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# CANADA

# MEDICAL JOURNAL.

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## ORIGINAL COMMUNICATIONS.

*Clinical Surgery.* A Lecture on Fracture of the Lumbar Vertebrae, delivered at the Montreal General Hospital. By GEORGE E. FENWICK, M.D., Demonstrator of Anatomy, McGill University, &c. The patient stated to be shortened in stature one inch and one quarter. Recovery. Case reported by MR. WILLIAM GRANT.

GENTLEMEN,—The subject of our observations to-day will be fracture of the vertebrae, having special reference to the case in ward No. 16, still under observation. It is of deep interest in consequence of its unusually favourable termination. The man is at present able to walk about without fatigue, and although somewhat stiff in the back, we may regard him as convalescent.

He has been in Hospital for the past four months, and the bulging of the spinous processes and arching backwards of the vertebrae in the lumbar region are sufficiently obvious to attest the correctness of the diagnosis as regards the nature of the accident were the facts wanting of the early observation of the case. We are indebted to Mr. Grant, the clinical clerk, for the following notes of the case.

Gregory McIntosh, at 26 years, employed as a teamster by the Grand Trunk Railway Company, a stout muscular well-built man, has always enjoyed good health, met with the following accident: On the 16th October last he was driving his waggon loaded with trusses of packed hops. He was seated on the top of the load, and while passing through an arched stone gateway, stooped forward, imagining that there was ample room without the necessity of his descending from the load.

When about the centre of the arch his shoulders came in contact with the masonry above, as the horses moved forward, the space became narrower, and he was forcibly bent forward with his head between his knees. In this position he became wedged in so tight that the horses could proceed no further, and in this state he remained until some men about the premises came to his relief, and extricated him. When taken down from

the load he became insensible, probably fainted, and was carried to his house. He was seen by two medical gentlemen, who declared that his back bone was broken and advised his removal to Hospital. He was admitted into Hospital that same afternoon, under the care of Dr. Fenwick, when the following condition was found to exist: there was considerable bulging of the spinous processes of the lumbar vertebræ, the soft parts were swollen red and puffy; there was great tenderness, the slightest attempt at examination produced agonizing pain, the spinous processes were separated from the bodies of the vertebræ, and they appeared to be separated from one another: the second, third and fourth lumbar vertebræ were engaged in the displacement, the first, third and fourth lumbar spines were considerably elevated, forming an arch backwards at this region of the spine. Attached to them and likewise displaced were the laminae and transverse processes, so that the back at this point, instead of presenting the usual hollow, bulged outwards. There was no loss of sensation or motion in the lower extremities but the catheter had to be used for a few days after admission to relieve his bladder. On admission, the house surgeon, Dr. Drake, had him placed on a firm hair mattress with his face downwards, a pillow was placed beneath the abdomen and a bladder of ice put on the back over the seat of injury. This treatment was continued, and at the end of a few days his diet, which at first was withheld, was increased, and perfect rest enjoyed. The bowels were sluggish, and the rectum had to be washed out with injections. At the end of about ten days he was able without assistance to roll over on his side but would hastily return to the position on his belly, as this change increased his uneasiness. While lying on his face he was comparatively comfortable; suffered no pain or uneasiness. His appetite was remarkably good throughout, and he passed a large quantity of light coloured urine with a heavy sediment chiefly of earthy phosphates; a little later, a gutta-percha splint was moulded to his back, and retained in its place by a bandage; this gave great support. In the course of a month or six weeks he was able to change his position in bed and lie over on either side. The back felt very weak, and he was at this period still unable to support the weight of his body; but gradually though slowly, he improved, and about the middle of January, or three months after the receipt of injury, he was able to stand and walk with the aid of a stick. He states that his stature has been diminished by one and a quarter inches: this assertion is corroborated by some of his friends.

Fractures of the spinal column or injury to the osseous envelope of the spinal cord possess more than usual interest to the surgeon. As

a rule it may be asserted that these injuries are followed by a fatal result. The delicate structure of the spinal cord and the great danger of injury to its integrity resulting in permanent destruction of its functions and ultimate disintegration of its substance, is the reason why these injuries become a source of constant anxiety to the surgeon, and of serious moment to the sufferer, as affecting in an eminent degree the chances of his ultimate recovery. These injuries are usually complicated in their nature, as in many instances there is found to exist a condition of both fracture and dislocation. But let me not be misunderstood, as it cannot be denied that either of these conditions may exist independently of the other. When we regard the irregular form of the vertebræ the overlapping of the various processes, bound together by strong ligamentous bands and cemented by powerful muscular attachment, it is difficult to conceive how an accident resulting in displacement can occur without a combination of these two forms of injury.

In the cervical region, where motion is free, and where the articular surfaces look upwards and downwards, being in a horizontal plane, dislocation may take place without fracture, or the fracture may be comparatively of little moment. The dorsal vertebræ, on the contrary, possess but slight motion; they are firmly locked together, having long processes, and in the case of the spinous process, overhanging, so that simple dislocation, unaccompanied by fracture more or less extensive, is a result hardly to be looked for.

The lumbar vertebræ again possess considerable mobility as a whole; but these, being at the base of the column, are large and strong, lacking that delicacy of formation observed in the other regions. This is obviously for the purpose of affording greater strength, to enable them to support weight, as they may be regarded as forming the foundation of the entire column. Here, again, it is difficult to conceive the possible event of dislocation occurring without fracture. These are mere points of interest to the observer, as they do not in any way modify the result, as the reduction of the dislocated bone, should such exist, or the placing a fractured vertebra in position, is hardly justifiable, as much mischief may result from excessive or violent manipulation. It does not at all follow that, because in fracture of the thigh or arm, or dislocation of the femur or humerus, it is necessary to recognise distinctly the nature of the accident, with a view to its after treatment, that the same holds with regard to the spine. Very little can be done in the majority of these injuries, although occasionally exceptional cases have been met with, where the surgeon has attempted to remedy the displacement, and some few have been attended with apparent success; but you must

bear in mind, gentlemen, that the serious nature of these accidents does not consist in the fracture or dislocation of the bones, but in the injury done to the spinal cord or its envelopes. If the displacement is apparent and extreme, so that it demands interference, the method of reduction will be the same, be it fracture or dislocation, or a combination of both; and our prognosis is not more or less grave in the one case than in the other. So that, in these accidents, interference, as a rule, is to be condemned, and the prospect of affording relief by severe manipulation *nil*. Indeed, we may do incalculable mischief by severe measures, as the position of the parts is such that no accurate diagnosis can be formed, Attempts at reduction of the displaced bones may, if much force be employed, increase the mischief, and the spinal canal be further altered in shape and space, so that the medulla, or its envelope, may be encroached upon by forcing a portion of the broken fragment into its substance, a result which would deprive our patient of any chance of recovery, which he may have had prior to the attempted reduction.

In regarding the mechanism of the spinal column, we will find it is destined to support weight; it acts as a medium of connection between the different extremities, affords attachment to the ribs, and, from possessing a nicely graduated flexibility, accommodates itself to the various motions of the body; at the same time it affords protection to that most vital organ, the medulla spinalis. From its construction, it is adapted to receive shock. Between each of the bodies of the vertebræ are interposed elastic cushions, which act much in the same way as do the buffers of a railway carriage, and thus the force of a blow is expended without injury. Furthermore, we must bear in mind that the entire column forms one flexible whole, as motion between any two vertebræ is limited; its motion, therefore, consists in a continuous movement between several vertebræ. To accommodate itself to the formation of the body, it consists of a series of arches; these, together, presenting somewhat the form of an italic *S*, so that the whole column possesses resiliency, acting like a curved spring, and which, in the act of falling on the feet in jumping or walking, breaks the concussion, which otherwise would occur.

There are other circumstances which have reference to the anatomical construction of the parts which deserve special attention. These are the provision made by nature for the safe protection of the medulla spinalis.

The medulla is smaller than its bony case. It extends in the adult from the foramen magnum to the centre of the body of the first lumbar vertebræ, where it terminates in a slender filament of grey substance,

the *filum terminale*, which is concealed by the nerves forming the cauda equina.

The medulla spinalis is surrounded by three membranes. The pia mater, which closely invests the cord, is a vascular layer, the vessels being smaller than the corresponding investment of the brain; it is composed of fibrous tissue, which is very intimately adherent to the cord, sending processes into its anterior and posterior fissures, and is prolonged around the nerves, as they pass out, forming their proper neurilemma. At the point of termination of the medulla, the pia mater is contracted, descending through the centre of the nerves, which constitute the cauda equina, and becomes lost in the sheath of the dura mater, at the superior part of the sacral canal.

The arachnoid is a thin, delicate, serous membrane, which surrounds the medulla loosely, so that there is a considerable space between it and the cord itself. This is called the sub-arachnoid space, and contains a quantity of serum, the cerebro-spinal fluid.

The dura mater of the cord or theca vertebralis is considerably larger than its contents, its size being greater in the cervical and lumbar regions than in the dorsal. It is firmly attached to the foramen magnum and to the posterior common ligament. It is non-adherent to the bones of the canal, which have a proper periosteum, and it sends funnel-shaped prolongations around the nerves as they pass out through the intervertebral foramina. This arrangement is beautifully adapted by nature to permit of free movement without injury to this vital organ.

The medulla spinalis hangs thus loosely, being suspended from either side by cords, and at the same time rests or floats in the fluid which exists in the sub-arachnoid space. In contemplating this admirable structure, exhibiting as it does, the most perfect design, we cannot but admit an element of weakness. A column intended to support weight, having free motion, is not in itself of sufficient stability to prevent injury when force is applied in a certain direction, or sufficient in amount to overcome its resistance. Hence we will find that the points most liable to injury, are those where a comparatively fixed position is attached to one having greater freedom of motion. This natural law is fully borne out by experience: and it is found that those portions most liable to injury are where the moveable cervical region is attached to the comparatively fixed dorsal, and also where the inflexible dorsal is attached to the more moveable lumbar vertebræ. In the case alluded to the force was applied to the shoulders of the individual at the upper part of the dorsal vertebræ; the shock was conducted through the bodies of the vertebræ, and became expended at the point of injury in the lumbar re-

gion, following the above rule. Now let us enquire into the condition of the parts as they probably existed at the time of the accident, and what we would most probably have found had opportunity served.

Blood would have been found extravasated into the surrounding tissues; the muscles lacerated and torn from their attachment, the supra and infra spinous ligaments torn, and the spinous processes fractured, accounting for the deficiency of the third lumbar spine which is still apparent, the body of the corresponding vertebræ comminuted, possibly displaced a wedge-shaped portion driven forcibly forward or possibly dislocation of the entire body of the vertebræ at this point, the ligaments torn and ragged, and the articulating processes wrenched asunder. In these injuries the intervertebral substance is seldom separated, the bone itself more commonly giving way; this is to be accounted for by the spongy texture of the bodies, and the great elasticity of the intervertebral substance. In some cases the injury to the bodies partakes of the character of an impacted fracture, or a wedge-shaped piece is driven backwards into the spinal canal, and may press upon, lacerate, or completely sever the cord, resulting in paralysis of all the parts below the seat of injury, and ultimate death.

In the particular case under consideration, there was no interruption of function of the nerves. No loss of sensation or motion, no continued paralysis of the bladder, no interruption of the function of the rectum; for although we had to resort to enemata to relieve the bowel, the constipation was not more than would be observed in a healthy robust man accustomed to much exertion, being suddenly deprived of locomotion and confined to the recumbent posture. Cases are mentioned by surgical writers of fracture occurring below the second lumbar vertebræ, in which there had been no paralysis; these are exceptional instances, and have been accounted for in the following manner:—If the seat of injury is below the terminal extremity of the medulla, the canal is occupied by the bundle of nerves constituting the cauda equina; these nerves possess considerable firmness, and are loosely held together; they are in consequence easily pushed aside in this capacious canal without danger of injury, and consequently their function is not impaired. In this case the posterior arch was forced backwards, and the anterior possibly in the opposite direction, so that the calibre of the spinal canal was enlarged, giving more room to the nerves, and precluding the possibility of injury to their substance. But this is mere conjecture, as we have no means of arriving at a positive knowledge of the state of the parts, and I trust it may be long for the man's sake, ere we can de-

cide the question. The case is one of those exceptional instances of a good recovery after most extensive injury, and the result is not to be ascribed to any extra skill in its management, but to the unusual nature of the accident.

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*Lecture on the Anatomical Character of Joint Diseases, delivered at the McGill University, Montreal.* By LOUIS BAUER, M.D., M.R.C.S., Eng., &c.

GENTLEMEN,—All the anatomical components of a joint may separately and collectively become diseased. Their morbid susceptibility varies however in a material degree. The articular cartilage occupies obviously the lowest point in the scale. In conformity with its purely physical office, it is elastic, only indifferently organized, and devoid of nerves and vessels. Its nutrition is therefore of a low order, accomplished chiefly by transudation and imbibition. Reasoning from these premises it might *a priori* be assumed that this structure possesses but a trifling susceptibility to independent morbid action. This supposition receives additional strength from experiments upon animals by Redfern, O. Weber, and others who find that neither physical violence nor chemical irritants have much lasting effect upon articular cartilage. The intervertebral fibrocartilages are of higher organization, and are therefore endowed with a more decided susceptibility to morbid changes than those of joints. I have made clinical observations to this effect, and I have recorded one case of inflammatory disintegration of so striking a character, that no reasonable doubt could be raised against it. In advanced diseases of joints and of the spine it is impossible to determine whether the cartilage or some other structure has been first affected. The destruction is commonly so general as to leave no room for speculation. I am inclined to believe that the cartilage suffers but rarely from primary lesion, but that it often participates in the affection of the subjacent bone, and is subject to disintegration from purulent maceration.

That the cartilage displays but a passive character in the so called *arthritis deformans progressiva* is now well understood.

The synovial lining is a sort of intermediate structure. It does not conform to serous membranes with which it has heretofore been classed. Its greater thickness, albuminous secretion and layered epithelium bring it nearer to the anatomical structures of mucous membranes from which it differs by the absence of mucous follicles. The Haversian glands are no glands at all, but synovial insaculations filled with fat. Gosselin's *fimbriae* have thus far not met with general acceptance, nor have their functions been fully ascertained.

According to Richet the healthy synovial membrane is very vulnerable. Injections of irritating fluids into the joints of animals are promptly followed by great vascularity, hyperemia, pinkish and purple discoloration, and opacity of the synovial lining with serous infiltration of the adjacent connective tissue. The vessels frequently cluster around the articular cartilage, and by anastomosis form as it were a continuous wreath from which returning twigs branch over the margin. Occasionally the synovial membrane becomes so oedematous and pouched as to circumvallate the cartilage as chemosis does the cornea. By degrees the entire surface of the joint becomes roughened and granulated. The epithelium luxuriates and is converted into pus corpuscles which are successively thrown off and the articular cavity is filled with purulent fluid (pyoarthrosis); similar pathological changes may often be observed to follow penetrating wounds, with this difference however that in the beginning the synovial fluid forms a material constituent item of the discharge, and reappears occasionally when the process is subsiding. From these experiments it would seem that the synovial lining, notwithstanding its destitution of nerves and vessels, is highly susceptible to morbid action of the peracute type. But clinical experience has collected many facts to the contrary. Thus, for instance, some penetrating wounds close by first intention without inconvenience to the injured joint, although blood may have been left behind and air may have entered. Many a time have I performed articular puncture by trochar and knife without a single bad effect, having of course, as much as possible, prevented the entrance of air.

In hydrarthrosis, Nelaton has freely resorted to injection of iodine, and others have followed his example. According to their statements, only a moderate reaction usually ensues. Free incisions into affected joints have been made, checking the disease, and saving extremities. Amputations in contiguity leave always a portion of the joint, and some surgeons prefer these operations on account of better statistical returns. These facts constitute a formidable offset to the rule based upon Richet's investigations. It is not unlikely that chemical irritants, applied to a healthy articular surface, will readily lead to a rapidly advancing synovitis, and repeated applications of this sort will bring about those progressive changes, of which Richet gives so graphic an account. But it does not follow that atmospheric air would give rise to the same disturbances. According to my experience, the dangers of penetrating wounds have been altogether overrated. In the course of the last few years I have attended a considerable number of cases, many of them formidable, and have in every instance obtained satisfactory results. This may

have been due, in part, to the healthy condition and tolerably good surroundings of my patients, but not less to the more appropriate treatment that has found its way into surgery. From clinical observation, however, I have received the impression that the synovial membrane has a dangerous affinity for disturbing causes of a constitutional character. Rheumatism, syphilis, and pyemia, in particular, select this structure in preference to the other components of joints. Of late much has been said and written about tubercular synovitis; Foerster has never met it, and he is certainly no superficial observer. Nor have I had an opportunity of examining a single case of this description, although I may say, without boasting, that I examine as many cases of joint diseases as any well-employed surgeon. If, moreover, tubercular synovitis is of a nature similar to that of tubercular meningitis, it means little more than initiatory changes in the subsynovial tissue towards suppuration,—namely, hyperplasy of connective tissue. Still I do not pretend to express a conclusive opinion upon what has so sedulously evaded my most inquisitive pursuit.

Some authors believe that the synovial lining suffers most severely from incidental traumatic injuries. I beg to dissent from this opinion. If both constitutional and local causes expend their force upon the synovial membrane, all joint diseases would resolve themselves into synovitis, and the other components would pass clear of primary disease. Both clinical and anatomical observation refute views so untenable. Most injuries befall the prominent portions of joints—the bones and their periosteal coverings, because they are most exposed, and because they offer static resistance. And even if the synovial sac comes in for its lesser share, the consequences cannot be beyond speedy redress. Inflammation, excited by a transient cause, would soon terminate in copious secretion of synovial fluid; and this, in turn, would be absorbed. A moderate admixture of purulent elements would not materially affect final resolution. Permanent disintegration of the synovial lining, or of the other constituents of the joint, could not well be ascribed to a comparatively trifling and transient cause.

In the anatomical consideration of joint diseases, there has not yet been assigned to the periosteum that importance which it so fully deserves. In the first place, the periosteum continues as part of the joint from one bone to the other, constituting the so-called fibrous capsule. Next, it partly covers the epiphyses and condyles of the cylindrical bones, and constitutes the means of their maintenance, growth, and development. From the first anatomical relation results the direct transmission.

of disease; and upon the other depends the structural condition of an essential articular component.

In the course of my surgical practice, I have observed cases of joint disease that could be traced to no other cause than traumatic periostitis. Some of them involved both limb and life. I will relate one in striking exemplification. A lad of thirteen years, in perfect health, and without any noticeable morbid diathesis, was struck with a medium-sized cobblestone at the middle of the tibial crest. Judging from the lesser age of the boy who aimed the blow, from a distance of about twelve yards, the force could not have been very considerable. The impression upon the leg was apparently insignificant. The pain was trifling, and no bruise or indentation appearing, the patient paid no attention to the injury during the succeeding five or six days, and continued at his duty as an errand-boy. Subsequently he found locomotion impracticable, his leg having become painful and so swollen that he could not get his boot on. A physician was now sent by the father of the offender. The attendant failed to penetrate the nature of the lesion. Thus twelve days more were irretrievably lost in paltry applications. When better advice was finally obtained, the disease had made considerable advance, demanding more than anything else extensive and deep incisions. These were not resorted to to a sufficient extent. I was called in at about the sixth week after the accident, and found the patient in a most critical situation, and fearfully reduced. Then no alternative to amputation remained, for the limb and the corresponding knee-joint were so extensively and irrecoverably diseased that no attempt at saving the limb could be entertained. The specimen revealed the following state:—Almost entire destruction of periosteum of the tibia, exposure and discoloration of that bone; the remaining portion of the periosteum towards the knee-joint undermined allowing the passage of a stout probe into the articular cavity at the lower insertion of the fibrous capsule. The latter was itself perforated by ulceration at the external and posterior walls, and the joint exhibited the pathological changes of advanced pyarthrosis. The patient had a speedy recovery, and has for the last six years enjoyed the most unqualified health. Now, gentlemen, this case proves indeed more than I have claimed. Here a lad in perfect health receives an injury at a point remote from the knee-joint, which lights up an inflammation of the periosteum. Not being recognised and controlled, the inflammation proceeded to suppuration; the matter spread below the periosteum in every direction, until it reaches the capsular apparatus, and finds access to the joint. As soon as the diseased structures are removed, the patient regains his former health and strength, precluding every suspicion what

ever of constitutional disease. This is certainly a clear case of traumatic periostitis, involving an articulation; and the chain of evidence is continuous from the very starting point to the finale. This case is by no means as isolated and exceptional as might be supposed, although in others the clinical history may not always be found so plain and transparent.

The foregoing belongs to a class of cases that are generally insidious and protracted. For a long time they cause but little inconvenience to the patient, and therefore they are slighted at the time when appropriate treatment could scarcely fail to arrest their progress. Thus with very little change they pass on for many months, until an acute period is reached and the joint is found to be extensively diseased. The original traumatic cause is forgotten; it appeared at most to be insignificant, and in the estimation of all parties concerned, could not have given occasion to consequences so severe. Meanwhile the constitution of the patient has materially suffered, the vital forces are depressed, the appetite has become indifferent, weight has decreased, in fact nutrition has gradually and proportionally declined, as the local disease has extended its sway. This is the history of most cases occurring during childhood, and it is this class that has been set down as the result of strumous causation, in default of any other known case.

Now, gentlemen, *must* there not be a *general predisposition* attached to the *physical condition of infantile development*, that favors diseases of joints, and disappears at puberty? No one seems to have paid much attention to this query, and hence the preponderance of joint affections in childhood has remained unaccounted for, up to this very day. It is still an enigma unsolved.

Laying aside all the fetters of established doctrines, let us try to find out some of the anatomical differences existing between the joints of children, and those of adults. Perhaps they may furnish us the key to a correct understanding of the matter. All we meet is the epiphysal contrivance which serves wise purposes in the growth and development of the osseous architecture, but allows the epiphyses themselves to be liable to mechanical derangement. We need but to look at a vertebra composed as it is of seven different pieces held together by cartilaginous discs and periosteum. By this arrangement it is rendered a very elastic body capable of accommodating itself to many exigencies. But its resistance is limited to its elasticity, and the single pieces may under certain circumstances become disjointed or somewhat altered in mutual relation. Diastasis is a solution of continuity solely appertaining to the period of childhood.

At an early stage of infantile life the different epiphyses of the skeleton present a marked peculiarity in the mode of their maintenance, and there is reason to believe that this mode partially continues to within a short time before puberty. Careful injection of the nutrient vessels of the bones of infants and children, demonstrate pretty clearly that the epiphysis receives no vascular complement from that source. In fact the vessels pass only to, and not through the epiphysal cartilage. On the other hand the vessels that enter the epiphysis have no communication with the nutrient artery of the shaft. They are, as it seems, completely isolated from each other by the cartilaginous disc. Most epiphyses are supplied with blood from the periosteum, with which they are in part covered. Those epiphyses to which the periosteum can not approximate closely enough, have a special source of nutrition. Thus for instance the head of the femur receives its supply from a branch of the obturator artery which enters the notch of the acetabulum and accompanies the so called ligamentum teres, to its destination. The nerve takes the same course. A rather complex mode exists at the knee joint through both periosteum and the ligamenta cruciata. After the skeleton has attained its full development, and the epiphyses have become continuous with their respective bones, nutrition is perfected by anastomosis of the several vessels. But the intermediate parts of some bones seem never to achieve a full share in nutrition, thus we know that fracture of the femoral neck but rarely heals by bony union. It is very necessary that we become fully acquainted with all these physiological facts as they serve to throw light upon a field hitherto obscure.

The epiphyses constitute the most prominent part of the joints, and receive most of the violence of traumatic injuries, the soft parts being thus in a measure protected. At the limited space of contact with the offending force, the integuments and the periosteum are contused and ecchymosed, and the nerves of the joint less or more injured. The integuments may soon recover; at any rate their structural derangement would be of but little consequence. Not so with the periosteum. If the extravasation of blood takes place in the usual way, that is to say beneath the latter, it constitutes in my estimation a serious trouble. Irrespective of ecchymosis, the eventual cause of subperiosteal suppuration, the very presence of blood denotes disruption of the vessels intended to supply the nutritive demand of the epiphysis. The extent of the part borne by injuries of articular nerves (sensitive and trophic) in exciting articular diseases has as yet not been clearly ascertained. A case previously detailed gives strong evidence to this effect. The same injury to any other part of the bone might be comparatively harmless, and would generally

eventuate in exfoliation, because the nutrition of the bone depends only in part on the periosteum. It would seem therefore that even apparently trifling contusions at the epiphysis should be viewed with deference and treated with becoming care. But if they give rise to subperiosteal supuration, there is in two ways imminent danger for the joint:—first, by the matter spreading below the periosteum and forcing its way into the articular cavity; and secondly, by instituting necrobiosis of the epiphysis in part or *in toto*. The latter mode is obviously the more frequent. The destruction or detachment of the entire epiphysis by this process is very rare,—more frequently, one of the condyles is implicated, enlarged, osteoporotic, and very tender. From thence the disease radiates to the remaining structures, and thus the joint becomes compromised. I have but lately exhibited to the New York Pathological Society, a specimen illustrating this process. A small sequestrum in the internal condyle of the femur was evidently the proximate cause of the extensive trouble to the joint, amounting to an almost complete obliteration of its cavity by adhesive synovitis.

Primary diseases of the epiphysis are not of frequent occurrence, and least of all osteomyelitis.

The process of gradual destruction is most simplified at the hip-joint, and its varied phases may best be studied there. A few anatomical remarks will be necessary. The ligamentum teres must be accepted as a ligament in an anatomical point of view, on account of its being endowed with a considerable complement of fibrous structure. Besides this, however, areolar tissue, and fat enter largely into its composition, encompassing the nerves and vessels passing to, and from the head of the femur. No anatomist has as yet been able to demonstrate the office of the round ligament. The head of the femur fits so accurately in the acetabulum that it is held there by atmospheric pressure, or, as others think, by cohesion. This bone may dislocate in any direction without the ligamentum teres being ruptured; it consequently places no restraint upon the movements of the thigh bone. Some instances are known where the joints lacked it altogether, without marked impediments resulting. Again it has been ruptured in the act of violent dislocation and the returned head of the thigh bone moved almost to the same perfection as before. Thus it would appear that this ligament bears no part in the action of the hip point. Another office must have been assigned to it. To all appearance it acts as the protector of those nerves and vessels which form the nutritive apparatus of the head of the femur. Without this protection the nutrition of the femoral epiphysis could not be effected. Collectively I look upon the ligamentum teres therefore as the essential nutritive appendix of the

head, and its destruction during the epiphysal period as tantamount to the destruction of the head itself. From the composition of the round ligament a high degree of susceptibility must be inferred. In fact, none of the articular components can bear any comparison to it in this respect. Besides the ligamentum teres is subject to contusion from violence to the great trochanter, whilst the thigh is in the position of adduction and eversion. And upon the trochanter falls are generally received. Boyer has already expressed the belief that morbus coxarius emanates from the round ligament; but for want of pathological facts, he did not succeed in convincing his contemporaries. The serofulous theory very soon preponderating overawed his views, which well deserved consideration. Perhaps no articulation has suffered more from the dogmatism of the humoralist school than the hip joint; and the fiction culminated into a system in morbus coxarius. There were explanations in it for every single symptom. Very few of these are destined to survive the present century.

It cannot be denied that morbus coxarius may possibly be caused by primary synovitis or periostitis with subsequent centripetal perforations. But the majority of cases must necessarily result from primary disintegration of the round ligament. Among the reasons for this opinion, of which I have already enumerated a few, stands in the boldest relief the pathological fact that the round ligament is invariably destroyed at a time when the remaining components of the joint have suffered but moderate disintegration. Next comes the striking fact that the head of the femur is invariably reduced excentrically in size, and in a few exceptional instances thrown off in toto. That the origination and frequency of morbus coxarius in childhood has the closest connection with the epiphysal construction admits of no doubt in my mind; and it explains satisfactorily the comparative rarity of this affection during adult life, when the epiphysis is completely united with the shaft, its nutrition thereby perfected, and the liability to accident lessened.

Gentlemen, I shall here close my discourse on the pathology of joint diseases, and not inflict upon you a reiteration of all that is said better in the works of Sir Benjamin Brodie, Robitansky, Paget, Gurlt, and other distinguished pathologists. Moreover, the practical benefit of being thoroughly versed in the ulterior structural changes attending joint diseases, is indeed of questionable value. If you see one joint in the last stage of its malady, you have seen them all, so little difference between them is presented. My chief object has been to acquaint you with the initiatory changes of joint diseases, and thus lead you in a practical direction for the prevention of their destructive advancement.

But even in this, I have had to consult brevity and terseness in order best to utilize the limited time at my disposal.

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## REVIEWS.

*Notes on Epidemics for the Use of the Public.* By FRANCIS EDMUND ANSTIE, M.D., L.R.C.P., Senior Assistant Physician to Westminster Hospital. First American Edition. Philadelphia: J. B. Lippincott & Co. 1866. Montreal: Dawson Bros.

This is a valuable little work, from the pen of a very distinguished author, upon a subject of the most vital importance. The groundwork of it appeared lately in the "British Quarterly Review"; but by many it was deemed of such value to the public, that they induced the author to enlarge it for general circulation. The largest portion of the book is occupied in the consideration of typhus and typhoid fever, and cholera—all of which are handled as a rule in a way that imparts a good deal of information. In the general introduction to the work, Dr. Anstie mentions some circumstances, which, as a rule, indicate the approach of an epidemic disease—among them the increased temperature of the skin, as indicated by a thermometer—and in the following words counsels the mothers of families to learn its application: "The mother of a family should always be skilled in the application of the instrument, since nothing is more delusive and uncertain than the sensations of young children." Now, with all due respect to Dr. Anstie, we object. We heartily coincide with him in instructing the public in all that appertains to sanitary reform; but when it comes to initiating them in the application of the thermometer, an instrument so delicate as often to bother an experienced physician in its application, we decline. Further on he details the symptoms of the exanthemata; and says, when such and such a thing occurs, send for the physician. Now, our advice would be more general. We would say, when your child seems ill, summon your medical attendant. Our experience leads us, as a rule, to condemn the introduction into families of medical books, whether styled domestic or not. It is often difficult to distinguish diseases by their earlier symptoms—sometimes impossible. This being the case, then, how can mothers be supposed to do so? We will mention a fact in illustration: Not long since we were called to visit a young lady. On entering the parlour, and while waiting, we discovered a volume of Wood's Practice of Medicine lying open. Evidently the lady had been reading the symptoms of the exanthemata. When she appeared she was nervous, and much excited,

and assured me that her daughter was going to have small-pox, "for she had just the symptoms Wood gives in his medical book." On examination, we found the symptoms were general—fever, with a slight sore throat—and said that, in all probability, it was going to be an attack of rubcola notha, which was then epidemic. On visiting the patient next day, our diagnosis was confirmed; but we found the lady of the house ill—she had been again perusing Wood, and could hardly then be persuaded it was not variola. We have had several such instances, and do not therefore believe in instructing mothers in symptoms. Good seldom comes from it—often much harm.

At page 33 we find the following, which we most heartily endorse. More than once in our own city we have known patients entering the hospital to be treated for a surgical disease, contract small-pox, and narrowly escape with their lives:

"The attention of hospital committees ought to be directed to the crying necessity which exists for the establishment, at every general hospital, of separate wards devoted to the insulation of cases of the more contagious fevers, and especially of typhus. In our view of the case it is difficult to apply terms of reproach sufficiently strong to the practice of mixing cases of a powerfully contagious fever with patients who are suffering from miscellaneous diseases. One has only to state the case to show the impropriety of the proceeding. A poor person, suffering perhaps from a quinsy, or some other disorder in which there is no likelihood of any other result than a speedy recovery, is admitted to a hospital, and, while he is lying defenceless on his back, the authorities place in the next bed to him a typhus patient, who communicates to him a fatal disease, of which he dies. This is no fancy statement of the case; it is what has happened over and over again during the progress of the typhus epidemics, and especially during the great epidemic which has now for so long a time raged continuously in London. It may be said that a simple remedy for this kind of mischance would be the exclusion of all cases of the more contagious fevers from general hospitals, and, in fact, some hospital physicians have proposed to adopt this course rather than expose their other patients to the unjustifiable risk of contracting a highly mortal disease. But, in the first place, until the parishes do their duty in the manner which we shall presently point out, it is vain to suppose that the single fever-hospital can possibly accommodate all the cases of highly contagious fevers which are, or ought to be, treated in hospitals. And secondly, it must every now and then happen, even where the greatest care is exercised, that a person will be admitted who is supposed to be labouring under some ordinary complaint, but who is, in truth, infected with

typhus, or some other highly contagious disease which is in a *latent* condition. Under these circumstances it is a matter of the highest importance that there should be the means of immediately separating him from the non-febrile patients when the real character of his complaint declares itself. Formerly a notion prevailed that the aggregation of several cases of infectious disease within the same ward, was in itself an extremely mischievous thing, as tending to concentrate the poison and intensify its malignity. This is now known to be a fallacy, when taken as a general proposition. It is quite true that the poison of contagious fevers becomes highly dangerous when it is diluted with less than a certain quantity of atmospheric air. But by allowing a large amount of cubic space (1500 to 2000 feet) to each patient, and providing for the free circulation of currents of air, the concentration of the poison may be entirely avoided even in a ward which contains thirty or forty typhus patients. More than this; it may be broadly stated that it is impossible, in a ward which contains miscellaneous patients, some of them suffering from inflammatory diseases to which anything like draughts of cold air would be highly prejudicial, to keep up a system of ventilation free enough to effectually dilute the poisonous emanations of even a single typhus patient; and, as a matter of fact, the introduction of a single typhus patient into a ward which was quite sufficiently ventilated for general purposes has frequently caused the disease to spread from bed to bed with most lamentable results. A fever ward should, therefore, be a special affair, with an extra amount of ventilation. Where it is possible, the fever wards should be placed in a separate block of buildings, and, where this is not the case, at least the most jealous care should be exercised to prevent communication between the attendants of these wards and those of the wards which contain miscellaneous patients. With these precautions we believe that typhus may be absolutely shut within the walls of the apartments devoted to its treatment."

We would go further, and insist upon separate buildings being devoted to all contagious diseases. It is so at the Glasgow Royal Infirmary.

With regard to the means for disinfection, Dr. Anstie mentions the following:

"Drinking-water is to be disinfected by the processes of boiling and filtration. The water being first boiled, is afterwards to be filtered through charcoal; filters of this kind are easily obtainable, and the neglect of their use is unpardonable when there is the slightest reason to believe that there is a possibility of the water being contaminated by decaying organic matter. The air of rooms cannot be purified without, in the first place, establishing the freest ventilation. But, in addition

to this, it is desirable to provide a highly volatile disinfectant, which shall penetrate to every nook and corner of the apartment; and for this purpose there is nothing better than *carbolic acid*. Little wooden boxes should be placed in different parts of the room, containing the carbolic acid, their lids being fitted with a perforated zinc plate, through which the vapors may escape. Clothes, bedding, etc., which have been soiled with infecting discharges, if incapable of being washed, may be exposed in an oven, for two or three hours, to a heat of  $212^{\circ}$  Fahrenheit. Linen and other things which can be washed should be first *boiled* in water for two or three hours, and then soaked for some time in water containing one-fiftieth part of Condyl's *red* disinfecting solution.\* The discharges of patients should always, when this is practicable, be received in a vessel containing water strongly impregnated with Condyl's red fluid. Drains and closets which smell badly should be purified by frequently throwing down them Condyl's fluid, diluted with twenty or thirty parts of water. And where it becomes necessary, as a precautionary measure, to empty cesspools or privies, it is important to disinfect the sewage matters by the free use of Condyl's solution, and the air by means of carbolic acid, or by burning sulphur; the disinfectant process being kept up as long as the slightest sewage smell is perceptible"

With the exceptions we have mentioned, we heartily endorse the work, and have no doubt but that a careful perusal by the public would stir them to become active workers for sanitary reform.

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*The Common Nature of Epidemics, and their Relation to Climate and Civilization; also, Remarks on Contagion and Quarantine, from writings and official reports.* By SOUTHWOOD SMITH, M.D.; edited by T. BAKER, Esq. Philadelphia: J. B. Lippincott & Co. Montreal: Dawson Bros.

Dr. Southwood Smith was evidently an enthusiast in the matter of sanitary reform, and left behind him the material from which this very readable book is compiled. Its only fault is that it lacks that conciseness and connectiveness which it doubtless would have had, if it had been prepared for publication by the author's own hands. The editor has, however, done his task well. As will be observed from the extract we give below, cleanliness, above all things, is enjoined to prevent the

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\* Condyl's fluid is solution of permanganate of potash in water. A good disinfecting liquid can be made by dissolving one drachm of the permanganate of potash in a quart of water. The salt in question is undoubtedly the best known disinfectant for nearly all purposes.—AM. ED.

approach of epidemics, and we are certain medical men cannot impress its absolute necessity too strongly upon the attention of their patients. At page 3 we find: "The character of pestilence which gave it its great power and terror—that it walketh in darkness—is its character no longer. Its veil has fallen, and with it its strength. A clear and steady light now marks its course from its commencement to its end, and that light places in equally broad and strong relief its antagonist and conqueror—CLEANLINESS." He then starts out upon the broad assertion, "that epidemics resemble each other in being all fevers," and proceeds to prove it by reference not only to epidemics of recent date, but refers to those which have appeared as far back as the fourteenth century. The usual cause of epidemics is traced, especially that of cholera, and the assertion made that, "invariably previous to the approach of any epidemic disease, a general transformation of ordinary diseases into the characteristic type of the approaching pestilence" is noticed. This is an assertion we do not remember to have noticed before, and we strongly doubt its correctness. The predisposing causes are entered upon, and the conditions of the atmosphere during the prevalence of epidemics noticed. The first portion closes with a very critical review of the beneficial effects of civilization upon epidemics. The latter portion of the work embraces a very able report upon quarantine, written some years ago by Dr. Smith, who claims that it is unnecessary, seeing that it only hinders commercial traffic, without any good result. He argues strongly for the epidemic condition of the atmosphere, which, he says, may exist over thousands of square miles, and yet only affect particular localities. This is a question still undecided, still open to discussion, and a good deal of information concerning it may be derived from this work, which we can commend to our readers.

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*Infantile Paralysis and its attendant deformities.* By CHARLES LAFAYETTE TAYLOR, M.D. Resident Surgeon, New York Orthopædic Dispensary. Philadelphia: J. B. Lippincott & Co., 1867. Montreal: Dawson Bros.

This is a small volume of about one hundred and twenty pages, describing a form of infantile paralysis which the author asserts is met with about the time the first molar teeth make their appearance. It nearly always comes on suddenly; seldom being any premonitory symptoms—but what these premonitory symptoms are when they do occur, we are not told. In fact the entire symptoms of the disease as given are simply: the baby goes asleep well and wakens up paralysed, the peculiarity of it being an unvarying want of irritability. Fortunately, we are told, there is an

usual tendency for this disease to recover. More space is taken up in describing the deformities which result from the disease, than in describing the disease itself, and in doing so we think Dr. Taylor has shown wisdom. This portion is practical and tangible, and some very good hints as to mechanical appliances are thrown out; but of the first portion we cannot say much in praise. Dr. Taylor, in giving the probable cause of this infantile paralysis being so frequent in the United States, says:

“Modern, and especially American, civilization is characterized by peculiar activity of the brain, and this is often carried to great excess.

“The motive-force of American progress is brain-power. It is the ceaseless activity of directing mind that, in two centuries, has subdued the wilderness and peopled the continent; that has built vast cities whose commerce reaches the remotest regions of the globe; and that has proved itself capable of solving the most difficult political problems. The creative energy of the distinctively American intellect is recognized everywhere. But such vast results of this creative intelligence have not been accomplished without some sacrifices. It has diminished our physical endurance. As a people, we are dyspeptic, and weak in bodily vigour in the inverse ratio of over-activity of brain. Our labourers have to be imported. We are predisposed to nervous derangements. As a people we are over-worked. The nervous system becomes exhausted, and a constitution less strong than our own, but more excitable and impressible, is transmitted to our children.”

There is some truth in the above, yet it is not all truth. We grant the activity of Americans, and their energy, but we assert if the diet of the American people was plain and wholesome, instead of the gimcracks which they are eternally swallowing, their nervous system would be recuperated, and their offspring would be strong and healthy. In this matter we do not speak from hearsay, but from actual observation. Even in Canada, where we presume the active mind of the American race would be somewhat subdued, owing to the dulness of the Canadian and English intellect which surrounds them; we find not only the genuine American answers the description given by Dr. Taylor, but also his children. They are thin, puny and delicate, and why? Simply because, while the child of English or Canadian parents eats his porridge and milk, bread, butter, meat and potatoes, the child of the American eats tarts, cakes, candies, &c. We assert this is a fact; one which we deeply regret, for, while we can and do rejoice at the progress our neighbours are making as a nation, we can but deplore that they are so rapidly degenerating physically, as to give rise to the most serious thoughts concerning the future of the American race. The book can be had from Dawson Bros.

*A Manual of Auscultation and Percussion.* By M. BARTH and M. HENRI RODGER. Translated from the Sixth French Edition. Philadelphia: Lindsay & Blakiston. Montreal: Dawson Brothers.

Auscultation and percussion have done wonders in diagnosis, and of late years they have both attained a remarkable amount of precision. To become thorough masters of them both, is, however, a somewhat difficult task—requiring not only a vast amount of perseverance in learning at the bedside not only the abnormal, but the normal sounds. A good book as an aid is of very great value; and after a perusal of the work before us, we can most confidently recommend it to students. It is written plainly and concisely, and, from its style, we are sure the translator has done the original no injustice. The production of the volume from its neatness, does the publishing house of Lindsay & Blakiston, of Philadelphia, great praise.

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## PERISCOPIC DEPARTMENT.

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### Midwifery and Diseases of Women and Children.

REPORT OF A CASE OF JAUNDICE; CO-EXISTENCE OF THE HÆMORRHAGE DIATHESIS; UMBILICAL HÆMORRHAGE; FATAL RESULT.

By G. DE CORREQUER GRIFFITH.

As the following is a rare case, and replete with very much interest, and, moreover, as many such have not been put on record, I take the opportunity of publishing it:

Mrs. G. S. came to me some time since when she was suffering from the symptoms of extreme anæmia. She was then a few months advanced in pregnancy, and applied to me because she feared for herself her approaching confinement, having suffered very greatly on the occasion of her last, when she gave birth to her first child.

She remained under treatment till the symptoms of anæmia had wholly disappeared. There was, however, but little improvement in her condition as regarded the development of either muscular or fatty structures, although she felt considerably stronger physically, very much more cheerful in spirits, and more hopeful in mind.

One day I was suddenly called to attend her, and was informed by the messenger that the child had been born almost without any warning of its birth, and before he had had time to leave the house.

On arriving I found the patient lying on her right side, just as she

had thrown herself upon the bed, the baby not separated from her, but lying between the legs, and having the cord entangled about its neck and limbs. The nurse mentioned that the child had not cried since its birth.

On examination I found the cord tightly encircling the neck, the upper extremities also being implicated in its coils, so that respiration was performed with difficulty. The child's face was of a livid hue, showing that a very little longer time would have sufficed to occasion a condition of asphyxia. The entire of the body was jaundiced.

When the infant was separated I made the mother turn on her back in order to enable me to grasp the womb, which having accomplished, I desired her to turn over on her left side that I might have the organ more completely under control, and by gentle but telling compressive force expel its contents. The compression was exercised in the usual backward and downward direction, and the afterbirth with all its appendages came away immediately.

When the mother was made comfortable, attention was directed to the child. The funis seemed to be quite right. The child was jaundiced all over from the crown of its head to the soles of its feet; and in various parts of the neck, trunk, and limbs were there spots of a bluish-black hue; as if the child had been pinched and bruised. Some of these spots were as large as a penny piece.

Moreover, the child was wretchedly puny, and though perfect as regarded its development, was of a very small size; was thin and ill-nourished; the skin was corrugated and pinched, as if the child had so rapidly lost flesh that the integument was unable to contract proportionately.

For the removal of the jaundice I ordered the child to be put to the breasts as soon as possible, that it might drink the first milk and have a free action of the bowels. In addition, I ordered a little castor oil and minute doses of grey powder.

The infant seemed to be doing as well as could be expected, considering all the ills against which it had to contend. But on the eighth day after birth some oozing of blood took place at that part of the cord where it passes into the abdomen. The funis had not yet come away. To this bleeding the attendant neglected to direct my attention, and it was not till the twelfth day—the day on which the decayed cord fell off—that it was mentioned to me.

Of course the occurrence of such a circumstance never entered into my mind, and I had rested satisfied with Mrs. G. S.'s mother's assurance that "baby was doing all right, except for the jaundice and the bruises."

I should have mentioned that delivery had occurred when the patient had accomplished only her seventh month.

The urine of the child was loaded with bile, and dyed everything with which it came into contact. The fæces also were surcharged with bile.

On the twelfth day the hæmorrhage had set in. In the afternoon of the same day I saw the child, and found that not a little bleeding had already taken place, and that the flow was considerably greater than the weakly state of the infant was likely to withstand. I feared, moreover, that efforts to control the loss of blood would be unavailing, owing to the existence of the peculiar diathesis. The following efforts were however, made:—Cotton wool was laid upon the bleeding surface, at first in a dry state, and afterwards soaked in the muriate tincture of iron. This not succeeding—the several layers having become saturated—the superimposed mass was removed, the blood-covered surface dried, and search made for the bleeding point. There seemed to be not any one particular place, but several spots, whence the blood flowed in such a manner that there was an oozing from the entire surface of the umbilicus, rather than a weeping from one spot.

As the umbilicus was apparently sufficiently prominent to admit a ligature around it, I essayed to deligate it, but failed. First, because that part of the cord, which yet remained attached to the abdomen, was quite decayed, and unable to hold anything upon it; and, secondly because the umbilicus receded—as I endeavoured to tie it. There was now noticeable one point in the lower segment of the umbilicus from which the blood trickled faster than from any other; this I sought to include in the knot of a ligature, but the tissues gave way as I tried to lift them by means of the point of the tenaculum, and I was forced to abandon the procedure.

A dossil of cotton wool was placed over the umbilicus, and upon it was laid a shilling, the finger of an attendant was then made to exercise upon it gentle compression, and the mother of my lying-in patient was set to watch that the compression was properly maintained. I called again in the evening, and had the mortification to find that the cotton wool and shilling had been shifted from their position, that the bleeding had been allowed to proceed without any check, and had, indeed, been rendered more profuse by the pressure having been made about two inches above the umbilicus, which was consequently made more prominent and bulged in such a way that the bleeding was encouraged.

As the child was decidedly weakened by this loss of blood, I resolved to tie either the umbilicus and integument in a mass, or else the integument over the umbilicus, with the hope that the bleeding might be arrested;

but before undertaking so painful and severe an operation I had a consultation with Inspector-General Dolmage, who approved of the measure, and kindly lent his assistance.

We found it impossible to lift the umbilicus forward, and it was with no little difficulty that we pinched up even the integument immediately surrounding it. We therefore hooked forward on the point of the tenaculum that portion of the skin of the abdomen which lay directly below the navel, and having dipped the point we managed to seize the navel itself along with the integument above it, and to include all in the knot of the ligature, which was drawn as tightly as possible. Immediately that this was done the child screamed loudly, and very soon showed symptoms of collapse, probably from the shock sustained by the system when the ligature was tightened. This untoward, but foreseen event had in some measure been guarded against by the administration, previously, of a little brandy and warm milk; the same restoratives were given now, but failing to rouse the child, which seemed so depressed as to be unable to take the breast, a mustard poultice was applied to the spine, and the body swathed in a hot flannel which was well wetted with brandy.

These remedies had the effect of rousing the infant; and the pain occasioned by the mustard made it take the breast most eagerly. It continued to cry for some time; at length it again became exhausted. In the course of the night it died.

At the post-mortem examination I found the skin very deeply jaundiced, and abundantly covered with the hæmorrhagic spots; the process of ulceration or of sloughing, by which the funis had become detached, had extended underneath the skin of the abdomen, so that when the ligature was removed the umbilical vessels were quite open, and were now—in the dead state—completely patulous; there was acute peritoneal inflammation immediately surrounding the umbilicus; the intestines had not been wounded in the dipping of the needle.

Should a similar case again occur I should feel disposed to pass two needles through the skin of the abdomen, one above and the other below the umbilicus, and from the left to the right side, so that they should run parallel with each other and transversely as regards the umbilical vessels. I should next, having penetrated the skin on the left of and above the navel, dip the point of the needle so as to get it underneath the umbilical vessels, and having done so, I should then from within pierce the skin on the right of the navel, and bringing out the point compress the vessels between the needle and the integument. Should this method of compression not answer, I should pass the ligature around the needle in the same way as for hare lip, and thus more effectually exercise compression.

sion. The same should be done below the navel, so as to obtain occlusion of any bleeding vessels that run below it. Or, if this procedure would not act efficaciously, I should pass two or more needles into the integuments and umbilicus from side to side, and from below upwards, and then employ the ligature in the same manner as I have just described. Of course extreme caution should be observed, lest the bowels should be wounded, or taken up by the needle, and tied in the knot of the ligature.

6, Lupus-street. St. George's-square, Pimlico.

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## Medicine.

CLINICAL LECTURES DELIVERED AT CHARING CROSS HOSPITAL.

By HYDE SALTER, M.D., F.R.S., &c., &c.

*On the Diagnosis of Dropsies, Diagnosis of External from Internal Abdominal Dropsy. Diagnosis between Primary and Secondary or Indirect Dropsies.*

GENTLEMEN,—I wish to call your attention to-day to some cases illustrating the Diagnosis of Dropsies.

The seat of certain dropsies is often diagnostic of their cause. Dropsies as a general symptom, taken in the broad, may result from an almost endless variety of diseased conditions; and it is only by determining the characters and particular features of the dropsy in each case, that it becomes diagnostic of the disease that generates it. Of all the circumstances of dropsy that impart to it a diagnostic character, its localisation is, perhaps, the most important and indicative. This circumstance, taken alone, is almost sufficient, in a great number of cases, to determine the diagnosis. Thus, if I were asked what dropsy in the face pointed to, I should say disease of the kidneys; if I were asked what dropsy of the abdominal cavity pointed to, I should say disease of the liver; and if I were asked what dropsy of the legs pointed to, I should say disease of the heart or lungs. And, in the majority of instances, I should be right, especially if these dropsies occurred without any other distribution.

The particular point for to-day—that to which I would especially direct your attention—is the diagnosis between external and internal abdominal dropsy; between the accumulation of fluid in the peritoneal cavity, and the accumulation of fluid in the subcutaneous areolar tissue of the abdomen: in other words, between ascites and œdema of the abdominal wall.

From what I have said just now, you will see the importance of this:—Ascites points to the liver; subcutaneous dropsy does not. The determination of this question, therefore, determines approximately whether

we are to regard the liver as concerned in the diseased process, or not. But, though you may admit the importance of the distinction, you may be disposed to regard the discussion of the method of making it as a superfluous inquiry. This, however, is not the case. Many a time I have had patients sent to me as labouring under ascites who have not had a drop of fluid in the peritoneal cavity, but the increased girth of whose abdomens has been entirely due to œdema of the abdominal wall.

On what rules, then, may we fall back for the resolution of a case in which there is undoubtedly an increase of the girth of the abdomen? How shall we determine, in such a case, whether the effusion is external or internal to the abdominal cavity?

1. If the effusion is external—if the abdominal enlargement is due to œdema of the parietes—the following conditions will be found to be present.

*a.* On attempting to pinch up the skin of the abdomen, we shall find that we pinch up a thick firm "rool" of integument, firm and doughy, an inch or more in thickness; and we generally find that the lower down on the abdominal surface that we attempt thus to pinch up the skin the thicker is the rool of integument which we raise; because the lower is the abdominal surface the more developed is the œdema.

*b.* We find the umbilicus deep-set, and deep-set in proportion to the œdema. This is always the case; and the reason of it is this:—At the umbilicus the skin and the deep fascia are fastened to one another, and cannot be separated; elsewhere, from the intervention of a loose and extensible areolar tissue, the one can be freely raised from the other. Now, it is into this areolar tissue that the dropsical effusion takes place; and by this effusion, and in proportion to it, the deep and superficial fasciæ are separated from one another, and the skin raised. In proportion, therefore, to the effusion which raises the skin from the deep fascia will be the depth of the pit at the point where it *cannot* be raised. This deep-set umbilicus is very characteristic, and I would especially recommend your attention to it.

*c.* Again, the parietes have a particular white opacity about them—an unnatural and uniform whiteness; and this, I think, is in part due to another appearance—an absence of any visible veins. The superficial veins lie in the subcutaneous areolar tissue; and this is so thickened and distended by the œdema, and the skin thereby so much raised, that the veins are no longer immediately beneath the surface.

*d.* Another characteristic of œdematous abdominal parietes is a peculiar quaggy vibration in them when they are tapped—a sort of jelly-like

tremor. This may even be seen, but it is better felt by the hand. It is very important to recognise it, because it may be confounded, and often is confounded, with the true "fluctuation" of ascites. It is best felt in this way:—Place your hand lightly on the surface, and with the fingers of the other hand "flick the skin close by: the peculiar thrill or tremor will be at once felt. And it will be found that the further the hand is removed from the point "flicked" the fainter are the vibrations, until, at at some little distance, they are quite lost. I do not think they can ever be felt quite across the abdomen, from one side to the other. As far as they can be felt, the sensation is as if they were conducted along the surface, and never as if they were conducted through the abdominal cavity. I shall recur to these points presently, in contrasting this spurious fluctuation of œdema with the true fluctuation of ascites.

e. Again, the phenomenon so distinctive of œdema—pitting—is always present. Sustained pressure leaves the impression of the fingers; if we attempt to pinch up the infiltrated integument, by so doing we squeeze the fluid from it; and, on releasing it, depressions are left corresponding with the parts pinched.

f. Another appearance, and one which should always raise a suspicion of œdema wherever you may see it, because it is indeed but another form of pitting, is visible marks of the bedclothes, or folds of the patient's dress, on the skin.

The three first of these signs—the thickness of integument when pinched up, a deep-set umbilicus, and an invisibleness of veins—you get equally in very fat subjects; and for this simple and manifest reason, that fat like œdema, raises the skin, and inserts a material in the subcutaneous areolar tissue. But you will have no difficulty in distinguishing the one from the other; the proportionate distribution of fat elsewhere, the patient's condition in other respects, and, above all, the presence or absence of pitting, will leave no doubt upon your minds.

2. If the effusion is internal—free in the peritoneal cavity—the following signs will be present.

a. In the first place, if the fluid is in any appreciable quantity, sufficient conspicuously to enlarge the abdomen, there will be what is called "fluctuation". This is something very different from that quaggy tremor which I have described as characteristic of œdema of the abdominal wall. I think a better name for it would be "vibration". It depends upon the transmission across the abdominal cavity, from one side to the other, of a vibration imparted by a light stroke. It is best elicited in this way:—Apply your hand to the lateral or inguinal region of one side, and then flick or touch lightly the surface on the opposite side; you will find at

each touch or stroke a little single wave transmitted through the fluid, and impinging on the fingers on the opposite side. The sensation which it imparts can never be mistaken when once felt; and you should all of you take an early opportunity of making yourselves practically acquainted with it: it will make a clearer impression on your minds than any description of it I can give you. It differs from the spurious vibration of œdema in these three points. In the first place, distance makes no difference to it; it is felt just as plainly completely across the abdomen as half-way—indeed, I think, better; whereas the strength of the vibrations in the spurious form is always proportionate to the shortness of the distance between the part felt and the part struck. In the second place, it consists, not of a quaggy tremor, but of a single wave; the pulse on one side being transmitted unchanged to the other. In the third place, it is evidently transmitted, not along the surface, but through and by the contained fluid.

When I said just now that distance makes no difference to it I should have qualified this expression in one particular, for distance does make a difference as to the *time* at which the vibration is felt; for, if the distance is great, as from one flank to the other, the vibration impinges on the fingers at one side, at an appreciable interval after it has been imparted at the other, the interval being proportionate to the distance. This lapse of time between the stroke and its resulting wave is one of the most striking and characteristic parts of the phenomenon.

From what I have said you will see that a vibration felt near the part struck is of no value as implying the existence of a true so-called fluctuation. It is only when transmitted quite across the abdominal cavity, that it implies the accumulation of fluid in the peritoneum.

b. In the second place, if we have fluid in the abdominal cavity we shall have dulness for percussion in the most dependent parts, and to an extent corresponding with the amount of the fluid. If the patient is supine, the dullest parts will be the flanks; if he is erect, the hypogastric and umbilical regions.

c. Again, the umbilicus, instead of being deep-set, as in œdema, is unnaturally flattened out—indeed, in some instances protruded. The distending fluid dilates the umbilical orifice, and then drives through it a sort of hernia, the fluid within which, acting like a wedge, dilates the orifice more and more, till a considerable dropsical hernia exists, raising the thin integument over it to the size of a walnut, or even half a billiard-ball, through which there is often an appearance of an opalescent transparency, like that of a hydrocele. This appearance however, is exceptional; the

common appearance of the umbilicus in ascites is merely an unnatural flatness or very slight prominence.

d. Lastly, instead of an absence of veins in the abdominal wall, there is often, in ascites, a great conspicuousness of them, sometimes amounting to a varicosity. This depends on two causes: the veins are *visible* because, by the distension, the integument is stretched and thinned out, and therefore rendered more diaphanous; and they are *enlarged*, because the incumbent weight of the accumulated fluid exercises such a pressure upon the inferior cava as to impede the return of blood through it, and compel it (the blood) to find its way back to the heart by the superficial collateral venous circulation formed by the anastomosing epigastric and internal mammary veins.

Now let me call your attention to some cases in the hospital illustrating the practical application of these rules. We have two patients with abdominal enlargement due to dropsy—Mary Jones and George Davis; and they illustrate very well the striking contrast between external and internal dropsy.

In Mary Jones's case, which is one of chronic bronchitis, the enlargement of the abdomen is entirely due to an œdematous condition of the abdominal walls. Here we have the thickening of the integument, making it impossible to pinch it up, and only in a roll an inch or an inch and a half thick; the deep-scated umbilicus; the quaggy tremor; and the pitting. The œdema of the abdominal wall is but a part of the general œdema; the legs, as you have seen, are enormously œdematous.

In the case of George Davis, which is one of mitral disease, we find, on the other hand, that while the abdomen is greatly enlarged, the abdominal wall is extremely thin; when we pinch up the attenuated skin, it has not much more than the thickness of paper. We find, too, the flattened umbilicus, almost effaced by distension; the conspicuous veins meandering over the surface; and, above all, true fluctuation.

There is one more point in relation to the diagnosis of dropsy, on which I would wish to say a few words to you.

I have two cases in the hospital at the present time, both of which are characterised by the following four circumstances:—

1. Mitral regurgitant disease;
2. A greatly enlarged liver;
3. Ascites;
4. Œdema of the lower extremities.

One of these cases is that of George Davis, to which I have just referred; the other is that of John Flynn, a boy aged 12 years, lying in the Bow Ward, Bed No. 14.

Now, with regard to their cases, the two following questions suggest themselves:—

1. Is the enlargement of the liver due to primary hepatic disease, and the ascites, therefore, true hepatic ascites? or is it due mainly to hepatic congestion dependent on the impediment to the circulation through the heart, and the ascites, therefore, not true hepatic ascites, but indirectly cardiac?

2. Is the œdema of the legs the direct and immediate result of the heart-mischief? or does it result from impediment to the return of blood through the inferior cava, produced by the pressure which the incumbent weight of the ascites exercises upon that vessel? or is it due to the pressure of the enlarged liver upon the inferior cava in the supine posture?

According to the answers we may make to these questions we shall arrive at one or other of the following conclusions:—

That the liver is the seat of organic disease of such a nature as to obstruct the circulation through it.

That the ascites is the direct result of this liver-disease.

That the liver is not diseased at all, but is enlarged because congested.

That the obstruction, therefore, which gives rise to the ascites, though immediately at the liver, is primarily at the heart.

That the œdema in the legs is due to the systemic venous stasis of the heart-disease.

That it is due to the pressure of the enlarged liver upon the inferior cava in the supine posture.

That it is due to the incumbent weight of the ascites pressing on the cava. This last will give rise to two alternatives; for if we consider the ascites due to liver-disease, then the œdema of the legs is a secondary hepatic symptom; if the ascites is due to the heart-disease, then the œdema is a secondary cardiac symptom.

You see, then, to how many alternatives our answers to these two questions may give rise.

Now, with regard to the first question—the nature of the liver-enlargement—I came to the conclusion that, in the case of Davis, it was secondary to the heart-disease—due simply to congestion; and that the liver was not the seat of any real disease at all: for the following reasons: First, the patient was of an age, 20, at which organic enlargement of the liver is not common; secondly, there was nothing in his antecedents or habits—no intemperance—to make liver-disease likely; thirdly, the liver was not the seat of any pain or tenderness; fourthly, although greatly increased

in size, it was not altered in shape; fifthly, the very existence of the ascites rather pointed to the cardiac origin of the liver-enlargement, for such a cause of enlargement would necessarily also be a cause of ascites. In the case of Flynn, I thought at first that the liver was the seat of independent enlargement unconnected with the heart; the enlargement was so great and the ascites so moderate. And even now I do not feel certain. No doubt the volume of an organ so highly vascular as the liver may vary within very wide limits according to the amount of its turgescence. We know, too, that the liver is more advantageously placed for having its circulation influenced by the state of the heart than any other organ of the body. And yet, as a clinical fact, we find it is comparatively rare for the liver to undergo any great amount of enlargement as a result of mere passive congestion from the heart-disease. Is the organ so greatly enlarged in these cases on account of the youth of the patients? Does the liver in the young yield more readily to the enlarging influence of mechanical congestion than in those of more advanced age?

With regard to the part that ascites or enlarged liver might be supposed to play in production of the œdema of the lower extremities, that question is, I think, set at rest in the case of Davis, in whom, for some days past, the ascites and enlargement of the liver have both been greatly diminishing, while the œdema of the legs has been continually increasing. Had the latter been due to either of the former, it also must have been diminished as well. It is clear, then, in the case of Davis that the œdema of the lower extremities is to be assigned entirely and directly to the heart.

The future of these cases, gentlemen, must resolve the other alternatives that I have indicated to you; and I have pointed them out in order that you may see how complex and dependent a symptom dropsy is, and many and what varied conditions it may imply.—*British Medical Journal*.

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#### REMARKABLE CASE OF CARDIAC DISEASE—PATENT FORAMEN OVALE.

Dr. Bennet related before the Pathological Society of Dublin, a very interesting case of heart disease, which we condense from the Secretary's Report, as published in the *Dublin Quarterly*.

The patient, 24 years of age, died suddenly during an attack of palpitation, to which he had been subject during the last five years, dating from an attack of measles. And that there was cardiac disease appeared certain during life, but an accurate diagnosis was never made out, although he was examined and treated at different times by such men as Sir D. Cor-

rigan, Dr. Stokes, Drs. Watson and Croker. The only positive diagnosis was that of hypertrophy of the heart, fluid in left side of chest, and hepatic enlargement. At no time during the course of the disease was there any cardiac murmur, though there was evidence of organic disease in the enlargement and palpitation.

The autopsy revealed the following condition of the *heart*: The pericardium was universally adherent to the heart by connections which could only be separated by dissection. In no part of the chest was there any sign of recent inflammation. The heart was of great size; on being removed and freed of blood, it weighed, with a small part of the pericardium and the arch of the aorta attached to it, twenty-four and a half ounces. Its circumference, following the margins of the ventricles, measured  $19\frac{1}{2}$  inches; at right angles to the axis  $12\frac{1}{2}$  inches. On opening the right auricle, the cavity was seen to be greatly enlarged, and the septum of the auricles perforated in the position of the foramen ovale, by an opening,  $6\frac{1}{2}$  inches in circumference; the right auriculo-ventricular opening was over  $8\frac{1}{2}$  inches in circumference. The right ventricle was greatly enlarged also, and its walls were thickened; the valves of both openings were free from disease, but evidently insufficient to close the openings. The ventricular septum was perfect, and ductus arteriosus completely closed. Left auricle much smaller than the right, being not much more capacious than natural; its walls somewhat thickened; mitral orifice of normal size, and valves healthy and sufficient; cavity of left ventricle and its walls normal. Aorta healthy, closed by healthy valves, but in size much below that of an adult's aorta, and the vessels springing from it, proportionate to its diminished size.

The following seems the mode of occurrence of the pathological changes: An attack of pericarditis occurred during the measles, with this pleuritis, with effusion on the left side; the combination of these two impediments of the heart's action brought into play a pre-existing patent foramen ovale; then followed enlargement of the right side of the heart and contraction of the aorta. For a long time before death, the stream of blood through the foramen ovale was evidently directed from left to right, especially during the attacks of palpitation, which were relieved by horizontal position, and never commenced while the patient was in bed. This, with the pallor of the face, observed during the palpitation, show that its principal cause was a want of blood in the vessels of the brain. This want of blood was caused by the deficient supply to the left ventricle, which resulted directly in contraction of the aorta.

The case is one of great interest, as showing how imperfect are our powers of diagnosis of cardiac disease, and for the late period of life at

which it is possible for congenital affections to give rise to fatal disease, when brought into play by some accidental occurrence. There was not in this case any symptom present indicating patent foramen ovale.

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A CASE OF RESUSCITATION AFTER TWO HOURS' APPARENT DEATH BY DROWNING, OCCURRING IN THE LATE CATASTROPHE AT REGENT'S-PARK.

By JOHN DENNAN, Esq.

On the afternoon of Tuesday, the 15th instant, about a quarter past four, I received, in the absence of Mr. Obré, a summons to view a dead body just withdrawn from the ornamental waters in Regent's-Park.

While on the way I entered somewhat minutely into the particulars with my guide, and on my arrival determined to examine the subject very carefully.

The man was apparently *quite dead*, and I heard the following statement, viz:—that he had left his abode in perfect health, and joined in the general amusements on the ice, and was one of those at some distance from the shore when the catastrophe occurred. I particularly observed that the patient was intensely cold, from having been immersed some minutes, and having struggled in the water for more than half an hour. There was neither breathing nor heart's action, the pupils dilated, the jaws clenched, and the limbs contracted, so much so that the clothes had to be cut off before anything could be done to the patient.

A frothy mucus covered the mouth and nostrils, the body was much swollen and I had it placed on an incline at an angle of about 35°, as the body was so very cold. I commenced, with the assistance of two men who brought him home, to try to restore warmth by degrees, rubbing the chest and limbs thoroughly and swiftly with ice and snow, cleansing his mouth and nostrils from time to time, and adopting Silvester's method of artificial respiration for more than two hours. After a quantity of frothy mucus was discharged slight signs of animation were perceptible though so faint that I almost despaired.

I then had him well wrapped in blankets, placing large tins of hot water at the feet, and mustard poultices on the chest, while the body was well rubbed with warm flannel under the blankets. I continued this treatment for three quarters of an hour, at the same time continuing to intimate the movements of breathing. A decided improvement then took place. The patient's jaws relaxed, and he appeared to breathe more freely. I then administered two teaspoonfuls of warm water, which caused him

to vomit slightly. As soon as he commenced breathing freely I was able to give him a little warm tea, which he apparently relished. I may here observe that I could not induce him to take spirits.

The patient was now placed in a warm bed prepared for him, soothed to sleep, and all undue excitement prevented.

The patient was feverish for one or two days, but on the following Friday I had the pleasure of receiving a visit from him.—*Dublin Medical Press and Circular, 30th January.*

#### TREATMENT OF ASTHMA BY NITRIC ACID.

By D. C. HEWSON, M.D., Galveston, Texas.

Having had several cases of asthma to treat, and having had the good fortune to cure at least two of them by the use of nitric acid, I have thought that I would give the profession the advantage—in order that others might repeat the experiment.

It is a well-known fact that the fumes of nitrate of potash will relieve a fit of asthma. It is also known that nitric acid has been extolled by the profession at large, as almost a specific in pertussis. It is also known that both of these diseases are spasmodic.

Now, if the nitrous vapour, relieve in one case and the nitric acid in the other, why should not these be used in the same disease?

The manner of giving it is to commence with nitric acid *iij* gtt. three times a day in a glass full of water, and increase the dose one drop every week until the patient has taken six drops; when he should desist for a week, and again commence with the minimum dose. It is an experiment which can certainly do no asthmatic patient harm, and might result in his recovery.

I have two patients at this time who are using the medicine, and certainly while they are taking it they have not had an attack.—*Galveston Medical Journal.*

### Surgery.

#### OPHTHALMIA OF NEW-BORN INFANTS.

By O. F. POTTER, M.D.

It is not proposed in the present paper to offer much that is new or original, but rather to call the attention of physicians to this important and often terrible disease, which, if not the most frequent, is still one of the most destructive to the future welfare of the little patient. Fortunately, however, it is generally amenable to treatment when taken early in its development and promptly treated.

Purulent Ophthalmia of infants occurs sometimes immediately after birth, but more frequently at from the third to the fifth day afterward, and occasionally appearing at a more advanced age. At the first indications of the disease the eye-lids appear to be glued together, especially in the morning, attended with some redness and swelling, making the lid puff out round and full. On raising the eye-lid the conjunctiva is found of a red and slightly thickened appearance. As the disease advances the swelling of the eye-lids increases and the child becomes restless, fretting and crying, and showing the greatest intolerance to the light, keeping its eyes constantly closed. When the lids are opened a whitish sero-muculent matter is observed, and the palpebral conjunctiva, when the lids are raised or everted, are red and velvety, and appear highly inflamed.

The secretion of matter is now very copious and bursts forth from time to time, and on opening the eyes the matter flows out abundantly. The discharge varies from a whitish to a yellowish grey colour, and increases somewhat in consistency as the disease progresses in intensity. In the morning the eye-lids are found tightly glued together, and opened only by soaking with warm water, or a little of the mother's milk, which readily softens the exuded matter.

When first opened there will be a free discharge of matter, and, on further examination, will generally be found a layer of tolerably thick tenacious secretion, which can only be reached and thoroughly removed by injecting warm water with a small syringe, or letting it fall into the open eye from a sponge. The cornea soon becomes implicated, and if the inflammation is not soon checked, will become more or less opaque, a portion sometimes separating entirely from the iris, penetrating through the aperture, presenting an irregular and dirty-looking prominence. In some extreme cases, all the humors of the eye are discharged through the ulcerated cornea, and the globe shrinks to less than half its natural size.

If, however, the disease is taken in time and confined to the lids, this misfortune is prevented, and while it may be obstinate and difficult to treat, will not result in any serious or permanent injury to the little patient.

The constitutional disturbances of the system are generally manifested by fretfulness, hot feverish skin, refusing to nurse, want of appetite, bowels constipated, and general febrile disturbances.

As regards the causes of this disease, I think it may arise from some acrid secretion in the vagina of the mother, affected by chronic leucorrhœa or some other morbid condition resulting from vaginal inflammation,

or among the lower classes gonorrhœal complications or the filthy condition of the person producing a discharge, which, coming in contact with the eyes of the child during its passage from the womb to external life, might be the inciting cause of this inflammatory action, still I do not consider, with some, these the only causes; and although the matter from the infant's eye applied to the adult provokes a purulent ophthalmia, and the peculiar time of its occurrence would point almost directly to such a cause, yet I am confident that harsh treatment in, or insufficient care while washing, want of cleanliness and proper care on the part of the nurse, and sudden and undue exposure to light, especially a glowing fire or lamp, all tend to promote this disease, which becomes virulent from the intense inflammatory action which always supervenes in the delicate tissues involved. I should say also that some constitutions are more predisposed or susceptible to such inflammatory actions than others, where, as for instance, a strenuous diathesis exists, with extreme debility and unfavourable surrounding circumstances.

As for treatment, we should, when we have reason to suspect any complications of this kind, be careful to inspect the eyes minutely and frequently, and on the appearance of the least unnatural redness or irritation, they should be carefully cleansed with warm water and a gentle astringent applied, such as weak alum water, say two or four grs. to the ounce. By this early attention many times the disease may be prevented from becoming serious or troublesome. But when once it has set in, and the inflammation which develops rapidly, has resulted in the purulent discharge, then no time must be lost in resorting to active treatment. The eyes must be thoroughly, yet carefully washed with warm water. The lids should be fomented so as to soften the matter which has collected on and matted together the ciliae, and the lids then gently drawn asunder and the discharge washed away. Some resort to the use of a small syringe to inject the water, so as to remove the more tenacious part of the matter. I have found a very good way to be, to take a soft sponge or linen rag dipped in milk warm water, and after gently opening the lids, let a small stream of water pressed from it fall from a little height into the palpebral opening. This is not only convenient in the application, but most effectual in removing the discharge and cleansing the eye. This should be done every few hours, as the case requires, and after each washing there should be applied some astringent solution, as the alum water above mentioned, or a weak solution of acetate of lead or zinc, the latter of which I much prefer. Once or twice a day a few drops of a solution of nitrate of silver, say two grs. to the ounce of water, with one half grain of morphia, should be dropped into the eye, the

frequency of which should depend on the severity of the case. I prefer the nitrate of silver to almost any other application in severe cases, and grade the strength of the solution to the intensity of the inflammatory action.

The astringent solution following the washing should be applied with a single fold of soft linen, so as not to be too heating, and frequently changed. The general health of the child should be especially attended to. - Small doses of calomel and Dovers powders, followed with castor oil to produce free evacuations, should be given at least every other day at the onset of the disease, and followed by syrup of rhubarb. If the inflammation be very great, one or two leeches may be applied to the external angle of the eye. Some recommend that the conjunctiva of the lid be slightly scarified by running the convex edge of a small scalpel lightly across it in different directions. This is, perhaps, preferable to the leeches, as it is more readily applied, and avoids the danger of too profuse hemorrhage, and the scar which sometimes result from the leech bites.

Dr. Willson, of Dublin, recommends, in extreme cases, to clip the chemosis with a pair of curved scissors, so as to relieve the congestion and also the pressure from the globe, and particularly around the cornea. In some extreme cases he uses the scissors a second and third time with good results. He also applies a solution of sulphate of atropia to the eye, the object of which is to keep the pupil dilated, whereby the iris is prevented, to a certain extent, from prolapsing through the cornea in case of a perforating ulcer, or even if recently protruded the atropia will retract the iris. He also thinks that the dilatation of the pupil diminishes intraocular pressure and relieves vascularity, and therefore uses it largely in all ocular inflammations.

Under this prompt and active treatment, the pain and inflammation usually begin to subside from the third to the fourth day, and at the same time the conjunctiva assumes a paler and less irritated appearance, the suppuration is less profuse, and gradually the eyes return to a normal condition. Should, however, the inflammation not be checked, and unfortunately go on, then ulceration and sloughing of the cornea will take place, and the eye be destroyed. In such a case the general system should be sustained in every way possible, and some gentle tonic, as syrup of bark or a weak solution of quinine, given.

The mother and nurse should in all cases be warned of the contagious nature of the disease, and directed to throw away all cloths and sponges used in washing the eyes, and to have especial care as to personal cleanliness. The child should be kept in a darkened room, and of as even a

temperature as possible, as much depends on the care and attention given by the nurse for the successful treatment of the disease—in fact, almost as much as in the remedies employed.—*St. Louis Medical Reporter.*

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A CASE OF THE RESTORATION OF THE POWER OF SPEECH, WITH A RETURN OF CONSCIOUSNESS, AFTER THEIR SUSPENSION FOR EIGHTEEN MONTHS, BY THE USE OF TREPHINE.

By A. ERSKINE, M.D.

I shall make no apology for reporting the following case, not strictly my own; nor do I feel that in doing so, I am doing the gentleman whom I prominently assisted in the operation, any injustice. Should this paper fall under his observation, he will, I am sure, be gratified at its publication, if indeed, he has not already published the case himself. It is one of much interest, and will add another to the list of cases of suspended consciousness, which have been reported in the medical journals, and in works on mental philosophy.

During my hospital service at La Grange, Ga., in the year 1864, the patient was brought to the post, in a confirmed dementia, and placed in the Cannon Hospital, then under the care of Surgeon L. U. Tuttle, C. S. A., of Vicksburg, Miss., a gentleman of ability and learning. He was a young and healthy looking Frenchman, from the province of Gascony, who had lost the power of speech, and possessed just enough intelligence to obey the simplest commands, such as walking to and from the room, spitting, wiping his mouth, etc. He would respond to the calling of his nickname, "Dash," the only one by which he was known, by a silly, inanimate smile; but made no attempt to speak; and although his eye was bright, it was almost destitute of expression, and his countenance was dull and heavy. He would sit in one position during the entire day, without motion, unless urged to do otherwise by loud and repeated calls—moving then mechanically, and with difficulty, and paying no attention to anything occurring around him. He had been passed from one hospital to another, as hopelessly incurable, and had been at La Grange for weeks before his previous history could be obtained. From some of the members of his company, who recognized him, it was ascertained, that up to the battle of Murfreesboro, he had been a lively young fellow, of good intelligence, and of active, sprightly habits, and before the war had been a ship chandler's clerk in New Orleans, where he had enlisted; that at that battle, he was struck on the head by some heavy body, which had driven in his skull, rendering him immediately insensible, and he had been left on the field as dead. He had gone the rounds of the prisons and hospitals, and during the eighteen months which had elapsed, he had

never spoken, and no ray of intelligence, beyond those simple ideas seemed ever to have penetrated his mind. His physical health was good, his appetite voracious, and his digestion unimpaired; but he had to be cared for like a child. His feet were œdematous, and his body had an anasarous tendency. The shape of his head was singular. By the force of the blow, there was an extensive depression over the right side of the occipital bone, near the lamdoidal suture, so gradual and so general, it was difficult to say whether it was a congenital malformation, or the result of violence; a knowledge of his history alone could have determined this. The frontal bone on the left side bulged prominently, giving the head the appearance of having been forcibly compressed from the sides.

The case was so interesting, and at the same time so pitiable, a consultation was called, consisting of Drs. Tuttle, F. H. Evans, the post surgeon, I. M. Henson, and myself, with other medical officers at the post, to decide upon the propriety of an operation. The result was a determination to use the trephine.

Chloroform was administered, under the influence of which he vainly attempted to cry out. A T shaped incision was made through the scalp, over the point of greatest depression, and a section of bone removed. The operation was performed by Dr. Tuttle, I assisting him; and although it was done carefully and skilfully, there was no immediate result, and I closed the wounds with feelings of painful regret at its apparent failure.

The patient was put to bed, and in forty-eight hours, a violent erysipelas supervened, which nearly proved fatal. Before its subsidence, however, which occurred in a week or ten days, he began to speak—would reply intelligently “yes” and “no” to questions—his knowledge of French returning first, and he gave his name which I do not now recall. By degrees, with the healing of the wound, his power of speech was entirely restored, his mental faculties partially recovered their integrity, and he became comparatively active and useful. Was employed in the hospital as a scullion, and during the heat of the summer, he would wander into the fields in search of berries, without injury—a triumph of surgery which, while highly beneficial to him, afforded intense pleasure to ourselves.

The case of the English officer, injured on the head at the battle of Waterloo, and restored to consciousness and speech, after an interval of several years, by similar means, was so prominently before our minds, we were sanguine enough to look for like results. Being disappointed in this, we did not deem it necessary to remove a second section of bone. Had we done so, or had the instrument been larger, he might probably have recovered the entire use of his faculties.

During the war, I saw one other case of a suspension of the power of speech from depressed bone, the result of a gunshot wound. It was near the right temporal, over the arteria menengia media, and an operation was not considered prudent. The mind was unimpaired and the physical health good. Efforts at speech were abortive, inarticulate sounds only being uttered.

I presume there can be no question as to the propriety of the use of the trephine, in recent injuries of the skull, with depressed bone. I saw two cases, at least, sacrificed to delay in operating, when, by a timely interference, their lives might have been saved.—*Memphis Med. and Surg. Monthly.*

PROTRUSION OF PORTION (EIGHTEEN INCHES) OF LARGE AND SMALL INTESTINES INVERTED, INCLUDING THE CÆCUM, APPENDIX, A PORTION OF ASCENDING COLON, WITH A DOUBLE ARTIFICIAL ANUS—OPERATION FOR ITS RELIEF.

By DR. PEYRE PORCHER, Surgeon in charge of the City Hospital, Charleston.

This extraordinary case, which is almost unique in the annals of surgery, merits a more detailed description than I can give in this brief sketch.

The subject, a negro man, aged 35, had been operated upon four years previously, for a hernial protrusion in the right groin, which was mistaken for a bubo. The accounts are obscure, but it was followed by the persistent extrusion of a hernial sac with the formation of an *artificial* anus.

A few days only before his admission into the Hospital, (April 26th,) he had been visited by my friend, Dr. Somers Buist, one of the Health officers of this city, (to whom my thanks are due for repeated assistance in my duties at this Hospital,) who found him in an out-house, with a tumour protruding from the walls of the abdomen. He ascertained that this remarkable extension of the disease had only occurred within a few days preceding, and he procured his admission into the Hospital.

The tumour was found to be about eighteen inches in length, of the diameter of the colon when distended; about four inches at its point of exit from the abdomen, diminishing to three at its extremity. It was raw, and consisted of the everted mucus membrane. The intestines had become completely everted, having forced their way through the artificial anus first formed, the mucus coat external; and this enormous increase had occurred only three days before his admission. It was rounded in form, with the natural peristaltic vermicular movements still

persistent, and at the portion nearest the walls of the abdomen, from where it had escaped, was an orifice, a second artificial anus provisionally established by Nature, which directly communicated with the cœcum within, and pouring out occasionally the fœcal contents of the intestines. It is difficult to describe it without a drawing. It resembled an immense caterpillar, with the slow creeping motion peculiar to the insect.

In the presence of, and after consultation with, a number of Medical gentlemen, who were invited to witness it, including Drs. E. Giddings, Wragg, Chazal, Pelzer, Kinloch, Logan, Buist, Parker, Assist. Surgeon Dewitt, and others, it was determined to ablate the entire mass, as affording the sufferer the only possible chance for recovery, though with slight hope of ultimate success. To Dr. Geo. S. Pelzer, Chief of the Health Department of this city, I am under special obligations. I cut into and removed the whole mass, with the exception of a portion of the circle of intestine about an inch above the walls of the abdomen, which held the ligatures necessary to restrain the flow of blood from the mesenteric arteries. So extensive was the bleeding surface, that a number of ligatures had to be used, the compression being effected by inserting the threads, winding them in and out before knotting, by which means the several parts were successively involved. The hæmorrhage, which was excessive, was arrested, but death ensued in thirty-six hours.

The examination of the parts removed and the post-mortem, revealed a complete eversion of the mucus coat of the intestines throughout the whole extent, and protruded as described in the caption. The transverse colon and the rectum which remained within the abdomen were atrophied, the latter containing hard scybalæ and degenerated fœcal matter, converted into a substance like adipocire. No evacuation per rectum had been effected for eighteen months preceding.—*Richmond Medical Journal*, July, 1866.

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POPLITEAL ANEURISM; LIGATURE OF FEMORAL ARTERY WITH  
SILVER WIRE. RECOVERY.

J. W.—, aged forty-three. In 1862, while carrying a piece of timber, he fell with his leg under him, and strained his knee, for which he was laid up for fourteen weeks. About a fortnight before admission he noticed a kind of jumping pain in the popliteal space of the right leg, which was relieved on his sitting down, but was greatly augmented in walking or moving the leg at all. The heart-sounds are natural, and he has never suffered from any illness except the accident above mentioned.

On admission, there was a large, egg-shaped, pulsating tumour, about the size of an ordinary fist (larger from above downwards than from side to side), situated in the popliteal space of the right leg. On applying the stethoscope, a distinct aneurismal bruit could be heard. The pulsation of the post-tibial artery was weaker than in the left leg.

On Nov. 2d. Mr. Holmes first commenced flexion of the limb for two days; but on account of the severe pain it caused the patient, it was discontinued, without any marked improvement having taken place.

Nov. 4.—Digital pressure was tried for fourteen hours; but this again caused such severe cramping pains, that it was discontinued. Some little deposit had, however, commenced in the sac, and the tumour was rather more circumscribed.

6th to 14th.—The tourniquet was applied for periods of from three to six hours daily, with marked benefit, the tumour being much more circumscribed and consolidation evidently going on.

16th.—The tourniquet was discontinued on account of the parts of the thigh becoming so lax and the artery so movable that it was constantly becoming displaced.

Various forms of compression were tried in succession, but none were found applicable. The patient then learned to compress the artery himself, but it produced no visible effect. Then the aid of fellow-patients, assisted by the students, was called in to compress the artery for twenty minutes out of each half hour during twelve hours per diem. At first this was thought to be producing coagulation rapidly; then the disease seemed stationary, but the bruit always continued as loud as ever. At length it became evident that the tumour was increasing in size along the popliteal space of the femur, and then it was determined to tie the vessel.

Accordingly, on Dec. 28th, Mr. Holmes cut down upon the femoral artery at the apex of Scarpa's triangle, and ligatured it with silver wire. The wound was sewn up with three silver sutures, the leg wrapped in cotton wool, and a bandage of flannel bound round it.

29th.—Pulse 126, thready. Passed a bad night. Leg painful; wound healthy; no pulsation in tumour.

30th.—Pulse 16; tongue cleaner; foot quite warm; no pulsation in tumour, which is smaller; slight redness and tenderness at the upper and inner border of wound.

31st.—Pulse 96; wound red, but not so hard or tender; foot warm; tumour smaller and more consolidated.

Jan. 2.—Pulse 88; wound probed, and a large quantity of pus let out; linseed poultice to be applied.

4th.—Wound nearly healed; no more pus exuding; tumour consolidated.

12th.—The wound is quite healed. The patient to get up. There is a good deal of thickening about the ligature, owing very likely to an effusion of lymph.

22d.—The tumour is gradually decreasing in size, and he can walk with a stick. He is to go into the country for a month.

June 23.—He was seen by Mr. Wilson, who remarks:—"The thickening about the ligature has disappeared. There is a tumour about the size of an egg, in the popliteal space very hard. No articular arteries can be detected about the joint. He still keeps the leg wrapped up in a flannel bandage, as he says it always feels cold. He is able to walk a considerable distance without limping, and has been at work for the last three months, and is now doing very heavy work,—viz., pulling down a house.—*Lancet*.

## A NEW CAUSTIC.

By P. W. ELLSWORTH, M.D., of Hartford, Connecticut.

Will you permit me to call the attention of the profession to a new medical agent, or at least a new application of an agent in pretty general use, but whose properties are not yet fully understood, viz., sun-light?

It has been a great desideratum in the profession to devise some method of removing nævi, marks, discolorations, moles, and other diseased conditions of the skin, whether natural or acquired, without subjecting the patient to the knife, or leaving a cicatrix quite as repulsive as the original disease. A Mr. Augustus Barnes, a true Yankee, but not a member of our profession, thinks he has hit upon such an agent—first experimenting on himself upon a mole; and I am much inclined to believe he has made a valuable discovery.

He uses a lens of two and three inches diameter, condensing the rays upon the object to be removed, and going over the whole, if not more than three inches in surface, at one sitting. Mr. Barnes, who is a very pleasant, agreeable gentleman, called on me a few weeks ago, and introduced the subject. At first it did not strike my fancy, as I supposed the pain would be equally severe with other caustics, and the effects no way superior. However, I witnessed his operations with fairness, and with interest, and am disposed to give him considerable credit, and believe his discovery in scientific hands will be made more generally useful than even the inventor believes. I have seen one gentleman, who had a nævus on his face, extending from the eye to below the mouth, and involving the lower eyelid to the very edge, and covering four or five square

inches of surface ; it was of a deep cherry-red colour, approaching purple, and covered with knobs of condensed tissue, an eighth of an inch high. This nævus could be seen as far off as the colour of the face. After two applications the spot has nearly disappeared, the skin generally having the hue of a surface blistered some days previously, and it is now nearly well. Some portions were absolutely like normal skin, and entirely colourless. Every knob was gone, and where stood one of the largest, and where the rays were longest condensed, was a perfectly healthy-looking cutis. I do not consider this man as absolutely well, but so much better than he would have been under any known agent, that I must confess my hopes have been considerably raised. As a deformity, or rather as a mark, this man can be considered practically cured, although there is at present the appearance stated, but which does not especially draw attention. I would add, that the rays were condensed with excellent success, even on the very edge of the lid. Mr. Barnes applies his caustic not only to discolorations, but to small tumours involving the surface of the skin, to lupus and ulcerations. He claims to have produced a true and healthy skin on the surface affected by ichthyosis.

How the light, as a caustic, operates differently from other agents, it may be difficult to say, but it has struck me that as the rays are possessed of powerful bleaching properties, it is possible this principle may be brought into play. If the pigment is destroyed, and the secreting power of the corpus mucosum changed, there may be an alteration in the colour without impairment of the cutis vera, which latter seems in all cases to have remained uninjured.

Nor is the pain as severe as we might apprehend, as it is confined at each instant to a very minute point, and therefore must be less perceptible than when diffused over a large surface. Patients at any rate submit very readily and without the use of anæsthetics. I would here suggest, that probably we may not find in this a remedy for the lead-coloured skin produced by light acting on nitrate of silver. It would be less likely to cure than when the discoloration was from some other cause, since it is the effect of light. There is this difference, moreover, that in the nitrate of silver stain the whole skin may be impregnated, while in nævi the discoloration is confined to some particular tissue or layer. I strongly suspect the skin of the negro might be changed to come <sup>degree</sup> more probably than in case of colouring with nit. silver.

As to the removal of lupus and small cancers, we may well entertain grave doubts. But as there is no proof that cancer in its incipency is not a local disease, it would be wrong to pronounce too hasty judgment. I intend making further experiments with this agent, and hope others of the profession will do the same, and give the results to the public.

## RHEUMATIC ARTHRITIS.

Clinique of Dr. Lyons, at the Richmond Hospital, Dublin.

C. D., an unmarried female domestic servant, aged 28, was eight days an intern patient at the Whitworth Hospital at the date of this report (March 6th), and had been four days ill previously to her admission. Dr. Lyons considered her case to be one of rheumatic arthritis. At the date of this report her pulse was quiet; and the disease, which had been found to affect the wrists, knees, ankles, shoulders, and hips, had entirely subsided. The mode of treatment adopted by Dr. Lyons in this case is worthy of note; not because of any originality in the means employed, which are mostly well-known and popular remedies, but in their combination, and as illustrating the rationale of a plan at once useful and easy of application.

*In the first instance* the patient was encased in a flannel jacket with the view of keeping up an uniform temperature in the body, and with the same object the sheets were removed from the bed, and the patient was made to lie literally "between the blankets."

*In the next place* the affected joints were poulticed with a mash of chamomile flowers and poppy heads.

*In the third place* she took a quarter of a grain of opium every four hours; and, at the same time, she was ordered a combination of three salts of potass, half an ounce of the bicarbonate, and two drachms each of the nitrate and acetate, in seven ounces of infusion of calumba, and an ounce of tincture of gentian; half an ounce of this mixture every three hours.

The rationale of this treatment may be shortly explained thus: the bicarbonate saturates the uric acid, and makes a soluble salt, which is washed out of the system through the kidneys under the stimulus of the acetate and nitrate. The warm poultices give immediate and permanent ease, and retain the deposit in the joints until it is taken up in the soluble form, thus preventing any repellant action which, by metastasis, would tend to drive the inflammation to the heart. The opium procures sleep, and gives great relief from pain, the patients passing through the disease with little or no suffering.

This plan has been extensively used by Dr. Lyons, and with the effect of speedy relief to the sufferings of the patients so treated; and also with the important effect of a very large proportionate immunity as regards the principal organ, the heart, less than one in twenty of such cases having presented cardiac complications. The subject of the present report, it may be further stated, got complete and permanent relief in six days after admission to hospital.—*Medical Press and Circular.*

# Canada Medical Journal.

MONTREAL, MARCH, 1867.

## TO OUR SUBSCRIBERS.

IT is always an unpleasant task to *dun*, but at times it is absolutely necessary; and such is the case just now with ourselves. We are informed by the publishers that not a few who have received this journal since its commencement, now all but three years ago, and still continue to take it from the post office, have not paid even the first year's subscription. Others have paid the first, but not the second, and so on. Now, we are loath to believe that it can be anything but an oversight which causes this neglect. It is hard to make up our mind that so many members of our profession deliberately intend receiving the journal just so long as the publishers will forward it, without having any idea of paying for it; and yet it seems as if some, who regularly receive the journal, were so acting. How many would like to have their professional services paid for in a similar manner? Not one, we fancy. The amount asked for the subscription is but a trifle to each subscriber, and yet the aggregate is a large amount, and is a serious item to our publishers. We therefore earnestly call upon our subscribers to remit at once the amount they are respectively due; and with the amount thus received, increased facilities will be given to render our journal worthy of being the organ of such a large body of practitioners as the medical staff of British North America. Once more let us say, *pay up at once*. Let us be able to announce a noble response from our patrons in our next number. Let us not be disappointed. We are certain in most instances it is neglect. Neglect it then no longer—for we badly need your money to pay for printer's work and paper. Send on the money.

NEW CHEMICAL TOY.—“Pharaoh's serpents,” “Devil's tears,” and “Vesuvian tea,” have paved the way for the reception of a new Chinese wonder, in the shape of “ferns growing out of burning paper.” This is a neat little experiment, free from many of the disadvantages of “Devil's tears” and the lozenge-shaped crystals of bichromate of ammonia, which may chance to prove too inviting to children's

tastes. The instructions direct us to crimp or fold the yellow papers backwards and forwards, so that, when opened out, they may be supported upright in a zigzag form. One of these slips is then placed upright on a plate, and ignited in two or three places along the upper edges, but without being allowed to blaze. It will burn slowly down with a red glow, diffusing an agreeable perfume, whilst the ash of the paper assumes the most fantastic arborescent shapes, together with a green colour, which, to a lively imagination, may be suggestive of the growth of ferns and lichens. We had no difficulty in imitating this effect by saturating thin cartridge paper, in the first instance, with an alcoholic solution of gum benzoin, and, when dry, apply an aqueous solution of bichromate of ammonia. The decomposition of the latter substance by heat, in contact with burning paper, affords an explanation of the phenomena observed.

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## MEDICAL NEWS.

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### EARLY STRUGGLES OF MEDICAL MEN.

Dr. John Cheyne, who, a quarter of a century ago, was by far the busiest and best employed physician in Dublin, tells us, in his interesting autobiography, that, during the first half of his second year's settlement in the Irish capital, and when he had already reached the thirty-fourth year of his age, his fees only amounted to about three guineas. Nine years subsequently, he was making £5,000 annually. Not above one or two physicians in London ever drew, I believe, a larger professional income, or, perhaps, ever advanced more early into full practice, than Dr. Chambers; yet, during the fifth year of his practice, when he was already thirty-four or thirty-five years of age, he did not receive above £211 in fees. Seventeen years subsequently, his annual professional income is stated to have reached nearly to £9,000. His great predecessor in high London practice, Dr. Matthew Baillie drew above £11,000 in one year; and yet, with all the interest of the Hunters and others to aid him in his outset, his first march upwards was, like that of all others, very slow and difficult, and, to quote the words of his biographer, Dr. Wardrop, "before he found himself fairly established in practice, he had been already for twelve years physician to St. George's Hospital, and for nearly twelve years a medical lecturer." Dr. Baillie's unc'le, the celebrated Dr. Hunter, who spent a large fortune, gained by his profession alone, upon the collection of that splendid museum which now enriches the University of Glasgow, was so hard pressed for money during the years of his earlier struggles in London practice, that he was obliged to postpone for a for-

night the commencement of the third season of his lectures, in consequence of not having money enough to pay the expense of the usual class advertisements. Nor have our greatest surgeons been usually more successful than these our great physicians in the first stages of their professional career. In 1788, the son of an English clergyman attended the medical classes of Edinburgh University, and lived on the third flat in Bristo Street, in a room which cost him six shillings and sixpence a week. In after life, when swaying the surgical scepter of England, as Sir Astley Cooper, his professional income, in one single year, amounted to £23,000; and yet, during the first twelve months after he had settled down in London, and was working as a lecturer on anatomy and surgery, his receipts from private practice only amounted to five guineas. The distinguished surgeon who, by Sir Astley's death, was left at the head of the surgical school of London, Sir Benjamin Brodie, did not, as we are told in a late biographical sketch of him, get into "full practice" till 1825: yet he had been lecturing, practising, and publishing, since 1805, or for twenty long years previously. (*Leisure Hour*.)

Dr. Trousseau, the great physician of Paris, died the last week of November, very suddenly.—During the first week in February three ladies passed the preliminary examinations in Arts at the Apothecaries Hall, London, previous to being admitted to the study of medicine.—Small-pox is epidemic in London. In the small-pox hospital the numbers admitted are largely in excess of any time since it was opened. The mortality among the unvaccinated is 40 per cent., and among the vaccinated 7 per cent.

**A BULLET IN THE HEART FOR THIRTY YEARS.**—Prof. Hamilton has presented to the Pathological Society of New York the heart of a patient aged 44. A bullet was imbedded in the apex of the heart, which had been lodged there from a musket-wound received when he was 14 years old. Six weeks after the injury he returned to work. He was married in 1845. His last illness was ascribed to cold. The ball was surrounded by atheromatous deposit. The heart was dilated, but not hypertrophied.—*British Medical Journal*.

**SYPHILIS COMMUNICATED BY A KISS.**—At a recent meeting of the Chicago Medical Society, a member related the history of a young woman, whose irreproachable character left no doubt of her narrative, who experienced all the horrors of syphilitic inoculation, through a kiss from a gentleman to whom she was engaged. A chancre upon the lip was the result, and subsequent medical investigation revealed the fact that the young man was under treatment at the same time for syphilitic ulceration of the throat.—*Druggists' Circular*.