbauer are noteworthy; in these the operation promised to be free from difficulty, until just at its conclusion, the surgeon was surprised to find extremely firm adhesions at the posterior part of the tumor.

With reference to ulcer of the stomach, the operation is objected to because of the uncertainty of diagnosis and because of the certainty of adhesions: as an instance of the former the case of Lauenstein is mentioned, in which the symptoms were those of floating kidney; as an example of the latter objection a case reported by Wagner, and cited by Rydigier, is referred to. In conclusion, Kahn quotes at length from Le Fort, who is a no less emphatic opponent of resection of the pylorus.

Trocquart, R. On resection of the stomach and pylorus.—*J. de méd. de Bordeaux*, 1882–3. xii., 298–310.

"Digital divulsion of the pylorus," devised and successfully performed by Prof. Pietro Loreta, of Bologna, Italy, for the cure of stenosis resulting from the cicatrization and contraction of simple or non-malignant ulcer of the stomach, involving its pyloric orifice. Robert P. Harris.—*Med. News*, Phila., April 21, 1883.

This operation, which has been done four times, twice with success, seems to be limited in its application to pyloric stenosis resulting from cicatricial contraction. Stenosis from cancer and that resulting from hypertrophic thickening, called by Habershon "fibroid degeneration of the pylorus," a condition differing little from cancer in mortality, are not within its scope. A possible consequence of simple ulcer of the stomach, but one so rare as to have been entirely overlooked by many, is this form of cicatricial contraction at the pylorus, gastric ulcer occupying the pyloric extremity of the stomach in sixteen per cent. of the cases. In Italy,

as a result of the diet and surroundings of the lower classes, the condition may be less rare than in this country. The difficulty of diagnosis may be readily appreciated, but even in a case of error an explorative incision, in the present status of abdominal surgery, can hardly be considered very dangerous. At the request of Dr. Peruzzi, of Lugo, Italy, Dr. Harris gives the records of the four cases, three having been operated on by Loreta and one by Dr. Mario Giommi. In the first case (Loreta) the diagnosis of pyloric contraction from cicatrization of a gastric ulcer was based on the absence of cancerous cachexia, the duration of the disease—dating from a severe blow in the epigastrium nearly twenty years previous,—and the general history of the case, the chief points of which were as follows: Indigestion; a sense of distention and weight in the stomach, finally amounting to genuine pain; attacks of vomiting, at first of food and mucus, in the course of time, of blood, occasionally bright-red and again blackish, were the earlier symptoms. Diarrhœa alternated with constipation, and finally the patient became extremely emaciated and feeble. He suffered in this way for fifteen years, when he obtained relief under proper treatment in hospital. The symptons returned with violence soon after he again began work, and at the time of operation, four years later, he seems to have been in worse condition than ever. No tumor could be defined, other than a general thickening of the pyloric end of the stomach. In operating an incision was made from a point to the right of the linea alba 4 cm. (1½ in.) from the xiphoid cartilage, obliquely downward and outward for 15 cm. (6 in.) to a point 3 cm. (1¼ in.) from the ninth costal cartilage. After complete arrest of hemorrhage, the peritoneum, which was recognized with some difficulty on account of adhesions, was opened. The stomach having been freed from its adhesions, it was drawn out and an incision, six cm. (2⅜ in.) in length, was made equidistant between its two curvatures, beginning three cm. (1¼ in.) from the pylorus. Bleeding was free from the edges of the wound, which had to be compressed with T-shaped pincettes. One index finger was insinuated into the pyloric opening, and was followed by

the forefinger of the other hand. The fingers being back to back, the opening, which was found to be very resistant, was gradually stretched without laceration, the fingers being separated to a "distance of about eight cm." (3 in.). Dr. Harris considers this an error, thinking that the length of the incision in the stomach would not permit such extensive separation of the fingers. Gely's suture was used to unite the wound of the stomach, beginning one cm. from the pylorus, and the punctures being made one cm. from the edges of the wound. The abdominal wound was closed with seven silver-wire sutures, the operation being completed in thirty-three minutes. At the end of eight days the dressings were removed, and five of the sutures were withdrawn, the other two being allowed to remain two days longer. The wound healed by first intention, and the patient was entirely well in about a month, having had no unfavorable symptom.

The second case (Loreta) was that of a boy, eighteen years old, who had suffered from dyspepsia from the age of eleven. Finally unmistakable signs of chronic ulcer of the stomach developed. The symptoms were similar to those of the preceding case, and the operation was done in a similar way. It occupied fifty minutes in this case, owing to the difficulty of locating the pyloric valve. Two plum-stones were found in the stomach, which must have been there about two years. The stomach was sutured after the process of Appolito, which proved to be more quickly executed than that of Gely, and equally efficacious. The patient was sustained by a free milk diet; the abdominal sutures were removed on the ninth day; the patient was out of bed on the fifteenth, and was considered entirely well on the fiftieth day.

The third case (Giommi) was in very bad condition at the time of the operation, and died of shock in twelve hours.

The fourth case (Loreta) was also in poor condition for operation, and death ensued from shock in thirty-seven hours.

Dr. Harris is of the opinion that in extreme cases like the last two it would be better to prepare the patient for the operation by a course of rectal alimentation. In closing the

gastric wound, the best material for sutures is pure silk, and the mucous coat should not be penetrated. The lips of the wound must be in close and perfect opposition, and peritoneal surfaces must be in contact. To meet these indications the best suture seems to be the continuous suture of Gely.

(**Albertini** on digital divulsion of the pylorus in *Ann. univ. di med. e chir.*, Milano, Jan., 1883; also **A. Hubert** in *J. de méd., chir., et pharmacol.*, Brux., April, 1883, 309.)

Distention of the stomach by carbonic-acid gas, as an aid in diagnosis. Rosenbach.—*Schmidt's Jahrbücher*, Feb. 27, 1883.

It is claimed that by this method the exact position of the stomach, and the situation and character of tumors may be determined with facility. The outlines of the liver and gall-bladder are distinctly brought out. Tumors of the spleen may be distinguished from those of the kidney. Tumors of the pancreas, and the condition where the head of this organ simulates a pulsating tumor, by being pushed forward by the aorta, disappear when the stomach is distended.

GASTROTOMY.

An account of two hundred and eight consecutive cases of abdominal section performed between Nov. 1, 1881, and Dec. 31, 1882. L. Tait.—*Brit. M. J.*, Feb. 17, 1883.

Of these two hundred and eight operations, sixteen had a fatal result, the objects of the operation in these cases being as follows: removal of one ovary, two deaths, thirty-six operations; removal of both ovaries, one death, twenty-eight operations; removal of uterine appendages for myoma, two deaths, twenty-six operations; for chronic ovaritis, three deaths, twelve operations; for intestinal obstruction, one operation, which was fatal; for solid tumor of ovary, one death, three operations; hysterectomy for myoma, two deaths, ten operations; in four fatal cases the operation was incomplete. The term "ovariotomy" is wrongly used to include the removal of parovarian cysts, a comparatively simple operation, a statement which cannot be made of the

removal of ovarian cystoma. The term "oöphorectomy" is little less objectionable, and the author would discard them both. The various diseases for which operation was performed are taken up, especial consideration being given to cases of chronic peritonitis, for which abdominal section, followed by clearing out of the abdomen and temporary drainage, was done. Four such cases appear in the list; there were in reality nine, but in five a cause of the peritonitis was found and removed, so that these operations are classed under other heads. The operation is advised in peritonitis "of whatever sort—even puerperal," although the hope of success in the latter cannot be so strong, since the case is already septic. The peritoneum may be treated on the same principles as other suppurating cavities, and with quite as secure results. The author is unequivocal in his antagonism to Listerism. It contains no element of safety, and indeed involves considerable risk, especially in patients with feeble kidneys. The improvement in modern results is due, not to Listerism, but to the closer observance of minute details, of cleanliness, and of good hygiene generally.

The author attributes his success in hysterectomy in great measure to the use of his wire clamp as a substitute for ligature.

A series of abdominal sections performed during 1882. T. Savage.—*Brit. M. J.*, April 14, 1883.

Seventy cases are tabulated showing seven deaths from the following causes: removal of both ovaries, one; operation for pyosalpynx, one; for chronic ovaritis, two; removal of myoma, one; of fibro-cystic tumor, one; of tumor of kidney, one. Exploratory incision was made in a case of malignant tumor of the uterus, in one of myoma incapable of removal, and in one of chronic ovaritis, in which the ovaries were so shrivelled and the tubes so adherent that removal was impracticable. The early resort to operation in cases of ovarian cyst is strongly urged. Six cases of subacute peritonitis are included in the list. More or less serous fluid was sponged out of the peritoneal cavity in each case, and the patients were quickly cured by the operation. The author does not use the spray in operating, but adheres

closely to other antiseptic details. In twelve cases he used a drainage-tube, and he is not yet prepared to abandon it. The fact that the tube may become blocked, and the dangers that may arise from such an occurrence, must not be lost sight of. In three of the fatal cases drainage was used, death resulting in one case from blocking of the drainage-tube, in one from obstruction of the bowels, and in one from unknown cause. The author states that in recent operations he has disregarded the proximity of menstruation, and has seen no ill results, even though the menstrual flow may have already begun.

A successful case of gastrotomy for intestinal obstruction. Alder Smith.—*Brit. M. J.*, May 26, 1883.

Acute pain in the abdomen, at first general, afterward concentrated just above the umbilicus, in a woman of fifty-three years, of previous good health, was at first thought to indicate renal colic. In the course of two hours nausea and vomiting of bile-stained fluid occurred. Castor-oil and black draught given on the following day were rejected by the stomach in an hour or two after having been taken. Pain was, in a measure, relieved by morphia hypodermically. The next day there was no marked change; tongue, pulse, and temperature were normal; the abdomen was not distended; the umbilical pain and tenderness continued, and the case was put down as one of intestinal obstruction. Rectal injections were used without effect. On the fifth day a rectal tube was passed to the transverse colon, and four pints of warm olive oil were injected without result. There was slight distention of the abdomen, but no tumor could be recognized. The discharge of urine was free. The operation of gastrotomy was performed antiseptically without spray. The ileum was found to be compressed by a constricting band, the exact site and nature of which were not determined. The intestines were disturbed as little as possible, and the wound was rapidly closed with silk and silver sutures. A dressing of carbolized oil (1–40) was used. The patient was fully under the influence of opium at the time of the operation, and was kept narcotized for several days after it. There was very slight rise of temperature for

a day or two. On the sixth day solid fæces were passed, all the sutures had been removed, and the patient was practically well.

Intestinal obstruction.—*N. Y. Med. Jour.*, June 23, 1883. At a meeting of the N. Y. Surgical Society Dr. Sands presented specimens from a case in which he had performed inguinal colotomy. The patient had a fæcal abscess in the left umbilical region. As the abscess began to close signs of intestinal obstruction developed. The occlusion became complete and colotomy was performed. The opening was not more than a third of an inch in diameter, yet the escape of fæces could not be prevented by any appliance. Several months afterward the artificial anus had contracted, so that it required to be dilated with sponge tents. A little more than a year after the operation the man died of general peritonitis, probably from inflammation beginning at the site of the original abscess. The intestines were everywhere adherent to each other, and at the region of the abscess, where recent phlegmonous inflammation was found, the descending colon just above the sigmoid flexure was firmly adherent to the abdominal wall. The occlusion of the colon was complete, and the intestine above that point was distended to three or four times its normal calibre. The colon communicated with the jejunum by a large opening, and in addition a narrow fistulous track ran from near this opening, through a mass of inflammatory products, to the colon, about an inch below the complete obstruction; a third narrow and tortuous fistula extended from just above the obstruction to the small intestine. The large intestine contained soft fæces, like those usually seen in the small intestine. The rapid emaciation observed during life was probably owing to diversion of fæces from the small intestines. The artificial anus was pervious, the opening having been made through the peritoneum into the front wall of the cæcum. The fæces must have passed from the jejunum into the large intestine, where meeting with the obstruction at the beginning of the sigmoid flexure they took a backward direction toward the ileo-cæcal valve. The valve being closed and the artificial anus narrow, distention

of the cæcum followed, a condition which might perhaps have been relieved by the use of enemata and dilatation of the artificial opening. Probably the entire condition originated in follicular ulceration of the large intestine. The remarkable feature of the case is the closing of the fæcal abscess in spite of obstruction at the sigmoid flexure, symptoms requiring the formation of an artificial anus subsequently developing.

Resection of portions of intestine. Frederick Treves. —*Lancet*, Dec. 16, 1882, p. 1031.

In a paper read before the Medical and Chirurgical Society of London, suggestions are made as to the method of applying the sutures after resection of intestine. "To meet some of the difficulties of the operation I have ventured to introduce the following appliance: The gut above the part to be resected is secured by a special clamp lined with india-rubber to avoid undue compression of the bowel. The gut below is secured in like manner, and the obstructed or gangrenous part is excised. The corresponding ends of the two clamps are then united by transverse bars, so that they form with the clamps a rigid square frame. By means of this frame the two divided ends can be very accurately approximated, and can be firmly retained in position while the sutures are being applied. As it is difficult to apply sutures to collapsed gut, a sausage-shaped india-rubber bag, about three inches long, is used, that can be distended to four or five times its natural size through a small tube inserted through the centre of its long axis. This bag is sufficiently distended to make it firm, and one end is introduced into the upper segment of the divided gut, while the other is introduced into the lower segment. The tube through which the bag is dilated thus occupies the suture line. After being introduced the bag is dilated to a good size. By this means a firm plug is introduced into the gut, so as to form a substantial basis over which to apply the sutures. Moreover, by increasing the degree of distention of the bag, all irregularities in calibre between the two segments of the bowel can be overcome. Before the last sutures are applied the bag is emptied of air and withdrawn, it being capable in

its shrunken state of being drawn through a hole of the dimensions of a No. 12 catheter. If the sutures are properly applied—*i. e.*, if the mucous membrane be not included in the stitch—there should be no danger of wounding the bag. At least fifteen or twenty sutures should be used. By means of this appliance it is possible to excise portions of the colon through an incision in the median line."

In the discussion which followed, Mr. Bryant expressed his preference for lumbar colotomy and artificial anus, in view of the fact that great extent of intestine is often involved in disease and the cut ends of intestine cannot be easily approximated. He also regarded the occurrence of stricture as a risk in suturing the intestine. Mr. Harrison Cripps coincided with Mr. Bryant, while Mr. Macnamara and others called attention to the fact, that under antiseptic precautions union takes place by first intention, and there is little or no contractile cicatricial tissue formed, and hence no stricture. The danger of fæcal extravasation at the suture line is reduced to a minimum by care in effecting adjustment of the segments of intestine. (See also *Brit. M. J.*, Dec. 12, 1882, and *Proc. Roy. M. and Chir. Soc.*, Lond., 1882–3, 31.)

COLOTOMY AND COLECTOMY.

Seven cases of colotomy, with remarks. George Elder.—*Lancet*, Lond., May 5, 1883.

Three of these cases were syphilitic, three were cases of malignant disease of the rectum, and one was a case of malignant pelvic tumor occluding the bowel. Death occurred in one case in ten months and in one in thirteen months, but suffering was greatly alleviated and life was undoubtedly prolonged by the operation. All the other patients survive and have been much benefited, except one who lived only sixteen days, death being imminent at the time of operation. In commenting on these cases Dr. Elder says: "In all, the left lumbar operation was performed and the incision was oblique, running from the margin of the last rib across the quadratus lumborum to and in

front of the anterior superior iliac spine. No particular difficulty was experienced in any of my cases, and the loss of blood was but trifling. In one instance a fold of subperitoneal fat so simulated the flaccid bowel that I had actually transfixed it before finding out my mistake. There is a danger of making the incision too far forward. This I did in one case, and in consequence wounded the reflected peritoneum, but no harm was done the patient thereby." Chinese silk is preferred to carbolized catgut for sutures, because the latter dissolves before firm union has taken place. The operation may not only relieve suffering and prolong life, but may be actually curative, as was demonstrated in one case of syphilitic ulceration of the rectum.

Successful lumbar colotomy in an infant of two months. George R. Fowler.—*N. Y. Med. Rec.*, May 19, 1883.

The little patient appears to have passed liquid fæces in small quantity through a recto-vaginal fistula, up to within two weeks of the operation. No trace of the fistula or of the anus could be found, and a careful dissection of the perineum failed to discover the rectum. Colotomy was then performed through the left loin, by the oblique incision recommended by Bryant. The peritoneum had to be opened before the colon could be reached. Several times during the operation the patient stopped breathing, and had to be resuscitated by artificial respiration, stimulating hypodermics, nitrite of amyl, etc. The only dressing for the wound was a large sponge wrung out in carbolized water. The patient soon rallied, and the progress of the wound was satisfactory. Subsequently attempts were made to find the end of the rectum by passing flexible bougies through the artificial anus. The instruments were arrested at about the site of the sigmoid flexure. The author does not recommend searching for the rectum by dissection, as a rule, but in the present instance there was evidence of a previously-existing fistula, and, moreover, a curious malformation of the vagina, consisting of an incomplete transverse membranous septum, gave reason to hope that the rectum might be found by following the posterior passage.

A successful case of lumbar colectomy, or excision of a stricture of the descending colon through an incision made for a left lumbar colotomy. Thomas Bryant.—*Med.-Chir. Trans.*, Lond. 1882, p. 131.

The diagnosis in this case was clearly stricture of the intestine, but it was impossible to locate the obstruction with certainty. The probabilities, however, pointed to disease of the descending colon. The patient's condition at the time of the operation was very poor. For eight weeks her bowels had been almost completely closed, and she had been troubled for years with constipation. Attacks of abdominal pain and of vomiting, the matter ejected having a yellow fæcal appearance, were frequent. There were no fever and no marked tenderness of the abdomen. The rectum was empty and no stricture was within reach. The urine was scanty and contained lithates in excess, bile, and albumen. The abdomen became immensely distended, but no defined tumor could be felt. No nourishment could be retained by the stomach, and life had to be sustained by nutrient enemata. The colon was easily reached by an "oblique incision midway between the ribs and the crest of the ileum, with its centre corresponding to the outer border of the quadratus lumborum muscle, one inch behind a vertical line drawn from the centre of the crest of the ileum." The bowel was opened as was thought above a growth felt at the fore part of the wound, but nothing passed from the opening, and on further examination an annular stricture of the colon was found a short distance above the point of colotomy. Accordingly the diseased bowel was drawn out of the wound, the stitches of the artificial anus which had been already applied having first been removed, and a transverse opening an inch and a half long was made above the stricture. The edge of the intestinal wound was stitched to that of the skin by three sutures and the bowel was allowed to gradually empty itself of quarts of slate-colored fæces, care being taken to keep the wound clean. After the discharge had ceased the section of the bowel was completed, bleeding vessels were twisted, and the intestine was stitched to the edges of the lumbar wound as the bowel was divided. The upper end of the

lower segment of intestine was included in the lower angle of the wound to facilitate restoration of intestinal continuity, if it should ever become desirable. The patient slowly recovered; the bowels acted regularly through the artificial anus. The rectum was cleared on one or two occasions of scybalous masses by enemata, and in the course of several months the artificial anus had to be dilated with the fingers. Otherwise there was no disturbance of the patient's complete comfort. The disease of the intestine was called by Dr. Goodhart, who examined it, a "columnar epithelioma," with a large proportion of fibrous tissue. As a result of this experience, Mr. Bryant thinks that the expediency of removing strictured bowel should be more often considered, and that in view of the large proportion of annular or, from a clinical standpoint, simple strictures, without reference to their histological elements, and the frequency of their seat in the descending colon, the operation, as performed in the present instance, may be very often applicable.

Air-inflation of the bowel as a rule of practice in the operation of left lumbar colotomy. Edward Lund.—*Lancet*, April 7, 1883.

An air-syringe and rectum-tube are described, the latter having a hollow rubber ring at its base to prevent the return of air from the anus. It is said to be more effective than a plug or tampon within the rectum. Needles of special shape and curve, for passing the sutures, and a blunt hook for catching the sutures within the colon are recommended. Curved forceps with spoon-shaped blades are found of service for removing the hardened fæces above and below the artificial opening. After the preliminary incisions, Mr. Lund is in the habit of freely smearing carbolized oil over the cut surfaces, to protect them from the contents of the bowel. To counteract the unpleasant odor of the discharges, a permanent dressing of eucalyptus and vaseline, one to ten, is used

HERNIA.

A case of incarcerated obturator hernia; operation; cure. Hasselwander.—*Ærztl. Intell.-Bl.*, No. 12, 1883; also *Centralbl. f. Chir.*, No. 24, 1883, 391.

A woman, sixty-five years of age, presented the following symptoms: Constipation, abdominal pain, tympanites, occasional vomiting, and pain in the left foot, with numbness and itching sensations in the entire limb. The urine contained albumen. The patient was emaciated, but a suspicious fulness in Scarpa's triangle on the left side was observed, and the region was painful on pressure. Vaginal examination also showed fulness on the left side. Femoral hernia was suspected, and the swelling was partially reduced by taxis, but the abdominal pain and the vomiting continued. The possibility of strangulated obturator hernia was suggested, and an operation was undertaken for its relief. An incision, beginning at the pubes, was made for four inches along the outer border of the adductor longus. Fibres of the pectineus muscle were separated, and the hernial protrusion was distinctly recognized. Troublesome venous hemorrhage occurred, but no large artery was wounded. The sac, which was firmly adherent, was opened with a blunt knife; incisions were made at the inner and lower border of the neck of the sac at the obturator foramen. The hernia was thus released, and was carefully reduced. The wound was dressed antiseptically. All the symptoms were relieved, and the patient recovered completely in five weeks. For a few weeks there was loss of muscular power in the limb, probably in consequence of stretching of the obturator nerve by the hernia. Twenty-five cases of obturator hernia have been diagnosed during life: seventeen were operated upon; eight were relieved by taxis; only five recovered.

Total obliteration of hernial sac in a case in which Wood's operation for radical cure had been followed, four years later, by the operation for strangulated hernia. J. N. C. Davies-Colley.—*Trans. Lond. Path. Soc.*, xxxiii., 1882, 164.

The second operation was done after the hernia had been

strangulated for thirteen hours. The fascial coverings at the neck of the sac were greatly thickened. On opening the sac and passing the finger into the inguinal canal, a firm fibrous septum, almost occluding the neck, was encountered. The use of the hernia knife was somewhat impeded by the tight, unyielding character of this band. After reducing the hernia, deep sutures were passed so as to include the serous lining of the sac, except where it was attached to the spermatic cord. Three years afterward the patient died in collapse with a perforating ulcer of the duodenum. In the right groin was a circular puckered scar, the size of a shilling, the result of the operation for strangulated hernia. A small depression at the internal ring was the only trace of the peritoneal entrance of the neck of the sac. From the internal ring nearly to the globus major of the epididymis the sac was obliterated. The tunica vaginalis was crossed by numerous bands of fibrous tissue. An attempt to dissect out the aponeurosis of the external oblique and the conjoined tendon failed, on account of the matting together of the parts in cicatricial tissue. The author remarks that it has long been his custom, after returning a strangulated hernia, to provide for radical cure by suturing the serous surfaces and thus exciting adhesive inflammation, or by excising the sac and sewing up the peritoneum just below the abdominal opening.

Radical cure of inguinal hernia. J. Whitson.—*Med. Times and Gaz.*, Lond., Jan. 27, 1883, 91.

An incision was made over the inguinal ring by transfixion and cutting outward. The sac was then exposed by dividing the tissues over it upon a director. A large portion of the sac was excised, and the pillars of the ring were approximated with three strong chromicized catgut sutures passed by means of Wood's needle. The edges of the sac were stitched together with catgut. The external wound was united, except at a single point for drainage, with button and fine catgut sutures. Cure was complete in five weeks. The author decidedly prefers catgut, if properly made, to silver wire in this operation. Its pliancy permits it to be adapted to the parts, and a firmer and better knot can be

tied with it than with silver wire. Moreover, it never causes undue irritation, and being finally absorbed, it produces no after-discomfort.

An operation for the radical cure of femoral hernia. Walter H. Brown.—*Lancet*, Lond., June 23, 1883.

The patient was a woman, aged sixty, who had for years been troubled with femoral hernia. No truss could be found to give proper support, and the hernia had several times been strangulated. The sac was opened by the usual incision in herniotomy. The intestine was reduced, when the crural ring was found to be large enough to admit three fingers. A large piece of omentum was adherent to the posterior part of the sac. It was tied with a stout silk ligature, and a portion of it was removed. The entire sac was then dissected out and excised. The stump of omentum was drawn down to the neck of the sac, so as to occlude it, and was secured in that position. The wound was closed, the two silk ligatures—one around the omentum, and the other around the neck of the sac—being brought out at its lower angle. Salicylic silk was used as a dressing. The wound healed by first intention, except where the ligatures lay. The ligature on the neck of the sac came away on the tenth day; that on the omentum, remaining firm at the sixteenth day, was cut short, and the wound healed over it in two days. Five months after the operation there had been no return of the hernia.

The radical cure of hernia.—*Boston City Hosp. Rep.*, 1882, 271.

Of fifteen patients operated on by Heaton's method four were cured, eight were relieved, and three were not relieved. These patients presented collectively eighteen ruptures, of which five were cured, eight were relieved, and five were not. The total number of operations was twenty-five. With two exceptions the cases were favorable for operation. The large proportion of failures is in part due to the fact that many of the cases occurred in children in the out-patient department, and hence after-treatment was more or less imperfect. Moreover, in some promising cases a second operation could not be obtained. Dr. Gay, who makes this

report from hospital and private cases, has not reached a positive conclusion regarding the merits of the operation, but recommends further trial. He thinks it is especially adapted to cases with small rings and to those occurring in children, where but little assistance is required to accomplish the result.

The radical cure of certain forms of hernia by a new operation. R. A. Vance.—*Jour. Am. Med. Ass'n*, August 11, 1883, 141.

Nature's method of curing an oblique inguinal hernia involves two processes—the formation of a band of adventitious tissue about the neck of the sac, which tends to contract and close the canal at the inner ring; the reunion of the layers of transversalis fascia, the separation of which permitted the protrusion. The use of a truss and certain surgical operations favor these processes. After reviewing the anatomy and pathology of oblique inguinal hernia, the author passes to the description of the operation. The patient is etherized, the hernia is reduced, and the inguinal canal is occupied by the index finger of the operator, which is to serve as a guide to the needle. The positions of the internal and external rings and of the axis of the canal are indicated on the skin with tincture of iodine. A short line is then drawn at right angles to the axis of the canal from the upper and inner to the lower and outer border of the internal ring. A Dowell's hernia-needle is introduced at the lower end of the short line, passed directly through all the tissues till it reaches the abdominal cavity, then carried in the direction of the short line, until its point is about half an inch beyond the border of the inner ring, when it is forced directly through the tissues to the surface. Its proximal end is then charged with a stout ligature. The threaded end of the needle is drawn into and out of the abdominal cavity, but the instant its point passes beyond the upper and inner border of the sac, its course is changed, and instead of drawing the threaded end out, the latter is forced downward through the tissues of the inguinal canal by the side of, but without the lower and outer border of the internal ring, and then into the track made by the

needle when first introduced. A noose is thus thrown from the fixed to the movable layer of the transversalis fascia, and the latter with its peritoneal envelope and intervening tissue of the neck of the sac is drawn downward and outward. The ends of the suture are not yet tightened, but are held by an assistant. A second suture is passed in imitation of Dowell's plan. If the hernia is on the left side, the skin and subcutaneous tissue are raised with the thumb and fingers of the right hand, the point of the thumb just touching the line marking the axis of the inguinal canal. The needle, held in the left hand, is thrust through the fold of tissue at the middle of the axis line; the proximal end of the needle, armed with the suture, is drawn into the tissues, and is thus brought into contact with the aponeurosis of the external oblique; the threaded end is then forced through the aponeurosis, into the inguinal canal, over the spermatic cord, through the posterior wall of the canal, and thence through the skin at the point where the curve of the needle causes it to emerge. The unarmed end follows as far as the surface of the aponeurosis of the external oblique, when the direction of the needle is reversed, its point is kept close to the aponeurosis, and the needle is finally brought out at the opening it made in the skin when first inserted. The noose thus formed brings the anterior and posterior surfaces of the canal into contact, or in old cases, where the internal opening is displaced, it also approximates the pillars of the external opening. A third suture is similarly inserted into the pillars of the external ring, just above the level of the cord, its extremities emerging at the lower end of the axis line. The sutures are then tightened, beginning with the one first introduced, the amount of tension being estimated by the finger in the canal. A key of medium size, separated from the surface by four folds of antiseptic gauze, is used to receive the knots, the ring supporting that of the first suture and the shaft of the key the other two. The patient is kept in bed for a week, when the bandages and ligatures are removed. The author has resorted to Dowell's operation thirty-two times; in nineteen cases where he has used the method now described, the results have been entirely satisfactory.

RECTOTOMY.

A case of excision of the rectum. W. J. Walsham.—*Brit. M. J.*, April 28, 1883.

The patient was a man, forty-seven years of age, whose symptoms of stricture dated back only five months. The personal and family history were good. The stricture was felt one inch from the anus, and extended along the rectum for two or two and a half inches. Beyond that the tissues felt healthy, except for a cord-like induration reaching under the mucous membrane for about an inch on the right side. The growth was movable. The rectum was divided through the diseased mass, by incisions anteriorly and posteriorly; the right half was separated from the healthy bowel by the écraseur, the left by scissors. The latter method is preferable as giving a better view of the character of the tissues divided. The crushing and bruising done by the écraseur masks the condition of the parts.

In using the scissors, no danger need be apprehended from hemorrhage, since, with Denonvillier's posterior incision, as practised in this case, the parts are fully exposed, and bleeding points may be secured without difficulty. No sutures were used, either to bring the edges of the wound together or to draw down the bowel.

The wound was kept perfectly clean by hourly syringing with a weak carbolic lotion, and afterward, as the urine showed traces of carbolic acid, with Condy's fluid. Contraction of the bowel was prevented by the daily retention for an hour or two of a large tube. This was begun about a month after the operation. At the end of three months the case was progressing well, and there had been no recurrence of disease, when the patient died of unknown cause.

A group of eight cases of cancer of the rectum. Arthur E. Barker.—*Lancet*, Feb. 24, 1883.

Of these eight cases, two were not operated on; in one, partial excision of the rectum was done with success; and in five, colotomy was successfully performed. In seven of the cases the disease appeared to be adenoid, or, more properly, columnar epithelioma; in one the history indicated

encephaloid. In all but one the disease, when first examined, was fully three inches from the anus, and in all the anus was free. The entire circumference of the bowel was involved in all but one, where it was limited to the postero-lateral aspect. There was no trace of glandular or secondary deposit, no history of causation, and in seven the family history plainly negatived heredity. Two of the patients were females. The operations were done in from five to twenty months after the first symptoms. The prominent symptoms, in most of the cases, were blood in the stools, irregularity of the bowels, and bearing-down pains. Continuous pain was not complained of in all cases. In two, pain down the thighs was marked. In five cases colotomy in the left flank was performed by Amussat's incision; in one, excision was done. In the former the wounds were frequently sponged with carbolized solution, especially after opening the gut. The dressing was carbolic oil on lint, covered with a pad of salicylated wool. Inflation of the bowel was done in every case. In one instance the peritoneum was wounded, but no harm resulted, for the bowel was not opened until the fifth day, it having been first stitched to the skin by its muscular coat. Four stout silk sutures were used for the primary stitches of the bowel, supplemented by intermediate fine sutures. Those cases did best in which the mucous membrane was most carefully secured to the skin.

Three cases of removal by operation of cancer of the rectum. W. M. Baker.—*St. Barth. Hosp. Rep.*, 1882, 283.

One of these cases died on the fourth day after the operation, of peritonitis resulting from a rent in the rect-vesicalo cul-de-sac. One was temporarily relieved, death occurring several weeks later, after the development of symptoms indicating involvement of the sacral plexus. The third case was free from recurrence nearly a year after the operation. Retention of fæces was favored by the position of a cicatrix and by slight prolapse of the mucous membrane, and the patient was in all respects comfortable.

Extirpation of the rectum with formation of a musculo-cutaneous perineal flap. F. Busch.—*Berl. klin. Wchnschr.*, No. 15, April 9, 1883.

The formation of a "musculo-cutaneous flap," in extirpation of the rectum, thereby preventing fæcal incontinence, was first accomplished by Huter, in 1872. Busch has modified Huter's method, and considers the operation especially applicable to syphilitic stricture of the rectum, a condition peculiarly intolerant of dilatation. A case is narrated illustrating the steps of the operation. A semicircular incision was made in front of the anus, crossing the median line midway between the anus and the vagina, its concavity looking backward. The anterior wall of the rectum was exposed by dividing the fibres of the constrictor muscles. In dividing the recto-vaginal septum the knife had to be used on account of the density of the tissues, which were put on the stretch as much as possible, in order to avoid opening into the rectum or the vagina. Bleeding was profuse, no less than fifty ligatures being used in this stage of the operation. When the upper limit of the stricture was reached, the rectum was cut half across in its healthy portion, and, while held with temporary sutures to prevent retraction, the section was completed with scissors. The diseased portion was then easily detached from the hollow of the sacrum. It involved about five centimetres of the rectum, which was again cut through two centimetres from the anus. About twenty sutures were used to unite the cut edges of rectal mucous membrane. Iodoform was dusted over the cut surfaces; a drainage-tube was inserted at each angle of the wound, which was closed by silk sutures. On the fourth day after the operation the bowels were moved, and two or three days later a slight purulent discharge escaped from the wound and a small vaginal fistula formed, thought to be caused by escape of fæces between the sutures. The patient had a slight attack of diarrhœa, but finally made a good recovery. Four months later the condition was found to be entirely satisfactory. The fistula had closed, the wounds had cicatrized, the sphincter ani possessed its normal power, and the index finger passed into the rectum detected merely

a slight constriction, which interfered not in the least with the passage of even solid fæces.

Extirpation of the rectum for cancer. F. Lange.—*Ann. Anat. and Surg.*, Brooklyn, July, 1883, 38.

This case is of interest from the fact that the patient could control the discharges from the bowel, although flatus escaped involuntarily. This result is thought to be due to the action of the sphincter tertius, which can be felt with the finger just above the newly-formed anus. Excision of the rectum was greatly facilitated by removal of the coccyx at an operation nine months before. The patient had been under treatment for so-called hemorrhoids, and was not aware of his condition until a few weeks before the operation, although the cancerous disease was already very extensive.

NEPHROTOMY AND NEPHRECTOMY.

A case of nephrectomy for medullary carcinoma, and partial choleo-cystectomy for calculus in the same subject. Samuel W. Gross.—*Med. News*, Phila., June 9, 1883.

The case is of special interest because of the unusual symptoms. The patient was a widow fifty-nine years of age. Three months previous a small painless tumor was noticed in the right iliac fossa which, at time of operation, had increased to the size of a child's head. The tumor was nodulated, mobile, tolerably firm, but unequal in consistence, and dull on percussion, the intestines evidently lying entirely behind it. The exploring needle gave only a few drops of bloody fluid. There had been several attacks of hematuria, and pain in the loins, especially on the right side, was complained of. The obscurity of the diagnosis was further increased by the fact that the fundus of the bladder was found to be especially sensitive, so that it, rather than the kidney, might have been the source of the hemorrhage. An exploratory incision, under ether and antiseptically, was made, beginning two inches below the umbilicus and extending downward along the linea alba for three inches. The kidney evidently being the seat of the disease, the wound was prolonged to within two inches of the ensiform

cartilage, exposing an enlarged and fatty right lobe of the liver and a distended gall-bladder containing a stone as large as a Spanish olive. Free venous hemorrhage attended the removal of the peritoneum from the tumor, which was so friable that it was thought best to transfix the pedicle and tie in two portions *en masse*. On severing the attachments of the mass violent hemorrhage occurred from the renal artery, which was stopped by grasping the pedicle and tying it with a catgut ligature. The gall-bladder was cut away, with its calculus, after having been secured with a catgut ligature. The operation, which lasted fifty-five minutes, was completed by carefully cleansing the peritoneal cavity and bringing the wound together with silver sutures passed through the entire thickness of the abdominal wall, a drainage-tube being inserted at the lower angle of wound. Reaction was good. On the second day there were signs that the remaining kidney was not acting, and death ensued sixty-five hours after the operation, suppression of urine for the last twenty-three hours having been complete. At the autopsy were found peritonitis, limited in extent, and slight congestion of the left kidney, which was otherwise sound. The peritoneal cavity contained six ounces of bloody serum. The pedicles of the kidney and of the gall-bladder were in good condition. The liver was large and fatty. No signs of secondary deposits in glands or viscera. The operation-wound was almost entirely healed. The diseased kidney weighed eighteen ounces and measured in circumference fifteen and a half by ten and a quarter inches. Except one inch at its upper end it was converted into a medullary carcinoma. The author concludes his paper with a résumé of nephrectomies for sarcoma and carcinoma. They number twenty-two, and the mortality appears to be 57.14 per cent. The great risk of the operation is from hemorrhage from the renal vessels, or from the large veins ramifying over the tumor. The causes of death include shock, peritonitis, septicæmia, pulmonary embolism, and exhaustion from profuse suppuration. The percentage of recurrence, including four cases which did not survive the operation, but in which recurrence would have been certain, all of the disease not having been removed, is 31.57. In the cases which can be traced the aver-

age prolongation of life was twenty-four months. The cases are too few to furnish a basis for opinion as to final cure. In spite of the risk and the liability to recurrence, the patient should be given the chance, especially since malignant disease shows less tendency to involve neighboring parts and to metastatic deposits in the case of the kidney than in other viscera. The following rules should be observed in operating: "The capsule of the organ should always be removed; the incision, when the growth is large, should be made along the outer side of the rectus muscle, as recommended by Langenbüch, through which the ureter and renal vessels can be more readily and safely reached than through the median ventral incision; and the ureter should be pinned outside the abdominal incision, as practised by J. Knowsley Thornton, so that the septic material which it contains may not be left in the cavity of the belly. Another real source of danger is sloughing of the ligated ureter, when dropped into the abdomen."

Nephrectomy by abdominal section. J. Knowsley Thornton.—*Lancet*, May 26, 1883.

Three successful cases were reported to the Medical Society of London. One in a girl, seven years old, for congenital hydronephrosis; one in a woman, aged twenty-six, by lateral section (Langenbüch's incision), the kidney being found to contain numerous small concretions; and the third in a woman, fifty-eight years old, who had given symptoms of renal disease for sixteen years. In the second case the vesical end of the ureter, which appeared to be healthy, was brought out at the lower angle of the wound. In the third case the kidney had been aspirated several times without relief. The sac, into which the kidney had become converted, weighed 4 lbs. 7 oz., and contained twenty pints of pus (see *Lancet*, Nov. 25, 1882, p. 892). A calculus, composed of oxalate of lime and blood was found embedded in the orifice of the ureter. In all cases strict Listerian principles were observed. The operator points out the advantage of lateral abdominal section, the desirability of antiseptic precautions, and the wisdom of bringing the cut end of the ureter out of the wound.

Case of extirpation of a displaced kidney. William M. Polk.—*N. Y. Med. Jour.*, Feb. 17, 1883.

In this remarkable case the patient, a girl nineteen years of age, had no vestige of uterus or vagina, and had but one kidney, which was removed by operation. Menstruation, or a scanty flow of blood resembling it, had occurred for two years at irregular intervals. The patient was uncertain of the source of the blood, but thought it came with the urine. The patient applied for relief from this deformity and from a painful tumor in the left iliac fossa, which proved to be the kidney, from its immobility evidently congenitally displaced. The patient was unable to do any work on account of pain, and was desirous of surgical relief. The possibility of there being but one kidney was suggested, and an attempt was made to determine the question by percussion and palpation, without positive result, except that there was dulness on the right and tympanitic resonance on the left. Simon's method of catheterization of the ureter was not resorted to, because the operator had failed in many previous attempts. Rectal examination was impracticable on account of a contracted pelvis. The last resort was examination of the kidney through an abdominal wound in the median line, but the ease and safety with which the tumor could be removed by an incision above Poupart's ligament induced Dr. Polk to select the latter incision and take the remote chance of the patient having but one kidney. The operation was accordingly done antiseptically and with the utmost facility. The patient survived eleven days, the renal function being meanwhile imperfectly performed by the skin and the gastro-intestinal tract. The paper contains daily notes of the case, and a very complete pathological report by Dr. Wm. H. Welch. In conclusion Dr. Polk reviews the methods for establishing the presence and condition of the kidneys and suggests a procedure of his own. Catheterization of the ureters is difficult. Rectal exploration is dangerous and affords but little information regarding the actual condition of the kidney. Temporary ligation of the ureter, by an incision as in the operation for tying the common iliac, the urine conveyed by the opposite ureter being allowed to collect in the bladder,

is a certain but too serious method. Examination of the kidney, after the abdomen has been opened, does not give complete evidence, but the difficulty may be overcome by clamping or ligating the ureter and injecting subcutaneously a solution of iodide of potassium, as suggested by Gluck. In a few minutes the urine may be examined for iodine. This method is also certain, but involves the risks of abdominal section in order to arrive at a diagnosis. Dr. Polk's plan is a modification of the last mentioned. A large catheter of block tin, or similar substance, bent in the shape of Sim's sigmoid catheter, with a decided bladder-curve, is passed, and the patient is placed in the lithotomy position. Two fingers, or an instrument curved and grooved to receive the catheter, are carried as far as possible into the rectum. The ureter of either side may be compressed between the finger and the catheter, through which the bladder may be washed out, and the urine from the opposite side allowed to pass for examination. In the course of a few minutes enough urine for the purpose may be collected.

(See letter from W. T. Belfield, in *N. Y. Med. Rec.*, April 21, 1883, on "Catheterizing the female ureter by Pawlik's method.")

In the *Trans. Med.-Chir. Soc.*, 1883, 305, Sir Spencer Wells relates a case of enlarged cancerous kidney removed by abdominal incision. Death occurred on the fifth day, after rise of temperature and hematuria. There was no evidence of septicæmia, or of more than slight peritonitis. The suggestion is made in operating by this method to carefully close with sutures the incision in the peritoneum at the site of the kidney and in the anterior abdominal wall, in order to prevent the escape of inflammatory products into the peritoneal cavity, and to obviate adhesion of the intestine to the wounds.

In the *Brit. M. Jour.*, Sept. 29, 1883, 621, may be found an article by Lucas on the surgical diseases of the kidney.

Nephrotomy for hydronephrosis; recovery. A. T. Cabot.—*Bost. M. and S. Jour.*, Feb. 22, 1883.

A boy of ten had hematuria for two or three days after a fall down stairs, and several weeks after a tumor was noticed

on his right side. Forty ounces of clear, yellowish fluid were drawn off with the aspirator; specific gravity, 1007; reaction, alkaline; albumen, one fourth per cent.; no sugar. The sediment contained large, round cells and signet-ring cells, with red and white blood-corpuscles in varying stages of destruction. Nine days later aspiration was repeated, a smaller quantity of fluid, tinged with red and containing urea, being drawn off. The fluid rapidly re-accumulated, and a few weeks later a free incision, under antiseptic precautions, was made into the cyst. Two or three pints of amber-colored fluid escaped, which was found to be slightly acid, with a specific gravity of 1008, and containing indican, urea, chlorine, uric acid, and albumen. The sediment contained blood-corpuscles, leucocytes, triple phosphate crystals, round cells resembling renal epithelium, and cylinders like hyaline casts. Five and a half weeks after the operation the drainage-tube was removed and the wound rapidly healed. It is noticed that the urea and other urinary ingredients increased, and the albumen diminished with successive tappings; also that during an attack of carbolism following the operation the fluid from the wound was dark-colored like the urine from the bladder. The daily amount of urine excreted was found to be somewhat below normal. The author reviews the opinions of various authorities regarding a choice of operation in hydronephrosis, and expresses the opinion that in recent, and especially in traumatic, cases, aspiration may succeed. Where the cyst rapidly refills and the patient is obviously losing ground, antiseptic incision must be resorted to.

Large stone removed from the left kidney. *Lancet*, Lond., Feb. 17, 1883, 278.

At a meeting of the Clinical Society Mr. B. May showed a patient, from whose kidney he had removed a stone measuring three inches in length and weighing one ounce. The patient was a man, thirty-four years of age, who had his first symptoms of disease eighteen years before, in the form of severe and characteristic pain in the left loin. The pain recurred several times in the next few years, and finally left him, until twelve months ago. During all this time blood

would appear in the urine after exertion, and the urine habitually contained a ropy sediment. There is no doubt that the stone was present in the kidney from the time of the first suspicious symptoms. No tumor of the loin could be detected, and there was no tenderness on pressure or palpation. The act of stooping was the source of severe pain. On several occasions he passed small calculi. The kidney was incised vertically and the stone was removed, its presence having been demonstrated by acupuncture. Venous bleeding was profuse, but was controlled by pressure. The parenchyma of the kidney appeared healthy. For twenty-four hours there was much shock, with pain and hematuria. On the following day urine came through the lumbar wound, but it ceased to do so on the twenty-first day. The wound was healed by the fifth week, never showing any tendency to leave a fistula. During convalescence the patient had a slight attack of pleurisy with effusion. The urine is still turbid and contains a small quantity of pus and phosphates, but the patient feels perfectly well in every respect. The stone consisted largely of crystalline phosphate of lime, with perhaps two or three nuclei of oxalate of lime.

Floating kidney. F. P. Guiard.—*Ann. d. mal. d. org.-génito-urin.*, Sept. and Oct., 1883.

This condition is thought to be quite frequent, many cases being unrecognized, either because they exhibit no symptoms, or because the disturbance is misinterpreted. The displacement is rarely double; of 134 observations only nineteen were of the left kidney, a fact explained by its comparative exemption from mechanical disturbance during respiration, whereas the right kidney is pressed upon by the liver. It is much more frequent in women than in men, in consequence of their mode of dress and of the occurrence of renal congestion during the menstrual epoch; of 155 cases the proportion between the sexes was one hundred to eighteen. It is most often observed between the ages of eighteen and forty-five years.

Certain anatomical conditions predisposing to displacement of the kidney are discussed. Of pathological conditions favoring it, diseases of neighboring organs and of the

kidney itself are referred to separately. Affections of the liver—as hypertrophy and various tumors,—displacements of the uterus and of the intestines are supposed to have more or less influence. Tortuosity of the renal vessels, which has by some been considered a predisposing cause, is altogether discarded. Changes in the kidney itself are much more important and comprise hydronephrosis, calculi, tumors, and the various forms of inflammation to which the kidney is liable. Among determining causes the author includes constipation, fits of violent coughing, attempts to lift heavy weights, blows in the lumbar region or hypochondrium, etc.

After reviewing the symptoms, complications, prognosis, and diagnosis of movable kidney, the author passes to the consideration of treatment. When functional disturbance is absent or slight, no special treatment, except, perhaps, the use of a supporting bandage, may be required. When the patient is actually suffering, surgical intervention may become necessary. In 1866, Rollett advised rupturing of the adhesions which may hold the kidney in its abnormal position (**Pathology and therapeutics of movable kidney,** Erlangen, 1866). But this treatment is often impracticable and always dangerous. In 1878, Keppler reported eleven observations, and expressed the opinion that every floating kidney which tends to undermine the general health should be extirpated (*Arch. f. klin. Chir.*, B, xxiii., H. 3, 520). More recently Quénu has reported sixteen cases of nephrectomy for movable kidney. In two the lumbar incision was made and both patients recovered; in fourteen abdominal section was done with six deaths, two of the latter being complicated by encephaloid (*Arch. gén de méd.*, Dec., 1882). Hahn of Berlin was the first to practise fixation of movable kidney with success (*Semaine méd.*, June 7, 1883). Küster, Esmarch, and Delhaes, and, more recently, Prati and Bassini have been equally fortunate (*Ann. univ. di med. e chir.*, Sept., 1882). Landau opposes the operation for the reason that the renal circulation is disturbed by the traction on the blood-vessels in the new position of the kidney, and function is likely to be interfered with. Ollier asserts.

in opposition to Keppler, that he has never seen a simple movable kidney render life insupportable, or produce symptoms which could not be relieved by a bandage. He thinks that the condition does not justify extirpation (*Bull. Acad. de méd.*, Sept. 11, 1883).

Guiard, however, thinks that something more than external support may be required, and under such circumstances he recommends fixation by the method of Hahn. But when the kidney is diseased nephrectomy must be resorted to. The question of method of operating then arises, whether by abdominal or lumbar incision. Statistics seem to show that the latter is safer. Out of forty-six abdominal operations there have been twenty-three deaths; in fifty lumbar there have been only twenty-one deaths. The disadvantage of the latter method is the deficient space given. Czerny was obliged in one operation to resect the twelfth and the eleventh ribs. This of course involves risk of wounding the pleura. On the other hand, the abdominal operation permits the removal of the organ, whatever its size, and also facilitates the application of a ligature to the pedicle. These advantages outweigh the risk in opening the peritoneal cavity.

Weir, R. F. Fixation of movable kidney.—*N. Y. Med. Jour.*, Feb. 17, 1883.

SPLENECTOMY.

A successful case of removal of enlarged spleen. F. Franzolini.—*Wiener med. Wchnschr.*, No. 20, 1883, 623.

The patient was a delicate, hysterical woman, twenty-two years old, who had presented symptoms of splenic disturbance for nearly four years, chiefly pain in the left side on pressure and when standing. She had never suffered from malaria, nor lived in a malarial district. At length enlargement of the spleen was recognized, and about two years before the operation the white blood-corpuscles were found to be increased in proportion. At the time of operation anæmia was marked; there was no œdema, no albuminuria, and no glandular enlargement. The spleen measured twenty-four centimetres vertically, and twenty-seven centimetres

transversely. An incision twenty-two centimetres long was made in the linea alba to the left of the umbilicus; the spleen was pushed up toward the wound; double ligatures were placed on the splenic artery and vein, which were very much enlarged, and around the gastro-splenic ligament. Very little blood was lost. The spleen measured 26 centimetres in length, 16.5 centimetres in breadth, 7 centimetres in thickness, and weighed, after removal of 300 grammes of blood, 1526 grammes. The patient had an attack of pleurisy during convalescence, but finally recovered. The white blood-corpuscles gradually diminished in number, and, four months after the operation, the blood was almost normal.

Extirpation of the spleen. A. Blum.—*Arch. gén. de méd.*, Paris, June, 1883, 725.

The author has collected seventeen cases of splenectomy, consecutive to a wound or a hernia of the spleen. The details of most of them are incomplete, but it is noticeable that in every case recovery took place, and there was no subsequent impairment of health. Numerous experiments have been made which demonstrate that the organ is not indispensable to life. Zesas extirpated the spleen in six rabbits; four months later microscopic examination of the blood showed a decrease in the number of red blood-corpuscles, and increase in number and size of the white. Enlargement of the bronchial and mesenteric glands was also found, attributed by Schiff to peritoneal irritation. Crédé (*Arch. f. klin. Chir.*, 1882, 404) has collected thirty cases of extirpation of the spleen. In many the weight of the organ and the interval between the operation and the fatal issue are given. Death occurred in every case where leucæmia had pre-existed. The list of recoveries, six in number, not including an operation by Zacarelli in 1549, shows that two were cases of cyst, and four of hypertrophy. (The author makes several errors in his reproduction of Crédé's table. Bryant is credited with three cases, whereas only two are allowed by Crédé. The case of Ferrerius in 1711, which recovered, is omitted altogether. The case of Volney d' Orsay, which Blum puts down as fatal, Crédé includes among the cures. The cures, therefore, including Zacarelli's, which was

a case of abscess, have been nine,—four cases of hypertrophy, two of floating spleen, two of cyst, and one of abscess.) The remote effects of the operation appear to have been various. In most cases the proportion of white blood-corpuscles was increased, the change beginning to show itself in about four weeks after the operation, a return to the normal condition gradually taking place. This change seems to be due to loss of the function of the spleen—that of transforming into red globules the white corpuscles formed in the lymphatic organs. The restoration of the normal proportion seems to result from the assumption of the duty by the thyroid body. In conclusion, ablation of the prolapsed spleen is justifiable in cases of hernia through a wound. All the observations indicate the safety of the operation and its good results. Extirpation is contra-indicated in cases of cancer, and in hypertrophy of the spleen symptomatic of hepatic disease, or of malarial poisoning. Cysts of the spleen are curable by easier and safer methods. In movable spleen, if the symptoms are serious, the operation is indicated and is comparatively easy. It may be affirmed that splenectomy is practicable in man without impairing health. It is rarely indicated; it is impossible to ensure a good result, and there is danger of death from hemorrhage or shock.

Extirpation of the spleen. B. Crédé.—*Arch. f. klin. Chir.*, B. xxviii., H. 2, 401.

The patient was a man forty-four years old, who presented a tumor as large as a child's head in the left hypochondrium. It was first noticed about a year previous to the operation, and was attributed to a severe blow received in that region several years before. The tumor was movable, fluctuating, and only slightly sensitive. The urine was normal, and the microscope showed no changes in the blood. The tumor gave exit on puncture to 1,350 grammes of yellow fluid containing crystals of cholesterine. An incision was made from the ribs to the crest of the ileum, and the cyst, with the spleen, from which it was developed, was removed, the blood-vessels having been tied with double catgut ligature. The pedicle was returned to the abdominal cavity, and the wound

was closed antiseptically, no drainage-tube being used. The splenic tissue was found to be microscopically normal. The wound did well, but the patient became anæmic, and two months after the operation the proportion of white blood-corpuscles to red was one to three or four. Then improvement began, and in the course of four months and a half the patient was completely restored to health. Thirty operations, including his own, have been collected by the author, twenty-one of which were fatal; nine were successful. In five cases the blood was examined, and the following conclusions are drawn: (1) In the adult the spleen may be removed without harm; (2) its removal causes temporary disturbance of the blood-making functions; (3) this disturbance is compensated by increased activity of the function of the thyroid gland and of the marrow of the bones; (4) the spleen contributes to the creation of white blood-corpuscles.

IV.

SURGERY OF THE GENITO-URINARY ORGANS.

VESICAL CALCULUS.

The substitution of supra-pubic section for the various methods of perineal section as a general method of cystotomy. L. Villeneuve.—*Rev. de chir.*, Paris, Sept., 1883.

An interesting historical review of supra-pubic lithotomy, from the time of Franco in 1560, shows the reversals of opinion regarding the operation at various epochs, until now the tide is again turning in its favor. The author does not hesitate to announce his belief in its universal applicability where lithotrity is inadmissible. This result is due to three causes: the introduction of antiseptic surgery; the use of the vesical suture or its substitute, vesical drainage; and the use of the rectal colpeurynter or balloon, which bears the name of Petersen, although originally suggested by Milliot in 1875 (*Gaz. méd. de Par.*, 1875, 422). The combination of these three elements, together with distention of the bladder, tends to exclude the three great dangers of supra-pubic section—namely, septic phlegmon, infiltration of urine, and wound of the peritoneum. Périer has substituted drainage of the bladder for vesical suture, and the suggestions of Guyon have greatly diminished the risk of injuring the peritoneum. The steps of the operation, as done in accordance with the recommendations of Petersen, Guyon, and Périer are as follows: The patient is anæsthetized to complete relaxation

in order to abolish the contractility of the bladder, which is then washed out and injected with a four-per-cent. solution of boric acid. The solution should be warm, and is introduced through a stop-cock catheter, the return of the fluid between the catheter and the wall of the urethra being prevented by compressing the penis against the catheter by means of an elastic band. The quantity of liquid varies with the irritability of the bladder and the condition of its walls. The best guide is the degree of resistance felt by the hand which holds the piston of the syringe with which the injection is being made. A bladder of moderate tolerance will hold six hundred grammes, but in many cases the limit is reached with much less, and in practice a much smaller quantity is required. Next, the rectal balloon is introduced and distended with from four hundred to six hundred grammes of warm water. The bladder is thus lifted prominently above the pubes. An incision eight to ten centimetres in length is now made in the median line, beginning just above the pubes. The interstice between the pyramidalis muscles is sought for; but if not clearly defined, the muscular fibres are separated, and a fatty layer is now exposed, beneath which lie the transversalis fascia and the peritoneal fold. This layer of fat having been divided, the peritoneum is retracted toward the upper angle of the wound by means of the finger, which also serves as a guide to the future use of the bistoury. The bladder is now opened boldly in the median line. Hemorrhage is at this moment frequently considerable, but it ceases as the bladder empties itself and contracts. The finger is now passed through the wound into the bladder, and the catheter is withdrawn from the urethra by an assistant. The stone forceps are passed along the finger as a conductor, and the calculus is withdrawn, the vesical wound being enlarged downward, if necessary, to obviate bruising of the tissues and consequent failure of union by first intention. The wound is now carefully washed, and the rectal balloon is emptied and withdrawn. The finger is again passed into the bladder through the wound, for the detection of any fragments which may have been overlooked,

and also to serve as a guide to the introduction of two rubber drainage-tubes fenestrated at their extremities. These tubes are passed to the very bottom of the bladder, and are held in place by means of a silver suture, which passes also through the lips of the wound. One or two deep sutures and a set of superficial sutures close the wound, and a Lister dressing, perforated for the passage of the tubes, is applied. The dressing seldom needs renewing more than two or three times; the tubes are dispensed with at the end of a week; recovery is usually complete at about the twentieth day.

The author next enumerates the objections to perineal lithotomy under seven heads: first, the existence of prostatic hypertrophy; second, the risk of hemorrhage; third, the impossibility of extracting the stone by the perineum, on account of its size, or of its being encysted, or of that rare condition where the muscular wall of the bladder is firmly contracted at some part around the stone, or owing to deformity, new growth, or other abnormality; fourth, the danger of perineal fistula, of rectal fistula, and of permanent incontinence of urine; fifth, the danger of wounding the ejaculatory ducts and inducing sterility; sixth, the impossibility of introducing a guide into the bladder, either on account of the large size of the stone, around which the bladder is firmly contracted, or on account of impermeability of the urethra; seventh, the inapplicability of antiseptic dressings. In reviewing, on the other hand, the objections to supra-pubic section, the author first mentions the danger of wounding the peritoneum, and asserts that it has been greatly exaggerated. Combined rectal and vesical distention almost entirely remove this danger. The latter procedure is old, and the possibility of rupturing the bladder has been recognized, to such a degree, indeed, that Cheselden was deterred from further resort to the operation by its occurrence in his own experience. But within proper limits there is little risk. The safe quantity of fluid to be injected is given as six hundred grammes for the rectum and two hundred grammes for the bladder. Retraction of the peritoneum, as suggested by Guyon (*Ann. d. mal. d. org. génito-urin.*, Jan., 1883, 109), still further diminishes the risk,

and Duchastelet has shown (*Rev. de chir.*, Feb., 1883, 106), that a space above the pubes of seven to ten centimetres may be gained, whereas one of five to six is ordinarily sufficient. The accident is indicated by protrusion of omentum or of intestine; the peritoneum should be at once sewed up, and with antiseptic precautions and dressings no harm is likely to result. The danger of urinary infiltration is more real, but still this accident seems not to have happened very frequently. Souberbielle met with it only once in thirty-nine operations, and Dulles has recorded its occurrence only seven times in four hundred and seventy-eight operations. Two conditions are necessary for its production: the escape of urine by the supra-pubic wound, and a degree of raggedness in the lips of the wound, permitting the urine to accumulate. The latter source of danger may be avoided by making clean incisions in the median line, and by taking care not to contuse or disturb to a great extent the ante-vesical cellular tissue, especially behind the pubes. Many devices have been suggested to prevent the escape of urine by the wound. Among them Polluci, in 1750, suggested perforation of the perineum for the introduction of a drainage-tube: Deschamps (1796) brought the tube through the rectum instead of the perineum; the upright position in bed and abdominal decubitus have been recommended; section by means of the actual cautery was suggested by Amussat, and Vidal de Cassis (1852) proposed to divide the operation into two stages. Suture of the bladder, as devised by Duchastelet, and the drainage-tubes of Périer may be more or less efficacious in preventing the passage of urine through the wound, but with reference to suture it should be remembered that the conditions as regards the health and strength of the vesical wall are quite different in stone and in laceration of the bladder from violence, where the operation of cystorrhaphy has been so successful. French surgeons, as a rule, have, therefore, discarded vesical suture, but it still remains an end greatly to be desired as a means of accomplishing primary union of the wound. It is even suggested, at least in the case of large calculi, that the bladder be opened on its superior face, where covered by peritoneum;

this membrane, by its plasticity and tendency to quick repair, compensating for the weakness of the vesical wall. Antiseptic surgery deprives such an operation of most of its risk. A brief reference is made to the employment of permanent baths after the operation as practised by Sonnenberg (*Arch. f. klin. Chir.*, B. xxviii., H. 4; also *Marseille méd.*, May, 1883).

After discussing the relations of age, sex, and constitutional diathesis to the choice of a method of operating for stone, the author formulates the following conclusions:

(1) Hypogastric lithotomy, which has hitherto been exceptional, deserves to become general, although not exclusive.

(2) It should be practised with all the details described: the rectal balloon, vesical injection, retraction of the peritoneal cul-de-sac, double-tube syphon, antiseptic precautions and dressings.

(3) Vesical suture, as at present practised, is imperfect, and should be discarded. However, it still remains an ideal, the achievement of which will establish beyond question the superiority of supra-pubic cystotomy.

(4) Hypogastric cystotomy is the only resource in voluminous and encysted calculi, in cases of intolerant bladder, and of impermeable urethra, or of contracted vagina.

(5) The indications are that it will become the operation of choice in old subjects, and in adults, where lithotrity is inapplicable, and which have hitherto been treated by different perineal methods.

(6) In male children it will probably prove at least equal to perineal section. But the good results in these cases with the latter operation render the adoption of the high operation less imperative.

(7) In girls, to the age of puberty, the hypogastric section is preferable.

(8) In adult women the question of choice between hypogastric and vaginal section requires further investigation.

(9) Inflammatory affections of the uterus, or marked deformity of the bladder, especially cystocele, necessitate the high operation.

(10) Supra-pubic section in adult women should be preceded by dilatation of the urethra.

(11) Constitutional affections, or diatheses, furnish no indication as to choice of operation.

(12) The same applies to the danger of wounding branches of the sympathetic, which may be involved in the different operations.

(13) Statistics hitherto published are incomplete as regards the use of hypogastric section in the cases included under numbers 5 and 6 of these conclusions.

Guyon, F. Clinical contribution to the study of supra-pubic lithotomy.—*Ann. d. mal. d. org. génito-urin.*, Par., 1882–3, i., 1, 97.

Zesas, D. G. The question of high lithotomy, etc.—*Arch. f. klin. Chir.*, Berl., 1882–3, xxviii., 883.

Valude, E. Vesical calculus: supra-pubic lithotomy.—*Rev. mens. d. mal. de l'enf.*, Paris, 1883, i., 268.

de Fisher, R. A case of high lithotomy.—*Wien. med. Presse*, 1883, xxiv., 600.

Supra-pubic lithotomy.—*France méd.*, Paris, Feb. 3, 1883.

Three cases are reported by Monod, two of which were successful. In the first the rectal balloon of Petersen was used and the bladder was also distended. The patient was a man of eighty-two years, on whom lithotrity had already been done at the age of seventeen. The calculus was very large, and was removed with some difficulty on account of being sacculated. Recovery was not complete until the end of two months. The second case was that of a man seventy-five years old, who had also a very narrow urethral stricture. The operation was easy; the stone was small, weighing only fifty-two grammes. The patient died, on the fifth day, of interstitial nephritis. The third case was in a man of fifty-six. The stone was very hard, resisting the most powerful lithotrites. In this case the bladder was ruptured during the process of injecting it with fluid. Although the patient seemed to be thoroughly anæsthetized, the bladder resisted distention, and during the gentle injection of an additional quantity of fluid, 150 grammes already having been forced in, the vesical wall suddenly gave way. The fluid was found to have passed into the sub-peritoneal cellular tissue, a considerable quantity still remaining in the bladder. The

calculus was removed without difficulty; it was composed of oxalate of lime, and measured four centimetres by three. In spite of this accident the patient recovered in three months.

The author gives the following cases in which the balloon of Petersen has been used: Périer, two cases, one death; Ledentu, one case, recovery; Guyon, eight cases, five recoveries, three deaths, only one of which can be justly attributed to the operation; Monod, three cases, two recoveries, one death, not due to the operation. In the discussion of the paper Verneuil mentioned a case in a man of sixty, an unfavorable case in other respects, besides being the subject of a large double hernia. As pointed out by Broussin, this condition is not necessarily an obstacle to the operation, since the peritoneum descends no lower in consequence of the hernia. Verneuil also called attention to the presence of enlarged prostate as a contra-indication to perineal section, on account of the danger of hemorrhage and of subsequent suppuration. Th. Anger had done the operation twice, using a sound specially devised for pushing up the bladder, in place of the rectal balloon of Petersen. One case was fatal from peritonitis due to a renal abscess opening into the peritoneum. Tillaux remarked that in his experiments on the cadaver, he had always observed rupture of the bladder to take place on the lateral walls of the viscus. He had also noticed that in injecting the bladder through the urethra, rupture never occurred, provided the urethra were not wholly obstructed. Verneuil stated that he had met with a case of rupture of the bladder where the cavity contained not more than 125 grammes of fluid, which had been injected with care. The patient died in three days of pelvic cellulitis or peritonitis. With reference to the rectal balloon, Monod remarked that the instrument has the advantage, by pushing the bladder forward, not only of bringing it within easy access above the pubes, but also of preventing retro-pubic infiltration of urine and its consequences.

Hypogastric cystorrhaphy. L. Duchastelet.—*Rev. de chir.*, Paris, Jan., 1883.

In the operation of supra-pubic cystotomy it is desirable:

(1) to avoid wounding the peritoneum; (2) to obviate effusion and infiltration of the urine. With reference to the former point the author has made several experiments on the cadaver, in order to determine the height to which the pre-vesical cul-de-sac of peritoneum rises in various degrees of repletion of the bladder. Without dissecting up the peritoneum the space was found to be insufficient for supra-pubic lithotomy—namely, three and a half centimetres when the bladder had been injected with 250 grammes of fluid. This amount of fluid was considered all that the bladder would contain in the living subject without undue distention. This limited available space was found to be increased to seven centimetres after dissecting up the peritoneum. Moreover, in the living subject an additional advantage is assured by the fact that the contractile power of the bladder gives it a more nearly spherical form, so that more of its anterior face is brought into proximity with the abdominal wall, whereas in the cadaver the bladder tends to be flattened antero-posteriorly. The second indication the author proposes to meet by introducing the sutures before incising the vesical wall. Other propositions looking to the same end—such as abdominal decubitus, and continual drainage of the bladder by a catheter in the urethra, or by tubes or siphons passed through the abdominal wound—have been found to have some practical objection. Suture of the bladder has heretofore been done after incision of the organ, and it has been found extremely difficult to insert the sutures with regularity and without the risk of so injuring the edges of the vesical wound as to retard union. The chief causes of failure of supra-pubic cystotomy have heretofore been defective sutures and urinary infiltration on account of prolongation of the operation or of imperfect drainage of the bladder. Experience has demonstrated that most rapid union is obtained when the external surfaces of the bladder are brought in contact. For this purpose the suture of Lembert is superior. The best material for sutures is considered by the author to be carbolized silk; being of animal origin it is easily tolerated by the tissues and it remains unabsorbed a sufficient length of time to ensure adhesion of the wound.

Preliminary suture has already been practised in staphylorraphy by Bérard, the material used being wire, which would be inconvenient and unsuitable for cystorrhaphy. Duchastelet suggests for long operations and in cases of large calculi a row of sutures inserted, like Lembert's, through the outer coat of the bladder on each side of the line of proposed incision. The sutures are divided at their middle, and their ends are tied temporarily to prevent slipping. The incision is then made, and the calculus removed. The temporary knots are cut, the sutures reunited at their middle, and their external ends are tied. This method, of course, involves a row of knots between the surfaces of contact. Moreover, the presence of four suture-ends at each point might lead to confusion in tying the knots, while absence of a guide for the knife exposes the sutures to danger of division by deviation of the blade from a straight line.

To overcome these objections the author has devised an instrument which acts as a steady guide to the knife, while permitting the operator to withdraw from danger the preliminary sutures. The instrument (called the "cystorrhaphe," a plate of which accompanies the paper) consists of a female blade, grooved for the reception of the male blade, and fenestrated to permit the introduction of the knife. Near its upper or umbilical end is a transverse notch for catching the loop of the first suture, and a handle with a longitudinal notch through which the ends of the first suture are to be passed. At its pubic end is a recurved detachable point for puncturing and holding the bladder; or, if preferred, a straight point may be used for fixing the lower end of the instrument in the pubic bone. The male blade, shorter than the female, is a rod, which fits the groove in the female blade, and has a curved handle at its upper end and a hook for catching the loops of the sutures at its lower end. In operating, the incisions through the skin and cellular tissue are made from above downward, but on reaching the superficial fascia it is found better to cut from below upward in order more surely to strike the inter-pyramidal space. The next step is to puncture the deep fascia and determine the limit of the perito-

neal cul-de-sac. This having been done, the peritoneum is reflected and drawn toward the upper end of the wound by the finger of an assistant. The anterior surface of the bladder is thus exposed, and the "cystorrhaphe" may be fixed in position. The first vesical suture is introduced five to six centimetres above the pubes, its middle crossing in the transverse notch and its ends being drawn through the longitudinal notch in the handle of the female blade, not touching the male blade. The remaining sutures, six or seven in number, all cross both blades, the lowermost being inserted so as to include the pyramidal muscles as well as the outer coat of the bladder. Now, in withdrawing the male blade, all the sutures are drawn upward by its hooked end, except the first one, which remains to hold firm the upper end of the female blade, while at the same time it retracts the peritoneum. The lower end of the female blade is meanwhile still fixed by its terminal spike. The point of the knife is now inserted into the fenestra, and an incision is made from below upward, care being taken to stop short of the upper suture. The female blade is now removed and the calculus extracted. Finally the suture-loops are lifted one by one from the hook of the male blade and tied from below upward. The advantages claimed for this procedure are: (1) the possibility of introducing the sutures regularly and symmetrically; (2) the provision of an absolute guide as to the length and direction of the incision in the wall of the bladder; (3) the ability to rapidly close the wound. A fourth recommendation should be noticed. The uppermost suture, by dragging into close apposition the anterior face of the bladder and the external parts, prevents the escape of urine into the peritoneal cavity, in case of an accidental wound of the cul-de-sac. The instrument has not yet been used by the author in the living subject, but numerous experiments on the human cadaver seem to promise that it will be of value in vesical surgery, especially in connection with antiseptic precautions.

A new mode of detecting stone in the bladder: the auditory method. J. M. Davidson.—*Lancet*, Lond., July 1, 1882, and Nov. 3, 1883.

The instrument, which the inventor proposes to call the "lithophone," is the outgrowth of certain experiments which were made with a piece of ordinary rubber tubing attached to the handle of the stone-searcher, the free end being placed in the ear of the operator. In the former communication it was claimed for this procedure: (1) that a small calculus, which would otherwise be overlooked, might be detected; (2) that it would enable the operator to readily determine the size and character of the surface of a calculus; (3) that a similar ear-connection with the lithotrite might enable the operator to readily find, secure, and crush small fragments. It was found that the weight of a tube three eighths of an inch in diameter—a calibre which gave the best results—was an obstacle to the delicacy of touch. The second paper explains the manner in which the difficulty has been overcome. A piece of india-rubber tubing, twenty-six to thirty inches long, and with a bore of three sixteenths to one eighth of an inch, is folded on itself at one end. This end of the tube is held firmly against the handle of the sound; the long part of the tube, which must lie next the handle, going to the ear. To carry out the plan more conveniently, the author has had a sound made with a hollow cylindrical handle, resembling that of Thompson's searcher. The handle is two inches and a quarter long and half an inch in diameter. It is open at the proximal extremity to admit the folded end of the rubber tubing. The aural extremity of the tubing may be fitted with an ear-piece like that of the otoscope. A binaural instrument may be constructed by taking a piece of tubing of unusual length (four and a half to five feet), folding it in the middle, and thrusting the loop into the tubular handle of the sound. Instead of folding its end, the tubing may be provided with an egg-shaped bulb, which is to be squeezed into the handle of the searcher. Thus, exploration of the bladder may be conducted by a combination of the senses of touch and hearing. A particle of sand, weighing less than $\frac{1}{500}$th of a grain, lying

on cotton-wool, was detected with the lithophone. For ordinary use the instrument is, of course, not required; but in difficult and obscure cases it may be indispensable. The author states that he has recently discovered that the idea which he has developed is not new, it having been first suggested in the *Irish Hospital Gazette*, 1873.

As an appendix to the second paper, Prof. Ogston relates a case showing the success of the lithophone, where the ordinary sound had failed to detect a calculus. He expresses his conviction of its great value.

A simplified evacuator for litholapaxy. H. J. Bigelow.—*Boston M. & S. J.*, 1883, cviii., 25; also *N. Y. Med. Jour.*, 1883, xxxvii., 38.

The great difficulty hitherto has been to furnish an evacuating apparatus which should allow the fragments of stone to be detained in the receiver. Nearly all the aspirators have the fault of washing back into the bladder a certain quantity of débris. To overcome this objection the author has modified his evacuator, so that practically the tube is prolonged into the bulb for about two inches, by the insertion of a cylinder with perforated walls, the fragments being carried through the end of the tube, and the return current being strained through the perforations. A valve may be attached to the end of the cylinder, but it is not essential. The evacuating catheter, the straining tube, and the bulb being in a straight line, the current is not deflected and thereby diminished in force. During aspiration the fragments are drawn through the end of the tube to the widest part of the bulb, where they spread out and fall toward the glass receiver attached to the bottom of the bulb. Under compression of the bulb, the return current passes mostly through the perforations, since their area is collectively larger than that of the terminal opening, and because they are nearer the outlet of the bulb. The tube-strainer is readily removed, cleaned, and replaced. The following are the advantages of the apparatus: (1) The trap, being within the bulb, the instrument is shorter, more compact, and more easily held. The bulb, being in a straight line with the catheter, forms a concentric handle, by which the catheter

is more readily directed. (2) The glass receiver is attached to the bottom of the bulb and is easily seen. A glass cylinder shows fragments better than a globe, but is less capacious. (3) The oscillation communicated to the catheter by compression of the bulb is prevented, and the necessity of a separate stand for the instrument is dispensed with by the addition of a metal brace, which unites the collar of the catheter with that of the glass receiver. (4) An elastic hose for attachment to the top of the bulb facilitates the operation. It enables the operator to regulate at pleasure the amount of water. More fluid is usually required at the beginning of the operation than later on, when but few fragments are left in the bladder. If preferred, a funnel may be used in filling the bulb. A second stopcock at the end of the catheter is found to be advantageous, in order to obviate wetting the bed-clothing on removal of the bulb.

A simplified evacuator for the removal of débris from the bladder after lithotrity. F. N. Otis.—*N. Y. Med. Rec.*, Nov. 3, 1883, 480.

Dr. Otis reiterates his claim to the credit of having actually rendered lithotrity at one sitting practicable by demonstrating the normal dimensions, or at least the full capacity, of the urethra. The failure of Clover to reach this end is doubtless due to the prevailing under-estimate of the urethral calibre. The size of the evacuating tubes continued too small, until it was proved that much larger tubes might safely be used. Another obstacle to the operation at a single sitting was the supposed intolerance of the bladder to prolonged surgical interference. Otis claims to have recognized this misconception, and to have made use of the remarkable tolerance of the bladder in an operation at least two years before the appearance of Bigelow's brochure on "Litholapaxy." The smallest efficient evacuating tube has been found to be one having a calibre of twenty-seven F., the largest necessary has a calibre of thirty-two F., which is more than one millimetre less than the average normal calibre of the urethra. The idea of an invariable relation between the size of the urethra and the circumference of the penis, first suggested by Otis in 1875, has been con-

firmed by experience. Any deviation from this relation is pathological, and should be remedied before undertaking the operation of litholapaxy. It is advisable also to allow the patient to entirely recover from a preliminary meatotomy or urethrotomy, before proceeding to the major operation. Forcible interference with a diseased prostate should be avoided, as far as possible, and when obstruction exists at this point, the smallest tube which will be efficient in removing the débris should be used. Every obstruction elsewhere, to a degree preventing the introduction of a tube not more than twenty-six or twenty-seven mm. in circumference, should be removed by dilatation or division. A difference of a few millimetres in the size of the tube makes a great difference in its evacuating capacity. With an evacuating tube thirty mm. in circumference, twenty pressures on the bulb, at intervals of one second and a half, withdrew from a glass bottle three hundred grains of crushed coral. Under exactly similar circumstances only 180 grains were withdrawn with a tube twenty-seven mm. in circumference. The shape of the tube is also important. The straight tube has the advantage of giving more ready exit to the débris, but it is somewhat difficult to introduce. The author has therefore added to it a curved projection, which gives an instrument combining facility of introduction with freedom of evacuation. The early evacuating apparatus of Bigelow was composed simply of a strong rubber bulb with a glass receiver at one end for débris and a tube at the other for attachment to the evacuating catheter. It was found that fragments withdrawn from the bladder were often carried back by the return current, and that air was forced into the bladder. In attempting to remedy these faults the complexity, weight, and expense of the apparatus have been much increased. Bigelow and Sir Henry Thompson have each suggested modifications of the original instrument, which admirably fill the requirements, as regards the securing of a short route from the bladder to a reservoir in which the fragments may remain undisturbed. Otis' apparatus gives the same advantages, and in addition is much lighter and less expensive. It consists essentially of a glass bulb two inches

in diameter, on one side of which is fitted a metallic tube curved downward for a short distance within the globe, and to be attached externally to the evacuating tube; on its opposite side is another metal tube, similarly curved upward, and connected externally with a rubber bulb; to the under-surface of the globe a glass reservoir is attached by a bayonet joint. The fragments lie in the reservoir entirely undisturbed by the current, which passes across the globe between the ends of the curved tubes.

An evacuating straight tube for use in rapid lithotrity. E. L. Keyes.—*Lancet*, Lond., April 14, 1883.

This instrument has been devised to overcome the difficulty in introducing the ordinary straight tube. At the same time the danger of lacerating the urethra by a fragment detained in the eye of the tube is removed, by the fact that the opening is at the end of the tube. The instrument consists of a straight metal tube of uniform calibre. Through the tube passes a hollow rod of hard-rubber, terminating in a slightly curved bulbous extremity of soft rubber, which projects beyond the end of the metal tube and bulges a little over its edges, thus preventing injury to the urethra as the tube passes. Running through the hard-rubber rod to its extremity is a stylet, which is fastened to the end of the soft-rubber tip. The rod has a collar at its proximal end, and the stylet a button. The bulging soft-rubber tip prevents the rod from passing through the metal tube. In order, therefore, to introduce or withdraw the rod, its collar is held between the first and second fingers while the thumb presses upon the button of the stylet. In this way the bulbous tip is elongated and narrowed, and easily passes along the tube. The instrument is intended rather as an adjuvant to the tubes in ordinary use, than as a substitute for them. The inventor claims that it can be introduced as easily as a Mercier catheter, and that it is found to be especially useful toward the end of an operation in aspirating a fragment which is apt to elude the evacuator now in use.

Guyon, F. and E. Desnos. Aspiration of fragments after lithotrity.—*Ann. d. mal. d. org. génito-urin.*, Paris, 1882–3, i., 165, 213.

DIGITAL EXPLORATION AND TUMORS OF THE BLADDER.

On exploration of the bladder by perineal section of the urethra. Sir Henry Thompson.—*Lancet*, Feb. 3 and 10, 1883.

This procedure is recommended rather as a last resort, after ordinary methods of exploration have failed to give the desired information. The entire inner surface of the bladder may be examined with the tip of the index finger passed through a cut in the perineum. Four conditions are essential: (1) complete anæsthesia of the patient, in order to ensure muscular relaxation; (2) the tip of the operator's finger must be able to reach within the internal meatus at the neck of the bladder; (3) the bladder must be empty—not distended by urine or disease; (4) firm supra-pubic pressure with the right hand, while the left is engaged in exploration. In making the incision the median line is chosen as giving the most direct route to the bladder. The patient is placed in the lithotomy position, and a median grooved staff is passed into the bladder. The point of a long straight bistoury is entered three quarters of an inch above the anus, the left index finger being placed in the rectum to serve as a guide to the introduction of the knife. The membranous urethra is incised close to the bulb to the extent of about half an inch, or sufficiently to admit the finger. The wound in the skin should be an inch to an inch and a quarter in length. The left index finger is then passed into the wound and gently insinuated to the neck of the bladder. The staff is withdrawn when the finger reaches the prostatic urethra. As a rule there is very little bleeding. For the removal of tumors and morbid growths the author uses forceps, which are so constructed as to crush off without cutting, the risk of hemorrhage being thus much reduced. Curved forceps, especially devised for the purpose, are required for growths close to the neck of the bladder. The forceps are introduced after the nature and site of the tumor has been determined by the finger, which is then withdrawn, the passage not being ample enough to easily accommmodate both finger and instrument. The latter fact is an obstacle to the use of

the écraseur, since the finger is required to adjust the wire. At the conclusion of the operation the bladder is washed out with a current of cool water, and a large vulcanized catheter is introduced through the wound, so that about half an inch of its extremity lies in the bladder, the other end being placed in a bottle adjusted to receive the contents of the bladder. Hemorrhage is frequently profuse during twenty-four to forty-eight hours, and then gradually ceases. Pain is sometimes severe, and may require to be controlled by morphine. The tube should remain in the bladder from five to eight days. Thirteen cases are reported, in five of which polypoid growths were removed. Death occurred in two cases; in one, a man seventy-two years old, from exhaustion; in the other the tumor had rather a wide base and nearly filled the bladder, and death resulted from hemorrhage. In every other case the symptoms were either entirely cured or greatly relieved, even though no tumor was removed. An additional case is cited of a tumor, occurring in a female, which was removed through the dilated urethra with excellent result.

In the *Lancet* of June 16, 1883, may be found an abstract of a paper by the author of twelve cases of tumor of the bladder, ten in the male and two in the female. Up to that time he had explored the bladder twenty-seven times, and had found tumors in twelve cases, in other cases affording relief by the operation. So long as the neck of the bladder is not incised, the operation is not a serious one. In one case the bladder gave way under traction; and in pressing upon the bladder the surgeon should bear in mind the possibility of inverting its anterior wall, and thus exposing it to the risk of being seized and torn. After crushing the growth, the fragments may generally be detached with the finger, and removed by irrigation, or by means of the scoop.

In a letter to the *Lancet*, Nov. 3, 1883, called out by the paper of Whitehead and Pollard, a summary of which may be found in this section, Thompson alludes to the omission of these authors to state the whole number of his cases (*27*). He adds that the total is now much larger. With regard to

inability to explore the whole interior of the bladder, he states that he has met with it in but one case.

(For report of discussion on "exploring the bladder by perineal section of the urethra, and for removing vesical tumor, impacted calculus, etc., with cases," see *Proc. Roy. Med. and Chir. Soc.*, Jan.–March, 1883; also Thompson's paper in full in *Trans. M.-Chir. Soc.*, 1883.)

A case where direct exploration of the bladder was employed and a tumor of the prostate removed. R. Harrison.—*Liverpool Med.-Chir. Trans.*, Jan., 1883, 139.

A man, eighty years of age, had complained of frequent urination and hematuria for nine months. Two or three months before operation the left testicle became swollen, and soon after the right also, the latter still being enlarged at the time of the operation. There was slight hypertrophy of the prostate; the urine, which was passed every two hours, contained blood, but no villous tufts were detected. On making a median section of the membranous urethra, a hard mass was felt projecting into the prostatic urethra and occupying the neck of the bladder. This was enucleated with some difficulty, and proved to be as large as the last phalanx of the thumb and as hard as scirrhus. By means of forceps most of the remaining induration in the prostate gland was removed. Owing to the depth of the perineum, the interior of the bladder could not be satisfactorily explored. The author believes that the removal of a tumor from the bladder or the prostate gland can be better accomplished by lateral than by median incision. There was no hemorrhage, yet as a precaution the wound was tamponed for forty-eight hours. The blood disappeared from the urine for ten days and then recurred, although the symptoms otherwise were considerably alleviated. A partial examination of the tumor showed it to be carcinomatous, and therefore no permanent benefit could be expected.

Surgical intervention in tumors of the bladder. P. Bazy.—*Ann. d. mal. d. org. génito-urin.*, Sept. and Oct., 1883.

The author relates eleven cases of tumor of the bladder; one operated upon by himself is for the first time published. After an exhaustive analysis of the subject, he draws

the following conclusions: (1) intra-vesical tumors are amenable to treatment and cure; (2) tumors, malignant or benign, pediculated or sessile, may be operated upon; (3) operation is contra-indicated in cases of involvement of neighboring organs, of diffuse neoplasms, and of marked renal disease; (4) direct digital exploration is permissible only when the gravity of the symptoms demands an operation,—it may be made by the perineum or above the pubes,—the latter is no more dangerous, and permits a thorough operation if necessary; (5) the operation may be curative, as in the case of pediculated tumors or benign growths of any sort,—or it may be palliative,—the latter holds in the case of certain functional disturbances; (6) hypogastric is preferable to perineal section; (7) Petersen's rectal balloon is indispensable in the hypogastric operation; (8) a median incision is not always sufficient,—an L-shaped or a curved incision may sometimes be useful; (9) the tumor may be removed by the ligature, by torsion if it is pediculated, or by scraping; (10) the wall of the bladder itself may require to be removed in its whole thickness or in part; (11) excision involving its entire thickness should be reserved for neoplasms occupying its posterior or perhaps its lateral wall; (12) suture is indispensable in complete and optional in partial removal of the vesical wall; (13) the danger of urinary infiltration has been exaggerated; (14) in every case drainage of the bladder should be provided for,—the double syphon-tubes of Périer and Guyon seem best adapted to the purpose.

The surgical treatment of tumors and other obscure conditions of the bladder. W. Whitehead and B. Pollard.—*Lancet*, Lond., Oct. 6, 13, and 20, 1883.

The credit of having been the first to fully realize its value and to actually perform the operation of opening the membranous urethra, simply for the purpose of investigating obscure disease of the bladder, is accorded to Sir Henry Thompson. In the present paper are given the records of a number of cases, preceded by a review of the pathology of vesical tumors and the means of reaching a diagnosis. The various component tissues of the bladder may give rise to new growths common to similar tissues in other situations. Thus,

from the connective tissue may spring fibroma, myxoma, sarcoma, and enchondroma, the latter being included on the authority of only two reported cases; at least one of these is doubtful, being suspected by Cornil and Ranvier of having been a secondary growth, originating primarily in the pelvis. From the muscular tissue may develop myoma, from the epithelium epithelioma, and from the gland epithelium carcinoma. In addition, villous tumors may spring from the sub-mucous connective tissue. The term villous is applied to these growths on account of their naked-eye appearance; they have also been called papillomata, improperly so, because normally there are no papillæ in the mucous membrane of the bladder. Yet, from their structure,—consisting of vascular loops supported by connective tissue and covered by epithelium,—they are regarded as true papillomata of new formation. It is observed that papillation is a very common feature of vesical growths; hence we meet with papillary fibroma, papillary sarcoma, etc. Eight histological varieties of vesical tumors are therefore recognized: fibroma, myxoma, sarcoma, myoma, enchondroma, epithelioma, carcinoma, and papilloma. The following are the chief aids to diagnosis of intra-vesical tumors: (1) The detection in the urine of minute tufts detached from the parent growth. Microscopically these consist of branched villi, with central capillary loops covered with one or more layers of epithelium. These tufts may be passed spontaneously, together with coagula derived from these vascular and friable growths, or (2) they may be caught and withdrawn in the eye of a catheter used to empty the bladder. The catheter, as an instrument for diagnosis, should be used with caution, septic infection and fatal hemorrhage having been known to follow its employment. In addition to procuring fragments of the growth for examination, the catheter may give a characteristic sensation as it comes in contact with the morbid mass in the bladder. This sensation has been compared to such as might be conveyed by floating hair, or spongy substance, or by a velvety or woolly surface. (3) The use of the sound for the detection of any irregularity in the surface of the

bladder. (4) Bimanual palpation. In females, Simon recommends passing the index finger into the dilated urethra, and the middle finger into the vagina, the other hand being used at the same time externally to press the bladder downward. Volkmann advises, in male subjects, the passing of one or two fingers, according to the age of the patient, into the rectum, while an assistant presses with both hands in the hypogastric region. If the surgeon detects any disease, he glides his own hand beneath those of his assistant, and is thus enabled to gain a good idea of the morbid growth. (5) Digital exploration of the bladder. This is the final and most certain method of arriving at a diagnosis, and in females it is easy of performance. The anatomical condition of the male may be made to approximate that of the female by opening the membranous urethra. In many cases a complete exploration of the male bladder may doubtless be made with the tip of the finger passed through a perineal opening. But, at least three causes may furnish obstacles to a complete examination: (1) stoutness of the patient, by which the depth of the perineum is much increased; (2) enlargement of the prostate, by which the bladder is pushed farther from the perineum; (3) considerable narrowing of the pelvic outlet, which prevents pushing the hand well into the perineum.

Digital exploration of the bladder is warranted in cases of vesical hematuria, accompanied by pain and frequency of micturition, the cause of which is obscure. Cases of simple hematuria have been relieved by this operation, the source of the hemorrhage having probably been varicose veins at the neck of the bladder. The success of the operation was due to subsequent drainage and contraction of the bladder. Cases in which pain connected with the bladder is the only symptom complained of may be relieved by this procedure. The operations which have been performed for removal of tumors from the male bladder are: (1) lateral cystotomy, identical with lateral lithotomy; (2) suprapubic cystotomy; (3) a combination of these two; (4) a combination of perineal urethrotomy and suprapubic cystotomy; (5) the more modern operation of median perineal urethrotomy.

The last is the least serious, and may be looked upon as quite safe, if the parts at the neck of the bladder be not torn. The cutting should be limited to the membranous urethra, the prostatic region being dilated by means of the finger. With the right followed by the left forefinger, suprapubic pressure being maintained with the disengaged hand or by an assistant, the whole interior of the bladder may be examined. Pedunculated tumors may be removed with forceps or écraseur, the base of the growth being scooped out, if necessary, with the finger-nail or a sharp spoon. Sessile growths must be torn away or removed piecemeal by the fingers, forceps, or spoon. Hemorrhage is easily controlled by injecting into the bladder undiluted perchloride of iron, which has now been used many times without bad result. After the operation a soft elastic tube is retained in the wound, through which the urine drains away and the bladder may be washed out. In females the examination is much easier, the urethra having first been rapidly dilated by the introduction of œsophageal bougies. The only case of incontinence recorded followed the use of a sponge tent for this purpose. In cases of malignant disease the operation may be justifiable as a palliative measure, permanent cure being out of the question. Even though the growth cannot be completely removed, the most serious source of danger, hemorrhage, is greatly lessened. Ten cases are related in which this operation has been done by Whitehead. Case 1 was one of numerous small villous growths on the trigone, the removal of which with Volkmann's spoon was followed by complete cessation of hematuria. The patient was a practising surgeon, seventy years old, with a history of acute cystitis nine years before and of occasional hematuria and irritability of the bladder during the last two years. Case 2 was one of villous epithelioma behind the pubes in a man fifty-seven years of age. Violent hematuria, with one short interval of freedom, persisted for more than a month, was followed by a period of rest for three months, and then recurred. The perineum was opened, the growth removed with the finger-nail, and an ordinary lithotomy tube was tied in the wound. There was no spontaneous hematuria after

the operation, but the patient had a great deal of pain for three weeks. He also developed cystitis and an abscess formed near the perineal opening. Two months after the operation he had a violent clonic convulsion, which passed off, leaving him in a state of irritable mania. Death occurred about a month later. In this case a weak solution of perchloride of iron was most effectual in checking the hemorrhage. For the profuse secretion of mucus accompanying the cystitis a solution of nitrate of silver (one to eight grains to the ounce) acted well. In case 3 it was found impossible to explore the bladder on account of the depth of the pelvis. The patient was sixty-three years old and very stout. He first had hemorrhage from the bladder five years before the operation. He afterward had occasional attacks of bleeding accompanied by pain. At the time of the operation he was passing large quantities of bright blood; the urine was purulent, alkaline, and fetid. Ruspini's styptic checked the bleeding temporarily. Although the patient was thoroughly anæsthetized and the bladder empty, with firm pressure above the pubes, the finger could be made to only just enter the bladder. Ring forceps withdrew quantities of substance resembling granulation tissue and caused profuse hemorrhage. The bladder was then gently scraped with Sim's uterine scraper, afterward was washed out with tepid water and injected with a solution of iron (one to four). The iron was allowed to escape in two minutes, and the bladder was again washed out with warm water. A large and unusually long lithotomy tube was required for drainage. Paroxysms of scalding sensation along the penis, accompanied by flow of urine from the tube, occurred every half hour, gradually became less frequent, and in about nine months the patient was almost entirely well. The nitrate-of-silver solution was in this case also of benefit. Case 4 was one of villous growth springing from the fundus. Symptoms had been present for sixteen months. The patient, a man of thirty-three years, had also a stricture of the urethra following gonorrhœa, and during four months had passed fifty or sixty small calculi. The urine contained blood and pus, and crystals of oxalate of lime, but no casts were de-

tected. The new growth was removed with a spoon through a median perineal opening. The hematuria ceased, but the urine still contained pus. In about two weeks the bleeding recurred, but improvement again took place and the patient was considered convalescent. Signs of pulmonary complication appeared; three months after the operation the patient died, having had a severe convulsion two days before. The left kidney was found to be a typical specimen of the "large white kidney"; the right kidney was converted into a mere bag of pus. The bladder was contracted and its coats were thickened. At the site of the tumor the tissues were healthy and free from the least vestige of new growth. Case 5 was in a female, and operation was preceded by dilatation of the urethra. A sarcomatous growth was removed with the spoon from the trigone. Signs of recurrence were presented in about two months, and the operation was repeated in nine months. Six months after the second operation recovery seemed to be complete. Case 6 was also in a woman who had a papular growth on the trigone; its removal with a spoon was followed by recovery. The remaining four cases were those in which no tumor was found, but the symptoms were relieved by the operation. Case 7 was one simply of constant pain in the head of the penis. Case 8 was in a man who had phthisis, which proved fatal in about four months after the operation. He complained of gnawing vesical pain, constant desire to urinate, and violent straining after micturition. In operating a periprostatic abscess was opened; the patient's sufferings were entirely relieved. Case 9 was one of simple hematuria in a man of seventy-three years. Owing to the stoutness of the patient and the large size of the prostate, the bladder could not be explored. A lithotomy tube was retained in the bladder for about a fortnight. After twenty-four hours the bleeding ceased and did not recur. Case 10 was one in which only temporary relief from hematuria was gained by operation, the patient dying of exhaustion about two months later. In this case marked benefit was derived from the use of nitrate of silver (five to thirty grains to one ounce) injected into the bladder, allowed to remain

for three minutes, neutralized with a saturated solution of common salt, and followed by free irrigation with saturated solution of boracic acid. With regard to the risks of this operation, and to its sucess in removing, or relieving, the condition for which it was undertaken, digital exploration of the bladder compares favorably with any other major operation, especially when it is remembered that many of the patients are already much reduced by hemorrhage and pain. Exploration of the bladder for diagnostic purposes is proved to be justifiable by the fact that in the last three years it has been done twenty-nine times, and that a tumor admitting of removal has been found in eighteen cases. It gives great advantage, also, in the treatment of obstinate chronic cystitis, by securing constant drainage, by facilitating the use of injections, and by permitting the use of strong applications to the bladder, without fear that they may escape into the bulbous and membranous urethra, where they would surely cause excruciating pain. The paper concludes with a recommendation of a saturated solution of boracic acid and solutions of permanganate of potash for antiseptic purposes; solutions of the perchloride of mercury, of peroxide of hydrogen, and of the nitrate of silver possess remedial properties of great value in protracted cases of cystitis.

A case of fibrous polypous tumor of the bladder successfully removed. Berkeley Hill.—*Med.-Chir. Trans.*, Lond., 1882, p. 45.

The first symptoms in this case, that of a married woman aged forty, were those of acute cystitis,—a rigor followed by high temperature and frequent passage of bloody urine. An examination of the bladder and of the uterus was followed by an abortion of a three months' fœtus, but there was no improvement in the bladder symptoms. One day, after a great deal of pain, a mass of decolorized fibrin, the size of an almond, and coated with phosphates, was passed from the bladder. Partial relief followed, but still evidences of irritation of the bladder remained. In the course of time the patient's sufferings so increased that an exploration of the bladder through the dilated urethra was made by Dr. Penhall. He

discovered a tumor attached to the trigone about two inches from the internal orifice of the urethra, against which it impinged. No bad effects followed the examination; in fact the patient experienced temporary relief. A few weeks later the growth was removed with a wire écraseur, the urethra having again been dilated under chloroform. Very little bleeding followed and the patient made a rapid recovery. The urine, which had previously been either neutral or alkaline, in two days became acid, and in a month after the operation perfect health was restored. The growth was about the size of a small walnut, and was covered with phosphates, except at its base, where it was almost sessile. Its surface was covered with smooth, rounded prominences, but no long papillæ. Microscopically it was very complex, being composed of cellular elements and fibrous tissue in varying proportions, with traces of mucous membrane on its surface. In places the structure was indistinguishable from scirrhus. Elsewhere it resembled alveolar sarcoma. The blood-supply was plentiful, and in the pedicle were a few bundles of involuntary muscular fibres. For the most part the tumor was fibrous; at one region villous processes were beginning to form, and the presence of sarcomatous elements suggested the possibility of change to a malignant type, and would furnish in similar cases additional reason for early operation. The author refers to twenty-eight cases of removal of vesical tumor, with nineteen recoveries and nine deaths. Most of the recoveries were in females, in whom the operation is much easier than in males.

Case of fibrous papilloma of the female bladder successfully treated by operation. Frederic Thorne.—*Lancet*, Jan. 13, 1883.

The patient was a lady, twenty-eight years old, who had had several attacks of hematuria. The bleeding at length became continuous, and was attended by symptoms of cystitis. The urine was found to contain round-tailed and spindle-shaped cells deeply stained with hæmatin, and red-blood discs, mostly withered, and few in proportion to the deep coloration of the urine. On one occasion there was found in the urinary deposit a fleshy particle, the size of a

pea, in which blood-vessels were seen under the microscope. Chloroform having been given, the urethra was rapidly dilated, and the finger came in contact with a large, soft, pedunculated mass, attached to the base of the bladder. The tumor was dragged through the urethra; its pedicle was transfixed and divided with scissors. A few rough patches were removed with the curette. The stump was swabbed with tincture of iodine, and, bleeding having ceased, it was returned into the bladder and the cavity was washed out with iced water, containing ten per cent. of tincture of iodine. Another mass nearly as large as the first was by this process brought away. The morbid growth was the size of a tennis-ball. There were no bad symptoms until the tenth day when violent hemorrhage occurred, which resisted the use of ice in the vagina and over the lower abdomen, injections of iced water, and of tincture of the perchloride of iron. It yielded to forty-grain doses of gallic acid twice repeated. There was no recurrence of bleeding and recovery was uninterrupted.

Treatment of catarrhal cystitis by cystotomy. M. Horowitz.—*Wien. med. Wchnschr.*, Nos. 13 and 14, Mar. 31, and April 7, 1883.

Fifty-eight cases of cystotomy, performed by various surgeons, are tabulated, in thirty of which a cure of severe chronic cystitis is recorded. Sixteen were fatal; but in fifteen of these advanced kidney disease existed, and was very likely present at the time of operation. Hence the advisability of thorough examination of the kidneys and of early operation, before disease has extended beyond the bladder. Lateral section seems to be preferred, it having been performed in thirty-four cases. Thompson and von Dittel are of the opinion that external urethrotomy answers every purpose, and exposes the patient to much less risk of secondary hemorrhage. The author believes that the so-called "irritable bladder" depends not so much upon vesical disease as on some trouble in the kidneys or in the urethra, and is therefore no indication for cystotomy. The cases which are benefited by it are those in which the urine is alkaline, of high specific gravity, ammoniacal, or fetid,

and contains crystals of triple phosphate and urate of ammonia, blood, epithelium, and muco-pus. There is constant vesical tenesmus, and the patient's health becomes undermined from loss of sleep and the continual irritation. There is often atony of the bladder, and the organ may become sacculated, elements which aggravate the condition of the bladder, already imperfectly drained through the urethra. Free drainage through the perineum offers the only hope of relief from a condition of this sort, which much resembles that of an abscess discharging by a long and narrow passage.—(*Centralbl. f. Chir.*, No. 24, 1883, 385.)

RUPTURE OF THE BLADDER.

Rupture of the urinary bladder. W. Rivington.—*Lancet*, June 3, 10, and 24, Oct. 28, and Nov. 4, 1882 : also **J. A. Macdougall.**—*Lancet*, Feb. 17, 1883 ; and **Mr. Rivington's reply**, Mar. 17, 1883.

Rupture of the bladder is rare and likely to be overlooked or mistaken for some other lesion. Mr. Rivington has met with four cases. The first was a rupture into the peritoneal cavity caused by a fall prone on the face and stomach. The man had been drinking, and probably the bladder was full at the time of the accident. There was no fracture or dislocation of the pelvic bones, or other complication. Death occurred on the fourth day. There were some traces of peritonitis and a rent was found, about two inches in length, at the upper and posterior aspect of the bladder. The second case was one of intra-peritoneal rupture, complicated by separation of the pubic bones at the symphysis. The injury was caused by a cart-wheel passing over the pelvis. The patient had been drinking and his bladder was full at the time of the accident. Three or four hours afterward five ounces of bloody urine were drawn with catheter. He had constant desire but was unable to pass water, Catheterism was painful, and the instrument could not be depressed and was deflected toward the left side. The testicles were retracted to the external rings. The patient died on the sixth day, with intense peritonitis, especially pelvic. The bladder was partially contracted, was in-

flamed throughout, and had a vertical rent at its upper and posterior part, the margins of which were glued together and were undergoing repair. The pubic bones were widely separated at the symphysis. The third case occurred in a man who had been drinking and who had not passed water for several hours, and it was caused by a fall from a height of twelve feet. Eight ounces of very bloody urine were drawn with a catheter soon after the accident. Symptoms were similar to those in the preceding case, and in addition there were signs of extravasation of urine in the scrotum, the right inguinal region, and the upper part of the right thigh. The man died in about four days. Fracture of the conjoined rami of the pubes and ischium and rupture of the bladder at the antero-lateral aspect of its neck were found. The fourth case was also one of extra-peritoneal rupture, but without complication, caused by the passage of a light cart over the patient's abdomen. There was incontinence of urine and blood passed with it. There was no shock, and no pain on urination, or in the passage of a catheter, through which the urine was expelled with considerable force. There was no unusual desire to micturate. There was tenderness on pressure over the lower part of the abdomen and in the region of the prostate and base of the bladder. The bladder was undoubtedly *empty* at the time of the accident. Death occurred on the second day after. The peritoneum had been stripped from the lower part of the abdominal wall carrying the bladder with it, and there was a laceration of the neck of the bladder just above the prostate gland. There was free extravasation of blood and urine. Mr. Rivington has collected two hundred and twenty-five cases grouped as follows:

1. Simple intra-peritoneal ruptures . . .	105
2. Complicated " " . . .	24
3. Extra-peritoneal, simple and complicated .	60
4. Intra-uterine, in the fœtus (about) . . .	5
5. Recoveries, genuine or otherwise . . .	25
6. Ruptures of uncertain position (about) . .	6
	225

A few cases of extra- and intra-peritoneal ruptures combined have been grouped under the latter. Intra-peritoneal ruptures would therefore seem to be more frequent, although it is possible that many extra-peritoneal cases fail to be reported, surgeons deeming it useless to record hopeless cases, as the latter are apt to be on account of grave complications. Of one hundred and eighty-one cases one hundred and fifty nine were males, twenty-two females, the latter sex being less exposed to the causes of this accident. Harrison has explained the disparity by the greater size of the female pelvis, the uterus, too, breaking the shock of concussion against the sacrum. At the time the idea was suggested there were no cases on record of rupture of the female bladder from external violence. Since then several cases have been reported. In opposition to the popular notion, Quain, on the authority of Henle and Luschka, states that the female bladder is actually smaller than the male, being wider transversely but shorter from base to apex. Rupture of the bladder occurs most frequently between the ages of twenty and forty. Of one hundred and forty-one patients whose ages are given, eighty-one were at that period of life. The chance of survival seems to be better with extra-peritoneal than with intra-peritoneal rupture. Most cases of rupture occur in those who have been drinking freely, alcohol not only stimulating secretion but also deadening sensibility, so that the bladder becomes either extremely distended, or contains enough urine to carry it well above the pubes. For an uncomplicated intra-peritoneal rupture to occur, repletion of the bladder is believed to be essential. Stricture of the urethra and hypertrophy of the prostate are also predisposing causes, to which may be added, as suggested by House, pouching of the mucous membrane between the muscular fibres of the bladder, described by Cruveilhier as tunicated or tunicary hernia.

The cases of spontaneous rupture of the bladder from over-distension, alcoholism, etc., are reviewed, and attention is called to the fact that in idiopathic cases the aperture is small, often circular, or triangular, while in traumatic cases there is usually a rent an inch or more long. The fact that

the bladder so often ruptures posteriorly has been ascribed without reason to pressure against the promontory of the sacrum, and to the presence of longitudinal fibres at the posterior aspect. One cause is the weakness of the parietes in that region, and another is the nature and direction of the force applied. The violence is usually received anteriorly, the urine is driven against the posterior wall, which is burst open by the expanding force, making a jagged, irregular rent. The primary symptoms of rupture of the bladder are, if the patient is not unconscious from liquor, or other cause, pain at the umbilicus or hypogastrium, faintness or complete syncope, a sensation of something having given way within the abdomen, loss of power of locomotion, or pain in walking. After the subsidence of shock there is urgent desire to urinate, but usually inability to do so. The catheter, which is usually admitted with pain and difficulty, draws only a small quantity of bloody urine. Or, the instrument, in case of intra-peritoneal rupture, may be felt to slip through the rent in the bladder, when a larger quantity of urine escapes. Muscular contraction of the bladder no longer assists the flow, and the urine dribbles through the catheter, or is forced out intermittingly by the movements of respiration. Later, signs of grave constitutional disturbance arise, and, in the case of intra-peritoneal ruptures, symptoms of peritonitis develop. In extra-peritoneal rupture extravasation occurs. Many cases of recovery have been reported, in which the diagnosis seems to have been based on insufficient grounds. There should be clear evidence of a full bladder at the time of the accident. It should be remembered that the bladder may be contused or displaced and give many of the symptoms of rupture. Difficult catheterization and the necessity for altering the direction of the catheter are not conclusive; various other causes may act as impediments. Finally, it is erroneous to suppose that the peritoneum tolerates the presence of urine. The local and general symptoms plainly indicate the contrary, although the autopsy may show but limited pathological changes. It is probably true that the peritoneum may absorb urine to a slight extent, and in such case there is no doubt that the fluid exercises a most depressing influence on the patient's system.

The cases of alleged recovery, numbering twenty-six, are next reviewed, and of the eight recoveries after intra-peritoneal rupture, all are rejected as erroneous, or are received with scepticism, except two,—one reported by Mr. Heath and one by Dr. Walter. The other cases lack some essential points of evidence in favor of intra-peritoneal rupture. Among the cases of recovery whose authenticity is complete, or nearly so, are included one partial or sub-peritoneal rupture, a condition probably more common than is supposed, seventeen extra-peritoneal ruptures, comprising three into the vagina, two into the rectum, four perforations by splinters of bone, and eight into the peri-vesical connective tissue.

On rupture of the bladder with notes of two cases. Henry Morris.—*Lancet*, Lond., June 7, and July 14, 1883.

The author objects to Mr. Rivington's inference that the bladder is not ruptured because thirty-six hours after the injury the patient passes urine by his own efforts, and that subsequently plenty of urine can be daily drawn off. He makes use of several of the cases in the preceding paper to disprove the theory. Accumulation of urine in the bladder does not exclude a diagnosis of rupture. The adoption of an opposite view might entail disastrous consequences, since it might lead the surgeon to look upon a case of rupture as one of simple contusion, and so neglect the precaution of frequently emptying the ruptured bladder. The success of treatment depends upon the prevention of further and continual extravasation by removing the urine as it enters, or soon after entering, the bladder. This may be done by frequent catheterism, by retention of a catheter, or by frequent micturition. If neither of these methods is available, median urethrotomy, and the insertion of a drainage-tube may be resorted to, with better hope of success and less risk than attend abdominal section, tapping the recto-vesical cul-de-sac, paracentesis abdominis, or random incisions into the pelvis or abdomen, unless these latter procedures are especially indicated. One of the author's cases recovered and the other was fatal. The latter was associated with a fracture of the pelvis. There was no swelling felt per rec-

tum, the bladder was empty, no urine having been passed for nearly six hours. Abdominal section was, therefore, done with the expectation of finding an intra-peritoneal rupture, but none existed. At the autopsy, thirteen hours after death, the rent was found to be the size of a shilling, a rounded tear in the anterior wall of the bladder, to the right of the median line, and beneath the peritoneum. The fractures of the pelvis were extensive; on the right side each of the rami of the pubes was fractured about an inch from the symphysis, and through another fracture the head of the right femur was exposed. The left side of the pubic arch was fractured in three places, and a large fragment of its middle part was lying detached.

The second case occurred in a boy eight years old, and resulted from a fall of ten feet from a tree. In falling, the boy struck his left side upon a branch, and his abdomen against a stump on the ground. No urine had been passed for five hours before the accident, and none was passed for about eight hours after it, when nearly half a pint of bloody urine was voided. The situation of the rupture is doubtful. It may have been extra-peritoneal, or it may have been intra-peritoneal. A copious discharge of pus from the rectum occurred a month after the accident, coming from a pouch behind the bladder, which was shut off from the rest of the peritoneal cavity by inflammatory adhesions. Very complete daily notes of the case are given. The evil consequences of allowing the urine to accumulate in the bladder are shown by the occurrences of the eighth day. The catheter was withdrawn, and, the child resisting its re-introduction, it was left out. The urine, which for three days had been clear, again became bloody, and the condition was in every way aggravated. Convalescence was slow; but in the course of three or four months the patient had entirely recovered.

Rupture of the bladder; suture of the bladder; cure. G. Juillard.—*Arch. f. klin. Chir.*, Berlin, B. xxviii., H. 2, 455.

In removing a large adherent ovarian tumor an oblique laceration of the posterior wall of the bladder occurred.

The rent was four and a half inches long. The bladder had been emptied before the operation, so that no urine escaped into the peritoneal cavity. The wound was completely closed with fifteen catgut sutures, passed so as not to include the mucous membrane. A glass drainage-tube was placed at the lower angle of the abdominal wound, and a catheter was passed into the bladder and retained for six days; for the following four days the bladder was emptied with the catheter every two hours; after the tenth day the urine was voided without an instrument. For the first two days the urine contained a slight trace of blood, but at no time was pus or mucus observed. From the slight amount of force which caused the injury and from the absence of hemorrhage, a usual accompanyment of rupture of the bladder, it would seem that the vesical wall had undergone a process of degeneration, in consequence of its adhesion to the ovarian tumor. The patient was entirely well in two months. In cases of this kind retention of an elastic catheter is advised for the first few days, or until the vesical wound is so consolidated as not to be affected by accumulation of urine in the bladder.

Pozzi, S. Suture of the bladder for a very extensive extra- and intra-peritoneal rupture.—*Ann. d. mal. d. org. génito-urin.*, Paris, 1882–3, 345.

STRICTURE OF THE URETHRA.

The urethragraph: an instrument for obtaining a diagram of the circumference of the urethra. G. Herschell.—*Lancet*, Lond., June 2, 1883.

This instrument is intended to supplant the urethrometer. It is said to furnish an outline of the urethra from the bulb to the meatus by the simple act of withdrawing the instrument from the canal. A canula, the size of a no. 10 F. catheter, and seven inches long, has at its extremity two short arms; each arm is jointed at its middle; at one end they are hinged together and to the canula; at their other end they are hinged together and to a fine rod, which plays through the canula. A weak spring between the other end of the rod and of the canula keeps the arms expanded. Every movement of the arms, caused

by variations in the calibre of the urethra, is conveyed along the rod to a mechanism at the other end of the instrument, which gives two tracings upon smoked paper, these tracings, of course, representing the opposite sides of the urethra. The prepared paper and the canula are securely mounted upon a frame, from which, at the conclusion of the examination, the former, with its tracings or "urethragram," may be removed. This record may be rendered permanent by varnishing the paper with a saturated solution of gum damar in benzol. It may thus be preserved and compared with the results of future examinations.

The spontaneous cure of stricture of the urethra. **F. Bron.**—*Lyon méd.*, May 13, 1883.

The author relates four cases in which he claims to have observed the above phenomenon. All the patients had one or more strictures, which had been demonstrated, in three cases by the author himself, with the *bougie à boule*, and had been subjected to several courses of treatment by dilatation. After an interval of many years these patients again came under observation either with dysuria, or with complete retention of urine from obstruction at the neck of the bladder. On examining the urethra no trace of the former strictures could be detected. The author explains their disappearance by the following process of reasoning: It is known that water, in its passage through a tube, travels with the greatest velocity at a contracted portion, a corresponding diminution in velocity and friction being observed in the remaining part of the tube. The author sees in this analogy an explanation of the fact that anterior strictures of the urethra are of larger calibre than those behind them, the latter affording a certain degree of protection to the anterior region. A similar result would naturally be looked for in enlarged prostate, and it is in this condition that the author professes to have witnessed his cases of spontaneous cure of stricture. Hypertrophy of the prostate and urethral stricture are incompatible, and do not long co-exist, the progress of the former affection being accompanied by amelioration of the latter. It is impossible, however, for this transforma-

tion to take place in those comparatively rare strictures which have advanced to the stage of fibrous organization. The author believes that spontaneous cure of stricture is quite a common occurrence but escapes observation, probably because of the greater importance of the new condition, the prostatic hypertrophy. The paper concludes with some very sensible suggestions regarding the use of sounds and the bad result of over-dilating the urethra. In the discussion of the paper Delore remarked that the use of sounds as a method of treatment had in a measure invalidated the claim of spontaneous cure in these cases, and he added that urethral spasm and prostatic engorgement are not infrequently mistaken for stricture. Diday believed that the diagnosis in these cases had been correct, and mentioned that he was in the habit of distinguishing spasm from organic stricture by the simple resource of diverting the patient's attention by an abrupt question at the moment the sound comes in contact with the obstruction.

Nelson, H. T. Case of urethral stricture of twenty years' standing cured by the vis medicatrix naturæ.—*Tr. M. Soc. Virg.*, 1882, Richmond, 1883, 509.

Retrograde catheterism combined with external urethrotomy in cases of impermeable stricture of the urethra. S. Duplay.—*Arch. gén. de méd.*, Paris, July. 1883.

The author reports a case in which he resorted to the above procedure, after having failed in attempting to do external urethrotomy without a guide. The patient was a man thirty-eight years old, who had an impassable stricture of the deep urethra, caused by a contusion of the perineum. There were several fistulous tracks through which nearly all the urine passed during micturition. The perineum was a mass of cicatricial tissue, and even the finest filiform bougie could not be made to reach the bladder. Six months after the failure to restore the continuity of the urethra by external urethrotomy, the surgeon decided to try to reach the canal from the bladder. The operation was performed as follows: The urethra was opened in the perineum in front of the stricture upon a sound passed through the meatus. A transverse incision, five centimetres in length, was then made, immediately above the pubes, with the thermo-

cautery down to the peri-vesical cellular tissue. Some difficulty was found in seizing the bladder, previous distention being, of course, impracticable. The vesical wall was finally caught up with a sharp hook, and a puncture with a bistoury was made of sufficient size to admit a silver catheter; with its beak directed toward the neck of the bladder, and its concavity toward the pubic arch, it was readily passed into the urethro-vesical orifice. The posterior urethra was then opened upon the extremity of this catheter projecting in the perineum. A no. 20 elastic catheter was passed through the urethra from the meatus, until it appeared in the perineal wound. One end of a strong ligature was fastened through the eye of the elastic catheter, the other end being similarly attached to the beak of the silver catheter. On withdrawing the latter, one end of the ligature was drawn through the supra-pubic wound, and, of course, traction on this end of the ligature carried the elastic catheter into the bladder, where it was allowed to remain for eight days. A fresh catheter was then introduced, the ligature, which had meanwhile been left in position, being used to accomplish the object. This manœuvre was repeated at intervals for six weeks, when the perineal wound had nearly healed, and the urethra was so far restored that the catheter could be passed without difficulty. A small fistula remained for four months at the site of the supra-pubic wound. The perineal wound nearly closed in five months. The size and force of the stream in urination were entirely normal, and a large Béniqué sound could be passed with ease. The patient's general condition improved very greatly in spite of symptoms suggesting the existence of renal disease. The author refers to Sédillot as having been the first to clearly point out the indications for an operation of this character. He believes it to be easy of performance in cases of this kind without exposing the patient to any serious additional risk.

Stricture of the female urethra treated by division.—*N. Y. Med. Jour.*, June 30, 1883.

At a meeting of the N. Y. Med. and Surg. Society Dr. Otis related two cases in which he divided stricture of

the female urethra with the dilating urethrotome. The first was cut to 36 mm. The patient also had cystitis, and a small stone was passed a few days after the operation. In the second case the stricture was evidently gonorrhœal. It also was cut to 36 mm., but afterward contracted to twenty-six. A second cutting operation being objected to, the urethra was rapidly dilated to thirty-six. The pain was not great but hemorrhage was quite free for a little time. In neither case was there trouble from loss of power in the sphincter. This result had been observed in one case, that of a lady sixty years of age, where Dr. Otis dilated the urethra for the purpose of removing a stone. Dr. Post referred to three cases of stricture, two of which he treated by dilatation and one by incision with satisfactory results.

A case of stricture of the female urethra. J. Wallace.—*Liverpool Med.-Chir. J.*, Jan., 1883, 37.

After commenting on the rarity of stricture in women, as indicated by the infrequent references to the affection in works on surgery and gynæcology, the author describes his case as follows: The patient was thirty-six years of age and married. She was delivered of her first child seventeen years ago, and of a second two years later. The former labor was tedious; the latter four hours in duration. At the sixth month in the latter pregnancy she had a fall, which was followed by abdominal pains and difficult micturition. After confinement the pain became worse, and finally she had attacks of retention and dribbling of urine. Examination under chloroform showed an extremely small meatus through which Lister's probe forceps were passed only with great difficulty. The urethra could be felt per vaginam, as a hard, thick, irregular cord. The urethral canal was dilated with a tri-pronged dilator. In three weeks the stricture re-contracted. Dilatation was repeated to permit the passage of the finger into the bladder, as at the former operation, and in addition two free lateral incisions were made with Simpson's hysterotome at the neck of the bladder. An elastic catheter was worn for a week, but could no longer be tolerated. Three weeks later the meatus was again dilated on account of diminishing stream. After an interval of six weeks the patient seemed to be entirely cured.

Impermeable stricture of the urethra successfully treated by electrolysis. W. H. Dukeman.—*N. Y. Med. Rec.*, June 23, 1883.

The patient had the first symptoms of stricture about ten years after a gonorrhœa, which was treated by strong injections and the usual remedies. He attempted to relieve the difficulty in micturition by using a bougie, with which he seems to have caused a false passage. For twenty-five years the patient continued to suffer, the symptoms gradually growing worse, until the urine dribbled from him constantly and he was obliged to wear a urinal. A stricture admitting no. 15 F. was found at one inch from the meatus, one at one inch and a half admitting no. 9, F., and one at five inches, through which no. 3 filiform could not be made to pass. An insulated olive-pointed bougie no 9, F. was passed to the face of the third stricture, and connected with the negative electrode of the McIntosh galvanic battery, the positive pole being placed on the left thigh. Six cells were used and in eighteen minutes the bougie passed on a short distance, when it was again arrested. Electrolysis was continued for fifteen minutes longer but the bougie failed to pass. On the following day, no bad effects having been caused by the operation, the procedure was repeated, the number of cells being gradually increased from six to twelve. In nineteen minutes the bougie passed through the obstruction, which was about an inch in length, into the bladder. For the first time in ten years the patient was able to pass a stream of water. Six days later the operation was repeated with no. 13 F., seventeen minutes being required. Three days later no. 15 F. sound was passed into the bladder. In four days electrolysis was repeated with no. 17 F., passing into the bladder in thirteen minutes. A week later no. 21 F. was used, and with this the case rested, no. 22 sound being passed the following week.

Electrolysis in the treatment of organic stricture of the urethra. J. H. Glass.—*N. Y. Med. Rec.*, May 12, 1883.

Nine cases are furnished to show the curative power of electrolysis in stricture. Following Newman's method, mild currents, just perceptible to the patient, were used; the

action was not continued for more than six minutes in any case: the intervals between the applications were not less than two weeks, generally more. The greatest degree of contraction was to no. 8 A. (12 F.), and in this case there was a complication in the shape of hypospadias, which was subsequently cured by Dolbeau's operation. The largest sound passed in any case at the conclusion of treatment was no. 16 A. (24 F.). In only one or two cases was there any pain. The operation was followed in one case by slight vesical irritability and the formation of "urethral casts"(?). The results compare favorably with those in more than fifty cases treated by the author by other methods, mainly gradual dilatation.

A few cases are reported by J. Butler in the *N. Y. Med. Times*, 1882–3, x, 239; by G. W. Overall in the *Mississippi Valley M. Monthly*, Memphis, 1883, iii, 253; and by R. Newman in the *N. E. Med. Month.*, Newtown, Conn., 1882–3, ii., 391.

V.

VENEREAL DISEASES.

Observations on primary venereal sores: A. Bernard.—*Brit. M. J.*, Sept. 22, 1883, 563.

The prepuce, including the frænum, was found to be the most usual site, the chancre having been met with on its inner surface one hundred and eighteen times, on its outer surface twenty-three times, on the frænum eleven times, and on the margin of the prepuce in four cases. The lesion was seen in the furrow in seventy cases, on the corona in forty-five, on the sheath of the penis in twenty-six, on the body of the glans in twenty-one, at the meatus in ten, and in the urethra in one case. The period of incubation varied in sixty-nine cases from one to fifty-six days, the average being a little under twenty days. As has been observed by Fournier and Lowndes, a tendency to a preference for multiples of seven as the most usual dates of the outbreak was noticed. Forty-three of the sixty-nine cases presented this phenomenon. On the inner surface of the prepuce and in the furrow the induration is best marked, and is cartilaginous. On the glans there is apt to be thickening rather than positive induration. On the body of the penis the induration is either absent, or is of the parchment variety. In females, when the lesion is at the fourchette, the induration is not characteristic; on the labium majus the induration resembles that of the chancre on the glans penis.

In the *N. Y. Med. Rec.*, Sept. 8, 1883. R. W. Taylor related two cases illustrating a rare appearance in the evolu-

tion of the chancre, consisting of a circumscribed silvery spot seated in the mucous membrane, and without any inflammatory areola. This spot may remain superficial and free from ulceration and induration for nearly two weeks, when it may gradually assume all the characteristics of an indurated chancre. At first the morbid process seems to be limited to the epithelium. The importance of its early recognition is obvious. Reference is also made to the multiple herpetic form of chancre of Dubuc, and to the *papule séche* of Lancereaux. The former looks like a superficial erosion of the mucous membrane; it has a sombre red and later a coppery-red color, and is sharply rounded. From three to a dozen such spots may appear, which gradually extend superficially and in depth. The dry papule is generally met with in persons having a short prepuce, or none at all, and may become an indurated nodule, or a parchment-like chancre, without ulceration or excoriation throughout its whole course. The author also states that he has several times confirmed Boeck's observation that in children the initial lesion often begins as a minute, shining, silvery spot, similar to those already described. In case of a child infected by its wet nurse, such a spot, looking as if cauterized with nitrate of silver, developed into a large indurated nodule, the primary lesion of syphilis. Also, a similar spot, on the lower lip of an infant, which became an enormous Hunterian chancre, was recalled.

On the difficulty of diagnosing true syphilitic disease in women, and the nature of its contagion. C. H. F. Routh.—*Med. Press and Circ.*, May 9, 16, and 23, 1883.

The author commits himself, in opposition to the opinion held by many prominent Englishmen, to the theory of dualism.

One sore is capable of "contaminating the system" (is not, therefore, a sign of established infection?), the other is a purely local affection, a pseudo-syphilis, chancroid, or dirt sore. Anomalous cases would be explained on the "mixed-sore" theory: there is no reason why an individual may not have syphilis, chancroid, and gonorrhœa at the same time. Having announced his position, the author passes to the

subject of his paper, and quotes many authorities to show that a syphilitic chancre in women is often very trifling, so that in his opinion the primary sore is overlooked in one half of the cases, especially if the examination is limited to the sexual organs. In considering the nature of contagion, the author recognizes two modes by which the disease may be contracted from a woman: through her secretions, the woman herself being actively infected; and by mediate contagion,—that is, the virus being conveyed from one man to another, the former being syphilitic, through intercourse with the same woman. The latter mode is thought to be more common, if the woman is already syphilisated. The contagium of syphilis persists for three or perhaps four years. It is always more frequent and severe in the inmates of brothels, less so in isolated prostitutes, and least so in clandestine prostitutes, and also is more or less communicable to men in the same order. The regulation of vice, especially in the establishment of brothels, has a tendency to increase syphilis.

Indurated chancre in the interdigital space between the second and third toes of the right foot. H. Leloir.—*Ann. de derm. et syph.*, Oct. 25, 1882, p. 546.

This unusual seat of an extra-genital chancre was observed in the case of a young medical student. He was covered from head to foot with a papular syphilide. Repeated search by the patient himself and by Leloir failed to discover the primary sore, although the nature of the eruption was perfectly evident. Finally attention was drawn to an unusual ganglionic enlargement along the course of the crural artery, and on uncovering the feet a characteristic chancre was found in the situation indicated. The sore was about the size of a franc piece, and the induration was typical. The method of its acquirement was still in doubt. On questioning the patient, it appeared that about three months previous he had been in the company of a woman who sought to demonstrate her affection by kissing his feet. It also appeared that the patient himself was affected with chronic eczema of the feet, and that the woman had numerous buccal mucous patches. Evidently the syphilitic virus

had entered the system through an interdigital eczematous crack. Under mercurial treatment the cutaneous syphilide disappeared.

Syphilitic chancre of the tonsil; hypertrophy of the opposite tonsil; intense secondary fever. A Morel-Lavallée.—*Ann. de derm. et de syph.*, Jan. 25, 1883, 39.

A woman, twenty-two years of age, complained of sore throat and dysphagia, of at least three weeks' duration. She was found to have a typical chancre of the left tonsil. No other symptoms existed, except slight enlargement of a gland beneath the angle of the jaw on the left side. Both tonsils were so enlarged that they almost met. Sixteen days later she was again seen, when her condition was very much aggravated. Swallowing was impossible; severe headache and intense fever, coming on in the afternoon, followed in a few days by a general involvement of the glands of the neck, were now the prominent symptoms. Proto-iodide of mercury and a gargle of chlorate of potash were given, and a few days afterward the iodide of potash and sulphate of quinine were used. Under this treatment the symptoms gradually subsided. A remarkable phenomenon was the development of extreme hyperæsthesia of the scalp, which lasted about two days. As improvement progressed, treatment was discontinued, except with the mercurial pills. There was no local treatment of the chancre, except with the potash gargle, until the sore had begun to cicatrize, when a single application of nitrate of silver was made. Less than a month later the patient returned with opaline erosions of the tongue, which also appeared on the tonsils and on the left pillar. There seem to have been no cutaneous manifestations.

Infecting chancre of the tonsil. A. Hue.—*France méd.*, Paris, May 31, 1883, 752.

The interest in this case lies in the great difficulty found in making a diagnosis. The chancre was seated on the inner and anterior face of the right tonsil, and associated with it was a chain of enlarged submaxillary ganglia. Mercurial treatment was attended by gradual healing of the sore and disappearance of the swollen glands. Three patches of

ecthyma appeared within a month on the right leg, which was the seat of old varices. Three months after the chancre the patient had a general erythematous and papular eruption, accompanied by ecthymatous patches and general enlargement of the glands. The chancre seems to have presented no characteristic appearance, but decided induration of its base was recognized by palpation.

In the *Boston City Hosp. Rep.*, 1882, 354, Drs. Wigglesworth and Cushing give an interesting review of the diagnosis and treatment of deep syphilitic ulcerations of the throat. Eleven cases illustrating various types of disease are related. Iodine spray (tr. iodinii, five parts; glycerine, ten parts; water, thirty parts), followed by insufflations of iodoform, and internally the iodides of potash and iron and cod-liver oil, seem to have given the best results. Mercury is administered only in cases where its use has been neglected at the outset. These ulcerations may be confounded with lupus, tuberculosis, or epithelioma. The usual points in differential diagnosis are reviewed.

Significance of psoriasis of the tongue following syphilis, with a consideration of the inoculability of late lesions and their relation to marriage. F. N. Otis.—*Med. Gaz.*, N.Y., May 19, 1883, 232.

This paper is largely devoted to an exposure of the imperfect observations and the contradictory conclusions in Fournier's recent work on "Syphilis and Marriage." The author himself believes that mucous patches do not exist as specific lesions after the active stage of syphilis is passed. The patches seen on the tongue in old syphilitics are often due to the use of tobacco, and disappear on the suspension of the habit. They constitute no bar to marriage. After the third or fourth year of syphilis all lesions of the mouth, ulcerative or non-ulcerative, superficial or deep, are due to gummy deposit, and, like all late or so-called tertiary lesions, are free from contagium. The contagious element of syphilis is not dependent upon treatment for its eradication. The disease is self-limited, and the value of systematic treatment consists chiefly in its power to prevent damage to the tissues, which may later develop into some of the various sequelæ of

syphilis. The duration of treatment should depend on the development of symptoms. Continuous medication with mercury for not less than one year, followed by mixed treatment for another year or two, is usually insisted upon. Fournier gives four years as the minimum period of treatment, but follows the use of the mercurial for a month or two by an equal time of disuse, so that he actually gives no more of the drug than when it is administered to the point of easy toleration throughout the whole of the active stage. As a rule, the active stage does not exist more than three or four years; after that time the blood and the secretions are free from contagious elements.

Rouge's operation for syphilitic ozæna. R. C. Lucas.—*Lancet*, Jan. 20, 1883, p. 93.

The patient, nineteen years old, had been the victim of specific ozæna for three years, small pieces of bone having come away. The upper lip was dissected from the gum to the nostril, and then the cartilage was separated from the bones of the nose. The lip being everted, ample space was given for removal with forceps of fragments of dead bone. At the close of the operation the lip was restored to its normal position and held in place with a pad of lint and strapping. One month later one of the turbinated bones loosened, and was removed through the nostril. Large fragments which could not be removed in a similar way were found, and it became necessary to repeat the operation. The result, after the second operation, was satisfactory, the ozæna being relieved and no more dead bone appearing. Hemorrhage during the operation was quite free, the trickling of blood into the larynx being prevented by stuffing a sponge into the naso-pharynx.

Syphilitic gumma of the pharynx. R. C. Lucas.—*Practitioner*, Lond., Feb., 1883.

Two cases of this rare manifestation of syphilis are related. One was in a woman, fifty years of age, with a previous history of specific symptoms, although the patient denied infection. The first indication of trouble in the pharynx consisted of pain and difficulty in swallowing, and snoring respiration during sleep. The patient became emaciated from dysphagia

and soon began to present difficulty in respiration. After nine months the tumor in the pharynx was seen to extend forward over the top of the larynx, and had the appearance of a post-pharyngeal abscess without its fluctuating and elastic feeling. Under large doses of the iodide of potash the swelling was soon completely absorbed. The second case was one of large excavated ulcer in the pharynx, in a man of fifty-three, with other syphilitic lesions. Under the iodide the ulceration healed in a month.

Syphiloma in this region is rare, and may be confounded with aneurism of the internal carotid and with fatty tumor, as well as with abscess. Aneurism is not common in this region; its pulsation and its reduction in size under compression of the carotid suffice to distinguish it. A case of fatty tumor in the post-pharyngeal cellular tissue is referred to as having been seen by the author. Retro-pharyngeal abscess is frequently associated with disease of the cervical vertebræ, and is a dangerous affection.

Gummata of the penis.—*Rev. de chir.*, Paris, July, 1883.

The details of nine cases are given by Ozenne. This lesion of syphilis may invade (1) the mucous membrane of the glans and prepuce, (2) the sheath of the penis, (3) the urethral canal, and (4) the corpora cavernosa. In the first region gummata are usually seated at the corona, and begin as solid nodules which finally, if neglected, ulcerate. Sometimes the tissues are infiltrated with gummatous deposit, and no circumscribed tumor exists. The ulcerative process is very irregular; it may be superficial, or may burrow to a considerable extent. A gumma at the meatus may cause atresia of the urethra; at the frenum it may perforate and produce urethral fistula. The ulceration usually yields to specific treatment, but cicatricial deformity is likely to result. In the second situation gummata may leave a cicatrix which will lead to curvation of the penis during erection. Urethral gummata are uncommon. The canal may be involved by extension from adjacent tissues; or, more rarely, the lesion may begin in the urethra. In the latter case, the condition is indicated by urethral discharge and induration along the canal. Stricture of the urethra may

result. Gummata of the corpora cavernosa are situated in the posterior third of the penis, on the dorsum or sides. They are quite uncommon and have been but little studied. They may be circumscribed or diffuse, single or multiple, and are apt to cause serious functional disturbance by distorting the penis. They sometimes disappear under local treatment, but specific medication must not be neglected. Permanent deformity may result.

Syphilitic arteritis of the arteries at the base of the brain; thrombosis of the basilar artery. Geffrier.—*France méd.*, Nos. 73 and 74, 1883.

The chief interest of this case lies in the fact that cerebral symptoms were manifested within a few weeks after the appearance of the chancre, became pronounced within two months and a half, and led on to a fatal issue within five months and a half after the development of the primary sore. The patient was a man, forty-two years of age, who presented a large indurated chancre of the lower lip, accompanied by enlargement of the sub-maxillary glands and an eruption of roseola on the chest and extremities. Mercurial treatment was followed by an attack of stomatitis, and finally by disappearance of symptoms. Less than six weeks later an intense headache, particularly about the right ear and temple, was complained of. In the course of a month this symptom, which was not associated with any specific lesion, yielded to iodide of potassium. In a few days the pain recurred with increased violence, and was not apparently affected by the iodide, which was pushed to eight grammes a day. The patient finally became delirious; coma supervened, accompanied by convulsive movements of the upper extremities. The pupils were equally dilated, and there was slight internal strabismus of the left eye. There was no cutaneous anæsthesia, and the plantar reflexes were preserved. Death occurred a little over five months after the chancre was first observed. Excess in the use of alcohol is regarded as a predisposing cause of the result in this case, but the lesions of the cerebral arteries were found to be typical of syphilis. The basilar artery was much enlarged and was occluded by a blackish clot, which ex-

tended from the vertebrals, within a centimetre of their junction, to the orifices of the posterior cerebrals. This clot was firmly adherent to the wall of the vessel. The Sylvian arteries, at their origin, were also thickened, and their calibre was much diminished. This lesion was more pronounced upon the right than upon the left side, and extended a short distance into the posterior communicating and the anterior cerebral arteries. No lesion was discovered in other arteries, either of the brain or elsewhere. The heart and kidneys were healthy. The liver and spleen were enlarged, and showed increase of fibrous tissue. The lungs were congested, and pulmonary apoplexy was found in the posterior part of the left inferior lobe. No gummatous deposits were found in any organ. Histologically the lesions were found to be in part obliterative and in part destructive. In certain regions the vascular wall was greatly thickened by the development of fibrous tissue and the deposit of cellular elements. The latter was especially noted in the Sylvian arteries, where recent vegetations and a few giant-cells were observed. Elsewhere the inner tunics were partially eroded, and little aneurismal pouches, invisible to the naked eye, had formed. Sooner or later, therefore, had not the vessel become occluded by a thrombus, sudden death must have occurred from rupture of the arterial wall. No microscopic examination was made of the liver or of the spleen. The occurrence of syphilitic arteritis before the third week is considered by Heubner to be very rare. He has recognized a single case in which it developed six months after the beginning of syphilis, and other instances of its occurrence four, five, and even twenty years after infection.

On softening of the crus cerebri and pons, and on syphilitic disease of the cerebral arteries. J. S. Bristowe.—*Lancet*, Lond., July 7, 1883.

Four cases, having a close pathological and clinical relationship, are cited. The symptoms were all those of crossed paralysis, and the affection was in every case ushered in by premonitory symptoms. Two of the cases were syphilitic, and two were not. In the first case the symptoms began

within five months of syphilitic inoculation and five or six weeks before death, consisting of occipital headache and vomiting, especially after meals. About two weeks before death the patient was noticed to ramble a little in his mind; the next day the pupils were contracted, especially the right, the conjunctivæ were congested, and the left upper eyelid a little dropped. Five days after left hemiplegia developed, followed a few days later by total paralysis of the right third nerve.

At the autopsy were found syphilitic thickening, with obstruction, of the right posterior cerebral artery, and consequent softening, with patches of disintegration, in the right crus cerebri, the outer part of the right optic thalamus and internal capsule, and the brain substance to the outer side of the hippocampus major. The left third nerve was enlarged, and there was effusion into the lateral ventricles. The brain otherwise was healthy, and no other viscera were affected by syphilis. The early symptoms, and the only ones until the brain became involved, comprised, after the chancre, sore throat and psoriasis, for which the patient had been through a course of mixed treatment. The second case occurred in a young man of twenty-seven, who is reported to have been infected with syphilis about two years before, but who gave no history of secondary symptoms. For three weeks he complained of frontal headache, when left hemiplegia developed, associated with rigidity of the arm and leg, inability to speak, and well-marked paralysis of the left third nerve. On the next day he had several attacks of semi-unconsciousness, the head and eyes being strongly turned to the left. The following day there was some return of power of articulation, and there was evidently no aphasia. The paralysis of the left third, seventh, and ninth nerves and the rigidity of the arm and leg had disappeared. Three days later the urine had to be drawn with a catheter, and there were signs of cystitis: the temperature rose to 103.4°. After this the original symptoms returned to some degree, the temperature rose irregularly, and on one occasion the patient had a prolonged rigor. Coma supervened, and at the time of death axillary temperature was 109.2°. The sudden occurrence

of left hemiplegia in this case pointed to involvement of the motor tract in, or issuing from, the right cerebral hemisphere. The partial paralysis of the third nerve on the same side as the hemiplegia seemed to show that the lesion was situated somewhere about the crus cerebri or pons; and that the pons was the seat of disease was to some extent confirmed by the attacks of partial unconsciousness, with turning of the head and conjugate deviation of the eyes toward the paralyzed side. In cases of cerebral disease the deviation of the eyes and head is toward the lesion and away from the paralyzed side; in affections of the pons the reverse is sometimes the case. The post-mortem showed syphilitic disease of the posterior cerebral and of some of the smaller arteries in the neighborhood, without distinct occlusion, and pulpy softening of the right half of the pons. The left temporo-sphenoidal lobe was also comparatively soft. The arteries were thickened, yellowish, and opaque. No visceral syphilis was found. The third case was one of softening of the right crus cerebri and lenticular nucleus, with left hemiplegia, paralysis of the right external and left internal rectus, and later of the right facial and right hypoglossal nerves. Associated with these symptoms were nystagmus, giddiness, headache, emotional and mental disturbance. There was no history of syphilis. The fourth case was one of thrombosis of the basilar artery, softening of the anterior part of the pons, left hemiplegia, and death from bronchitis.

With regard to these cases the author remarks, (1) that in no case was there any obvious impairment of common sensation, or involvement of any of the nerves of special sense; (2) in no case did the patient suffer from convulsions; in one, however, there were, for one day, attacks of partial unconsciousness, attended with deviation of the head and eyes; (3) there was absence of optic neuritis in the third case, and probably in the second, but the record was not preserved; (4) the affection of the motor nerves at the base of the brain was different in the different cases, and varied to some extent in the same case; moreover, the paralysis was by no means generally most pronounced in those nerves which, judging from the seat of obvious lesion, might have been

expected to be the chief sufferers. Several explanations suggest themselves. The primary embarassment of circulation may have involved a wider area than the subsequent softening, and nerve-nuclei at first implicated may have become reinstated; or, when softening had involved a certain part, it may have extended, or, acting as a foreign body, may have excited inflammation in surrounding parts, thus bringing additional nuclei within its influence: further, it is well known that most of the motor nerves at the base of the brain, especially, perhaps, the sixth, are liable to be interfered with by the effects of basal meningitis or by pressure exerted by a tumor or swelling.

Syphilitic teeth. A. Fournier.—*Ann. de derm. et syph.*, Nos. 9 and 10, 1883.

Hereditary syphilis may affect the teeth in two ways: (1) by retarding evolution, (2) by arresting development and modifying structure. The permanent as well as the milk teeth may be very late in appearing. At the same time the subject of this phenomenon is usually otherwise ill-developed. Demarquay cites the case of a child, who at the age of four years had not a single tooth, and who, moreover, was not yet able to walk. Lancereaux mentions an instance where the lateral incisors and the canine teeth had scarcely made their appearance in a child twelve years old, who was microcephalic, idiotic, and epileptic. The changes in structure of the teeth observed in hereditary syphilis are of four kinds: (1) dental erosions, (2) microdontism, or dwarfing, (3) amorphism, or deviation from normal type, (4) vulnerability of the teeth, which wear out and prematurely decay. These malformations are the consequences of syphilis exercising its influence during the intragingival development of the teeth. Three propositions are submitted: (1) that the influence of hereditary syphilis may be exercised upon both dentitions; (2) that the first dentition is even less susceptible than the second; (3) that dental malformations due to hereditary syphilis are generally multiple and symmetrical. The author gives a minute description of the various dental erosions met with, especially "Hutchinson's teeth," which are described as follows: This deformity is most frequently

seen in the superior middle incisors of the second dentition; it is usually limited to them, and is symmetrical. The teeth present, in the first place, a semilunar notch, generally bevelled at the expense of the anterior border; the corners of the teeth are rounded off; the vertical diameter is reduced, the transverse is above the normal; the base is widened, the free border narrowed, giving the shape of a screw-driver; the teeth are obliquely convergent. Deviations from this type are noted. It is evident that a local cause cannot account for these changes, and the author proceeds to discuss the three theories of their origin. 1. Dental erosions have no relation with syphilis, but arise from a condition peculiar to infancy,—*eclampsia.* This is the theory of Magitot (*Gaz. d. hôp.*, May 10, 1883, 419). Fournier accepts it as applying to some cases, but firmly denies that eclampsia is the exclusive cause. 2. The second theory is that syphilis is the sole cause of dental erosions. Abundant proof may be produced to overturn this theory. 3. Finally the dental lesions are believed to arise from various causes, syphilis in particular, and the erosions possess different degrees of diagnostic value. To the last theory Fournier adheres. He maintains that the lesions are due to malnutrition, and hence syphilis alone cannot be held responsible. In support of this view he refers to a case of chronic enteritis related by Magitot, and an unpublished case of traumatism observed by Pietkiewicz, in both of which dental deformities were observed. As evidence that syphilis is a special cause of these lesions three considerations are cited: (1) frequent occurrence of syphilis in the parents of subjects affected with dental erosions; (2) frequent recognition in those affected with erosions of antecedents, traces, or actual symptoms of syphilis; (3) infantile polymortality in families affected with dental erosions. Both Hutchinson and Parrot maintain that syphilis produces typical lesions of the teeth, by which, without other symptoms, the disease may be recognized. With regard to the comparative value of the various forms of erosion, Fournier ascribes by far the greatest importance to the semilunar notch of Hutchinson. He does not regard it as pathogno-

monic, although he admits that there has not been an absolutely authentic case to the contrary. The paper concludes with a discussion of microdontism, amorphism, and vulnerability of the teeth, conditions which, without furnishing positive evidence, should excite suspicion of syphilis, and lead to thorough examination of the patient.

Changes in the lymphatic ganglia in children affected with hereditary syphilis. M. E. Doyen.—*Arch. gén. de méd.*, June, 1883.

Writers on hereditary syphilis have seldom given much attention to the condition of the lymphatic system in this disease. Among the first to notice it was Lamauve, in 1804. In 1810, Bertin gave quite a full description of the ganglia in his "Treatise on Venereal Diseases in the New-born, etc." Nothing further of importance appeared until Bärensprung (monograph on "Hereditary Syphilis," Berlin, 1864) presented a number of interesting facts. The author of the present paper gives eight observations of hereditary syphilis. In most cases the notes of the autopsies, including the histological examination of the organs, are added. The first case was one in which the mother is said to have contracted syphilis about the fourth month of gestation. The child died at the age of thirty-six days. The autopsy showed lesions of the liver and of the spleen, both organs being much hypertrophied, and enlargement of the lymphatic ganglia of the abdominal cavity. Case 2 was that of a child, both of whose parents were syphilitic, and who died at the age of fifty-four days. Visceral syphilis and general hypertrophy of the lymphatic ganglia were found. Very complete details of the autopsy are given in this and in the following case. Case 4 was in a child, eighteen months old, who presented a tumor of the left testicle, which was pronounced tubercular, and for which castration was performed. The child recovered nicely, but returned in two weeks with unmistakable evidences of syphilis. The mother, twenty-nine years old, never gave any symptoms of syphilis. The father was fifty years of age, and had contracted syphilis at the age of twenty-five, the disease proving very severe and rebellious to treatment. He was married seventeen years later, and

afterward had exostoses. In other words, the author believes that the syphilis was conveyed to the child by the father, who had contracted the disease twenty-five years before, the mother having escaped infection. A few weeks after the child was first seen, it died of croup, for which tracheotomy was vainly performed. At the autopsy syphilitic broncho-pneumonia was found, as well as the usual enlargement of the ganglia. Case 5 was not followed to its termination, but the child presented symptoms of visceral syphilis, and the superficial ganglia were enlarged. The remaining three cases were fatal, but at the autopsies no alteration in the lymphatic system was discovered. They are included in the list for the purpose of studying the condition of the glands in the early months of life, and for comparison with the previous cases in which the glands were obviously affected. Parrot has expressed the opinion that superficial syphilitic adenopathy is rare in young infants (*Progrès méd.*, 1878, 475), and when found is always consecutive to cutaneous lesions. Cornil and Ranvier associate disease of the deep ganglia with some visceral lesion. An analysis of these cases of Doyen shows quite the opposite. The glandular enlargement evidently took place independent of cutaneous or visceral lesion, and was caused by a constitutional state. Hence, the glands generally were affected, irrespective of other syphilitic symptoms. In adenitis, due to irritation, only the glands in the neighborhood of the lesion are involved. With regard to the recognition of syphilitic adenopathy during life, it was possible in one of these cases to feel the enlarged mesenteric glands. The glands differ from those consecutive to cutaneous irritation, and from those occurring in scrofula, in being relatively smaller, and in the absence of cutaneous adhesions and of a tendency to suppuration, which are observed in the latter. In all cases the children presented an aspect which is compared to that of splenic leucocythemia in the adult. The pallid complexion, gastro-intestinal disturbance, marked by frequent vomiting and diarrhœa, the tendency to œdema and to hemorrhages at the approach of death, are symptoms common to these two morbid states. The

increase in the nuclear elements of the spleen and of the lymphatic ganglia, enlargement of their follicles, accumulation of leucocytes in the lymphatic passages, and thickening of their connective-tissue frame-work, carry out the analogy. The prognosis of this affection is not good. Treatment seems to be ineffective. Mercurial inunction, combined with tonic and nutritious alimentation, probably gives the best hope of success.

Syphilitic pseudo-paralysis in an infant of two months and a half. Millard.—*Gaz. d. hôp.*, Paris, May, 17, 1883, 442.

The child had paralysis of several days' standing, which developed in the left arm without known cause. There was no external sign of injury, and it was difficult to determine whether the child really suffered, or was merely alarmed by the examination which was made. The father confessed to having had syphilis four years previous, for which he was under treatment for eighteen months, and he supposed himself cured. With the consent of his physicians, Ricord and Lasègue, he married two years and a half after having had the chancre. The child had never presented the least suspicion of infection. Ten days after the left arm lost its power, the right shoulder became paralyzed, and the muscles of the neck seemed to be weakened, so that the child had difficulty in keeping its head erect. It seems that the mother, on account of certain equivocal symptoms, had been put upon specific treatment during the last months of pregnancy. At about the time of the appearance of the paralysis of the right shoulder in her child she had a characteristic syphilitic angina, with enlargement of the cervical ganglia. Owing to the absence of symptoms in the child and of a syphilitic history in the mother at the outset a diagnosis of spinal paralysis was made. The true state of things appeared with the development of syphilitic sore throat in the mother and extension of paralysis in the child, who was at once given anti-syphilitic remedies. In twenty-four days an almost complete cure resulted. With reference to this case the author directs attention to the following facts: syphilis was transmitted to the mother, in spite of the prolonged treatment and absence of symptoms in the father;

the insidious and rapid development of pseudo-paralysis in the infant, although in apparent health and presenting no lesions of syphilis; the error of diagnosis; the necessity of prolonged treatment, for many years, for both parents and child; the efficacy of mixed treatment; the perfect tolerance of the infant to large doses long continued. It is observed that subsequent children were perfectly healthy.

Infantile syphilitic pseudo-paralysis. E. Troisier.—*Progrès méd.*, Paris, No. 19, May 12, 1883.

A child, seven weeks old, with unmistakable symptoms of hereditary syphilis, had, for eight days preceding death, a condition of paralysis affecting the left arm. There was slight power in the fingers of the left hand, and the biceps muscle was seen to contract on flexing and extending the forearm and under irritation of the skin. Sensation was perfect, and there was no paralysis elsewhere. On post-mortem examination the condition of the humerus described by Parrot was discovered. The epiphysis was attached to the shaft merely by periosteum, the intervening space being occupied by débris of bone, cartilage cells, and fibro-cartilage. The diaphysis was softened and atrophied, especially at its upper portion. Similar changes, to a less degree, were found in other bones. No visceral lesions existed, except peri-hepatitis and peri-splenitis.

Case of syphilitic re-infection.—*Lyon méd.*, Mar. 25, 1883, 425.

Scarenzio relates a case, in the *Jour. d. mal ven. et de la peau*, occurring in a woman of thirty-five years, of feeble constitution, who presented symptoms of tertiary syphilis. Treatment with iodide of potash was pursued for a time, when the patient began to complain of general malaise, followed soon by a general eruption and sore-throat. It appeared that, four months previous, the patient had a hard chancre at the entrance to the vagina, followed by non-suppurating inguinal adenitis. The iodide treatment was discontinued, and injections of calomel were used with good effect. The author is not a believer in immunity furnished by one attack of syphilis, but is inclined to admit

the possibility of auto-inoculation in order to explain the frequent irregularities in the course and duration of syphilis and its disposition to relapse (*Ann. univ. di med. e chir.*, Jan., 1883).

Second infection with syphilis. *Jour. of Cutan. and Ven. Dis.*, N. Y., April, 1883, p. 205.

At a meeting of the N. Y. Dermatological Society Dr. R. W. Taylor presented a case of syphilitic re-infection, this being the third case he had met with. The symptoms of the first attack, which was contracted in 1874, were roseola, papular eruption, crusts on the scalp and alopecia, and iritis of the right eye resulting in adhesions. A vigorous mercurial course for five months put an end to all symptoms. The second attack was developed after a chancre in 1881, and comprised symptoms identical with those of the first, and in addition included mucous patches in the throat. The second attack was rather milder than the first. The reverse was true of the two other cases observed by Dr. Taylor. Dr. Otis said that he had met with several cases of recent syphilis in which a previous attack was well described and which had been treated with mercury. He believed that syphilitic re-infection was common. Dr. Piffard had seen one case, the first infection having occurred twelve years before and been treated by Ricord. A leukoplakia, possibly syphilitic, but which resisted specific treatment, was still present when the patient contracted a second chancre, followed in due time by secondary symptoms. Dr. Sturgis said that he had himself treated a patient in two attacks of syphilis, a period of five years intervening. The patient had macular, papular, and iritic lesions. Osteocopic pains were rather worse in the second attack.

In the *Vrtljschr. f. Dermat.*, Wien, 1883, x, 92, a case of so-called syphilitic re-infection is reported by E. Arning. The patient was a healthy married man, thirty-four years old. His first offspring died in convulsions at six months of age. His wife's second pregnancy resulted in a miscarriage at the third month. The third child was born alive, but was very delicate and had chronic blepharitis. At this time the husband had a chancre, followed by a suppurating bubo in

the right groin. The treatment was merely local. Fifteen months later he for the first time presented a general enlargement of the glands with a cutaneous eruption, which was called a papular syphilide, for which mercurial inunction and iodide of potash were given. A year later the wife gave birth to a rachitic and delicate child. The next year a child was born who died of enteritis at the third month. In the two succeeding years healthy, robust children were born. The wife subsequently had two abortions. She became anæmic and suffered from metrorrhagia, but never presented any symptom of syphilis. Nine years after the first chancre, the husband contracted a second chancre, accompanied by bilateral adenitis and followed within a few weeks by a typical papular syphilide, erythema of the fauces, alopecia, and erosive syphilides of the velum. The irregular history of the first chancre, and the absence of specific symptoms in the wife and in the children, throw considerable doubt on the genuineness of this case.

von Hebra, H. Two cases of syphilitic re-infection.—*Monatsh. f. prakt. Dermat.*, Hamb., 1883, ii, 15.

THE END.