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COMPARATIVE PATHOLOGY.

By ANDREW MACPHAIL, B.A., M.D., C.M., M.R.C.S., Eng., L.R.C.P., Lond.

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It is no longer possible even to survey the field of medicine; it is difficult to deal adequately with one portion of it. Even men whose chief business is pathology are compelled to restrict themselves to some one part of the subject. And human pathology is not all pathology; the whole animal creation is groaning and travailing in the pain of disease, and many of these diseased conditions still await investigation. But this is not all. The work will be incomplete until the diseases of plant life are also worked out and brought into a proper relation with those which are incident to the more complex forms of life.

In any proper course in physiology the student is first taught the elements of physiologic processes in plants. There he sees the cell in its simplest form, and obtains a primary notion of what protoplasm really is and what it can effect in virtue of its own inherent life. He is then in a position to work his way up to a knowledge of the in-

finitely more perplexing problems which are associated with the higher cells and their intense differentiation.

In the same way a true and wide notion of pathology is obtained by working up from plant life, for plants have their hemorrhages from injury and their exudations under attacks of parasites. They have their own necroses from impairment of the circulation, an alteration in their fluids from disease and a development of new products such as gallic acid. Again a perverted nutrition gives rise to ischaemia, chlorosis, icterus and gangrene, and even cancerous growths. There are the sclerotic changes induced by the fungi, and a wide door is still open which will lead to much knowledge through inoculation and infective experiments upon plants. A bruised plant bleeds and sloughs, open wounds are liable to microbic infection, there is a coagulation of the fluids, with pathologic secretions under specific irritation, which appear as tragacanth, manna, and other resinous materials. In plants one does best see the tendency to repair and to neoplastic growths. These are the tumors commonly grouped as xylomata, which probably differ widely from each other, and which the student knows only vaguely and incompletely as the source of certain astringent drugs.

Coming to the lower animals one sees commonly enough the epithelial neoplasms and sarcomata in fishes; sarcoma of the testicle is common in the testicle of the dog and pig, and melanotic sarcoma in the anal region of the horse. Cartilaginous tumors in the breasts, psammoma in the brain, lipoma, osteoma, and fibroma are all well distributed. If one ventures into the field of medicine numberless illustrations crop up. Garrod remarked that gouty patients are a kind of birds. Goitre affects animals in those districts where it is common in man. Calcareous deposits occur in the oviducts of birds as in the human prostate, and eczemas are a heritage of plants as "scab" of the lower animals and of man.

The importance of all this is not without recognition, and many universities are now teaching the subject in an orderly manner.

Nor must the economic value of the subject be lost sight of. The work of Pasteur upon the silkworm disease, splenic fever, chicken cholera and rabies is of prime economic importance, and this feature will give an immense impulse to comparative pathology.

The present object, however, is to call attention to the practical results which are now being reached by a study of diseased conditions in the lower animals. In the United States the work is well systematized, and is under the direction of the Bureau of Animal Industry. The report is published annually, and 50,000 copies are distributed throughout the country. The report deals with the work accomplished during the year. The one at hand describes the measures taken for the extirpation of contagious pleuro-pneumonia, the efforts to regulate the transportation of Southern cattle in order to prevent the spread of Southern cattle fever, the results of the investigations instituted by the Bureau into the nature and treatment of actinomycosis in cattle, of Southern cattle fever, the use of mallein for the detection of glanders in horses, and tuberculin for the diagnosis of tuberculosis. Besides all this purely scientific work the department deals with the inspection of export cattle and meat, transportation and quarantine.

The Division of Animal Pathology is under the direction of Dr. Veranus A. Moore, and it is in this department the most interesting work is being done. There is a publication at hand issued in January, 1896, which describes an investigation into the nature of a disease in cattle not distinguishable from rabies which merits some attention. Whilst Dr. Moore was engaged in researches upon "toraemia maides," or "Cornstalk disease"—a disease of which the cause is yet unknown—his attention was called to a mysterious outbreak amongst cattle in Northern Iowa. His investigations led to a diagnosis of rabies. This suggests the possibility of the occurrence of rabies in cattle without the intervention of rabid animals. Besides there was much evidence indicating a casual relation between the conditions under which the animals were kept and the disease. In any case some consideration of the evidence upon which this opinion is based will be of interest.

Late in June a steer was found dead, in July another, in September another, and in October six more. The animals were all pastured on wet land; those on high pasture land escaped. About twelve miles away several animals were bitten by a rabid dog a year before, and died. In the present case the closest enquiry failed to disclose any connection with the bites of rabid dogs. The symptoms observed in the animals were those commonly in animals

dying of rabies. The autopsy and bacteriological examination revealed no other cause of death. The inoculation experiments were exhaustive, and all the rabbits died with symptoms which could not be distinguished from those observed in rabies. At the same time a series of inoculations was made upon rabbits and calves with virus obtained from the cord of a dog known to be affected with rabies, and the results in the two series were observed to be identical. Dr. Moore gives notes of several similar outbreaks, and concludes by saying :

"Until the specific cause of rabies is demonstrated, we are able to recognize the virus in the brain substance of the affected animals only by its ability to reproduce the disease when properly inoculated into other animals. As shown in the inoculation experiments, the filtrate (through a bougie of a Pasteur filter) of a suspension of the brain substance of a rabid animal would not produce the disease, while the injection of the suspension was followed by characteristic symptoms and fatal results. This fact, which confirms the results of other investigators, indicates that the specific cause is not a soluble substance. The extensive bacteriological investigations made by several European workers indicate that the virus of rabies is not bacterial in its nature, and the presence of other microscopic organisms have likewise not been demonstrated. The results of this series of investigations indicate that rabies, or a closely related disease, sometimes occurs among cattle kept under certain conditions without the intervention of rabid dogs or other animals."

Parallel with these cases is an account in the "British Medical Journal," 2nd May, 1896, of eight cows being bitten by a dog declared to have been rabid. They have shown no symptoms after seven months, yet two calves born during that time died of a disease which the Brown Institute declares was rabies. The incident tends to confirm the news that rabies may exist independently of infection by rabid dogs, since it is hardly conceivable that foetal infection was a factor.

THE PATHOLOGY AND COMPLICATIONS OF HYDROCELE.

By THOMAS H. MANLEY, M.D., New York.

The primary and ultimate derangement of function and finer structural changes which lead to hydrocele are not well understood.

Whether the serous fluid is the result of a low grade of local inflammation, or consecutive to pathological changes, is certainly a matter yet unsettled, although the weight of opinion is in favor of the former view.

The local changes in structure which we find, point to degenerative changes of an inflammatory origin; thus we have as an accumulation, an exudation similar to what we find in inflammatory effusions in other serous cavities, with all those shades, gradations witnessed in any cavity, the seat of inflammation.

In some instances, we have evidence of a primary plastic adhesion between the visceral and parietal surfaces within the vaginal tunic; while in others, the fluid is shut off in locules, from the development of fibrous partitions succeeding the deposition and lamination of organized lymph. This type of hydrocele is well described (Varieties of Hydrocele of the Tunica-vaginalis-testis, and some anomalous states of the Tunica-vaginalis, by Joseph Griffith, A.M., M.D., F.R.C.S. (*Journal of Anatomy and Physiology*, 1893-1894, p. 291).

He calls attention to the many apparent anomalies in the processus vaginalis and tunica-vaginalis-testis. He cites four cases which he carefully examined (*post mortem*) in men who suffered no inconvenience from them during life. The history of these cases points to their pathological rather than to their anatomic basis.

Humphrey, in Holmes' System of Surgery, mentions bags of water which were multiloculated and each pouch connected with the peritoneal cavity.

Griffiths believed that as these multiloculated hydroceles were usually small they seldom underwent treatment. These evidently belong to the same class designated by Berard as "Hydrocele-Diverticulaire," in some cases of which, by the injection of melted wax, he was enabled to trace them to the peritoneal cavity. He believed that they were formed either by a thinning and bulging

of the tunica-vaginalis in places or by the dilatation of septa. The inflammatory character of the mutations leading to this type of scrotal-ascites with consecutive changes, has been decried, because many of its clinical features are absent. Pain is seldom or never present, until by weight and pressure a dragging on the cord and compression are experienced. The clinical evolution of this process is certainly unique, and this is what gives it its distinguishing characteristics which belong to no other serous cavity, though every observer knows that when senile changes begin, especially in their regular order after middle life, the sensations are more or less blunted, and what we designate as inflammation may advance to a dangerous degree before the salutory warning is given. The exudation of hydrocele varies in quantity and quality.

A large number of the smaller varieties are borne unnoticed, and it is probable that a considerable proportion, perhaps provoked by various excesses or constitutional disturbances, disappear spontaneously when these have been discontinued or removed. In those tapped the quantity removed has varied. From the celebrated historian Gibbon, Mr. Cline removed at one sitting something more than a gallon and a half. In Dujato's 1000 cases the quantity varied from 10 to 100 ounces. The composition of the withdrawn fluid varies. Spermatozoids entire and partly disintegrated, have been found in the evacuated fluid of hydrocele. In the average fluid withdrawn, we will find on inspiration cholesterine crystals. In one case, from which Mr. Curling had withdrawn 570 grammes of fluid, he was able to extract 45 centigrammes of cholesterine. The source of this in hydrocele is obscure. Cholesterine is well known as a product of the decomposition of fat, and is often found in cysts lined by epithelia as mammary or ovarian, when it is assumed to be a derivative of metamorphosed epithelia. The fluid is of an alkaline reaction. Sir Wm. Ferguson and Vidal have both reported instances in which the fluid withdrawn was of thick, white, milky consistence. In the former's case chemical analysis proved it to be an emulsion of fat. Vidal termed these "Galactoceles." It does not appear whether a microscopical examination was made, as chemistry was alone resorted to, in examinations of liquid exudates until the last twenty-five years. It is my impression that these cases were probably first serous, then suppurative, and finally, by a free admixture of these with the alkaline secretions, a chylification or saponification occurred, producing the emulsion described. The case in my own practice seems to have been of the same class.

In May, 1887, Dr. N. C. Donahue, of the dispensary service of Harlem Hospital, sent a case of hydrocele in, for operation.

The patient was a man of 40 years of age, of good physique and apparently good general health. He was single, had gonorrhœa twice; never had stricture or orchitis. He stated that three months before, without any apparent cause, he noticed that his right testicle began to swell; it continued until it attained so great a size that he could only conceal it with difficulty. About the time, while in a skating rink, he sustained a fall, after which this scrotal tumor began to give him more pain, but he was still able to work as a milkman, by wearing a suspensory bag. Its size had diminished somewhat, he believed, since he had injured it, but an uncomfortable sensation remained, and now he came to have it tapped. This was done in the dispensary department, but it was found that nothing would run through a trocar. On examination no trace of the testis could be found. The fulness which was extreme, followed up the course of the cord as far as the internal ring. The scrotum was somewhat more sensitive over the swelling than on sound side; but the temperature was about the same. Fluctuation could be easily recognized. Incision was advised and consented to. The parts having been thoroughly prepared and a limited area cocainized, an incision was made through the overlying tissues. When the vaginal tunic was reached it was found thick and congested from a pachy vaginitis. On opening into the cavity, a thick, whitish, creamy fluid gushed forth. About nine ounces were pressed through. After this ceased to flow the testis was sought for, but it seemed greatly enlarged. After extending the wound it was about to be raised up, when a thin partition broke, and there issued through a colorless, colloid material. Now the hydrocele was treated by the Volkman and later prompt recovery followed. A microscopic examination was made of the contents of both locules; except in consistence both locules were occupied by the same material. In the larger there were less stringy shreds of albumen. Both contained fat in great abundance, broken down epithelia and pus corpuscles. Many of the latter showed degenerative changes. There were a few blood globules with an exceess of granular material.

This, then, clearly, was a case of ordinary hydrocele undergoing transitional inflammatory and degenerative changes consecutive to a transformation,

Chronic untreated or unrelieved hydrocele cannot fail to

induce consecutively other pathological conditions, both directly and indirectly, the former by pressure on the cremaster muscle, so straining it as to induce a destructive atrophy of it, with a further falling of scrotum toward the knees, pressure atrophy of the testicle and epididymis, with an absorption of the secreting tubular structures. It is my belief that a large hydrocele favors hernia on the side involved. The shape of one of these masses is always conical. The effusion always begins at the base where the vaginal tunic is the widest. As it augments in volume the fluid follows the direction of the funicular process, the summit of the bag taking the shape of a pointed cone. Advancing upward to the external ring, it enters the vaginal canal, and is only arrested where the processus-vaginalis ends and the spermatic cord begins. This is the point where the coverings of the cord begin.

COMPLICATIONS OF HYDROCELE.

The complications of hydrocele are of almost infinite number. No work that I am familiar with enumerates them all, or attempts to exhaustively consider their pathology.

It can be readily understood that anything which produces an irritation of the albugenic or vaginal serosa will provoke an exudate in varying quantities.

My purpose in the present instance will be to only chiefly consider very briefly the pathology of the most frequent disease which we find associated with dropsical effusions into the pouch of the testis.

This is hernia, and this alone can be at present considered. We find scrotal effusion in large quantities chiefly in two types of hernia in the adult. In all cases of strangulated hernia the amount of fluid in the sac varies, though in many it constitutes the bulk of the tumor.

The new type of adult hernia occasionally associated with hydrocele is chronic inguinal, although cystic pouches may be encountered in rupture anywhere located.

There is no pathological condition of the external genital pouch so commonly the cause of confusion and difficulty in diagnosis as the pressure of localized effusions with hernial protrusion. At the very outset of the consideration of this part of our subject the question arises :—Do these watery accumulations precede or are they consecutive to hernia? If we include all fluid formations in the category of hydroceles as some pathologists do, then there can

be little doubt but in some cases, probably the minority, the neoplastic cyst is an active, etiological factor. Lying sausage-shaped, as it sometimes does, within the inguinal canal, it opens widely the bore of the funis; its tip like a Barnes' dilator encroaching on and finally by pressure-atrophy opening widely the internal-ring. With the absorption or sudden withdrawal of the fluid resistance to visceral descent having been displaced we will soon find the passage favorable to the evolution of a hernia. In most voluminous incarcerated ruptures of long standing we will find on dissection an extensive degeneration or transformation of tissue with locules of fluid of various consistence, bearing different relations to the thick cartilaginous sac and the contained viscera. These liquid formations under these circumstances are dependent on degeneration of structure ensuing in consequence of interference with the vascular supply, affecting the nutrition of the parts. It is probable, too, in a considerable number, a low grade of inflammation often supervenes from the strains and contusions which the exposed parts here are subjected to, when the plastic, serous or other deposits fail of absorption. It is most extraordinary how rapidly a small scrotal hernia may enlarge by the augmentation of the fluid of an hydrocele, and how often symptoms of strangulation may suddenly develop in those complicated cases by changes within the hydrocele. The following is an example.

In the autumn of 1884, a man of large frame, fifty-nine years old, was admitted in Ninety-ninth Street Hospital, suffering from symptoms of strangulated hernia.

He said that for twenty years he had had a fulness in his scrotum on the right side. The doctor had informed him that it was not a rupture and advised him to wear a suspensory bandage. This he did, and he had no serious inconvenience until four days previous when he was kicked by a horse, the blow falling with force against the tumor. The next day, suffering considerable pain, and finding that his scrotum was greatly enlarged, he sought medical advice. Soothing applications were ordered with rest in bed, but as it continued to give him pain with convulsive vomiting, he was sent to hospital. On entrance he presented many of the constitutional symptoms of hernial strangulation; he was very weak, with a quick, thready pulse and was vomiting a greenish mucous material. His scrotum was as large as a medium-sized cocoanut, hard and resistant. The testis on the left side could be felt; but the one on the side involved was indistinguishable. The fulness up

the direction of the cord through the inguinal canal produced a distinct bulging. On reflected light the transparency of the tumor was distinct. This, then, was a case of hydrocele probably attended by hernia. There was one clinical feature in connection with the case that inclined me to doubt this. Within an hour after he entered the hospital he had a free movement of the bowels. The night before he had been given a dose of castor oil he informed us. In the evacuation which he had it could be seen in vessel mixed with urine that there were particles of floating oil which made it evident that the laxative had traversed the entire alimentary canal; something impossible in the presence of a stenotic intestine. Having carefully considered all the puzzling features in the case, it was finally decided to locally anæsthetize the scrotum, make a free incision, drain away the effusion, and then if a hernial strangulation was found give ether and relieve it.

When the tunica-vaginalis opened, more than a quart of turbid, yellowish brown fluid came away. Then the index finger was introduced when a mass of thick gelatinous substance was brought away with the finger-nail which was adherent to the epididymis and tunica-albuginea. Carrying the finger up the inguinal canal passage made by the distended vaginal tunic no visceral protrusion was detected, and on impulse in coughing the finger's tip pressing over the nude fascia-transversalis, no evidence of an incipient protrusion could be felt. Now the cavity of the sac was thoroughly irrigated with strong mercuric bichloride and a gauze drain applied with the usual dressings. The symptoms of strangulation quickly disappeared when the pressure was removed. His recovery was rapid and uneventful. In this case, in the regular sequence of their occurrence, were first, hydrocele; secondly, a tumor producing an acute vaginitis with large effusion, and thirdly, the reflex constitutional disturbances, resulting in pain, great hydrostatic pressure on the testis and strain on the spermatic cord.

Mr. Thomas Bryant (*Medical Times and Gazette*, January, 1861), reports case of woman sent into his service for operation for strangulated hernia in whom he found on opening the canal of Nuck, no hernia, but a protruding cystic distension. He observed that "there are no symptoms of hernia which these may not present." Payne has reported a case of strangulated hernia in a man complicated by hydrocele (*Medical Record*, New York, May, 1879).

Gross has recently published notes on a kindred pathological condition lately observed in a female. His patient was first lapara-

tomized for a ruptured ovarian cyst and again operated on for a crural hernia. In the first he encountered a mucous-serous fluid, this patient making a good recovery. Five years later he was called to operate on the same person for a hernia. On incision he discovered that the projecting mass consisted of a mass similar to what he had seen in the ovarian cyst; hence he designates this pathological condition "herniare neoplasique." He observes that this inner surface is studded by mucoid vegetations which become easily detached on opening the cyst. He believes that they are not of the same genus as the malignant mucoid described by Mallassez and yet are unlike the benign variety of Pèan. (*Gaz. Heb.* Feb. 2, 1896.)

A somewhat similar case of multitocular hydrocele associated with hernia has been reported by J. W. White (*University Med. Mag.* 1893-1894, vol. vi. p. 190).

A single case of acute hydrocele of the spermatic cord is reported by B. Johnson Taylor in *British Medical Journal*, 1892, *vol. II, p.* 107. The patient was suddenly seized with pain after his supper; operated on for strangulated hernia same night. Everything went well until morning of the sixth day, when severe pain, with bulging of the parts, began along the course of incision. Under the impression that there was a re-descent of the intestine, the wound was again opened, when a large hydrocele of the cord came into view; this was opened and drained, when the case went on to full recovery,

In Boyer's surgical writings he makes an extended observation on this complication of hydrocele and hernia, and gives, with considerable fulness, the two remarkable cases of Pelletan and Le Dran. Curling mentions, in his work on the diseases of the testis, a type of hydrocele of a rather peculiar pathological character. He alleges that sometimes after a hernia is reduced, the neck becoming obliterated, the sac which has been left in the scrotum may take on active secretion and produce hydrocele. Boyer supported this view on the occasional anatomical view of hydrocele (*Malad. Chirug; vol. III p.* 301). It is usually assumed that when a part is without function it soon wastes and disappears, and that in hernia after the viscera have left their abode in the sac the surfaces of the sac become adherent, and atrophy disintegrates it. But that we may have a hydrocele of this character has been demonstrated in my own practice last winter, 1895-96.

On the 2nd of January, I operated on an active young man

for the cure of an inguinal hernia, in whom the protrusion came well down into the scrotum. The O'Hara operation was employed, a procedure by which the sac is left in situ after division of the neck. Everything went well until the third day, when, the dressings becoming loose, the patient discovered that the fullness in the scrotum was larger than before operation. He sent for me in haste to inform me that the operation was a failure and the rupture had returned.

On examination it was found that this was not the case. Through the lower edge of the incision—not yet solidly united—I passed the top of a probe into the sac, when there issued up about two ounces of straw-colored fluid. It did not reaccumulate, and recovery was no further impeded. Curling designated this variety of scrotal effusion, "spurious hydrocele."

Percival Pott detailed the history of such an unusual case under peculiar circumstances. A young man suffering from strangulation came under his care. He found the scrotum greatly distended with fluid, and no history of a previous rupture. Dissecting down he came on to a thickened hernial sac filled with serum. When he opened this a large escape of fluid followed, with immediate collapse of the swelling, but on passing his finger up he came on a loop of intestine which had made its way through the formerly closed neck; here it was strangulated. He divided the constriction and returned it.

Scarpa observed in reference to these mixed cases that "whatever difficulty these complications may oppose to exact diagnosis of reducible intestinal hernia, they do not occasion any with regard to operation whenever the hernia is effected with strangulation, or the symptoms accompanying incarceration of the intestine show clearly the nature of the principal disease, and, moreover, render this operation necessary; by means of which we have at the same time the advantage of laying bare what caused the complication of the hernia and radically curing both at the same time." (Treatise on Hernia [p. 230]. By Wishart.)

As an illustration of the surprising rapidity with which a hernial sac may enlarge and simulate hydrocele, Scarpa cites the case of a stout young man who had a small incarcerated inguinal hernia of eight years' standing.

While on a journey on horseback his truss broke. When he alighted he noticed that his scrotum had become enormously distended; besides, colic and vomiting soon set in. The tumor

measured 16 inches in circumference, and had buried up the penis. The whole thing looked like a hydrocele and might have been mistaken for one—he adds—if it were not for the symptoms of strangulation, and "I could with difficulty persuade myself that this large tumor was formed for the most part by water collected in the vaginal coat of the testis or in the sac of a hernia, as the patient never had the smallest mark of serous effusion in the scrotum, as well as because of the repeated assertion of the patient that the hernia never before exceeded the size of a hen's egg, and there was no reason for believing that so large a quantity of fluid could have descended from the abdomen, otherwise in good health. There was no question about the impossibility of reducing the parts without an operation, as the symptoms were increasing in severity. After incision three pints of serum escaped. At the upper part of the sac a knuckle of intestine about three inches long was nipped. This point was divided and the intestine returned, when recovery speedily followed."

Adams, Cloquet, Morris, Bouisson and many others both in this country and Europe have reported vast serous accumulations in the sacs of old incarcerated, scrotal herniæ. In many such complicated cases we are informed that great relief followed the tapping of the bag of water.

In Bouisson's case, on the first tapping he removed 28 pints of fluid. No ill results followed. The behavior of fluid accumulations within the cavity of the tunica-vaginalis as contrasted with other serous cavities is singularly unique and it is the same with respect to the vascular arrangement on which this pathological condition primarily depends; and likewise in its disappearance when spontaneously disposed of. The arterial supply to the brain is by various directions and the venous flow is through large vessels, this blood current being favored by gravity. Serous effusions between or beneath the meninges seldom occur in sufficient quantities to compress the brain, except in tuberculosis. Late observations demonstrate that in pleurisy with effusion tuberculosis is in operation in more than a third of the cases. The proximity of the pleuræ to the heart necessarily implies an active vascular supply, and hence, in large serous effusions here, we will sometimes note the surprising rapidity of resorption. Ascites we seldom or never see, except as a secondary lesion as in hepatic, cardiac or tuberculous diseases. It rarely appears except when the constitution is shattered and the integrity of some organ vital to life is

destroyed. The circulation though complicated here is active, still it is through mechanical impediment that transudation follows. The testes occupy a dependent position and are swung like two plummets from the spermatic cords. Aneurism or atheroma in the spermatic arteries we seldom see. The arterial supply of the testis and cord is through these vessels. It is the contrary, with the vast venous plexus which must carry its blood against gravity. The pampiniform plexus though endowed with much thicker walls, than any other veins in the body, are not entirely unlike arteries, and are frequently the seat of degenerative changes after middle life and often before it. As their walls begin to weaken, we will encounter varices in some; in others we will find evidence of failure of vascular integrity by an elongation of the testis, particularly in old men. This is partly due to an atrophy of the cremaster muscle, but the chief cause is in the vessels. The remarkable elastic tensile property of the spermatic cord we will notice to good advantage in castration. When we cut off the cord low down, near the head of the epididymis, in an instant the proximal end is out of sight far up the inguinal canal. The course of the emulgent vessels of the testis is very tortuous and their length greater than any other in the body. This element in the circulation in this region must, in part at least, if not entirely, account for the want of spontaneous resorption of fluids within the vaginal-tunic, for we have good and authentical reasons for believing that the veins in the scrotum participate but slightly in drawing away the deoxygenated blood of the parts included in the serous investments of the testis. The complication of a hernial descent must necessarily embarrass the circulation and interfere with nutrition. But slight, if any, constitutional disturbance marks the presence of hydroceles if uncomplicated and of moderate volume. Those of the most robust health may have them as well as the more frail, and there is nothing to point to their development in any manner depending on constitutional conditions or disease of a central important organ. But when attended by an enterocele or a large omental mass their weight becomes burdensome, sympathetic vesical irritation is liable to supervene and occasional attacks of colic are common. Scrotal effusions, then, within the tunica-vaginalis are dependent on local changes in the environment of an organ not essential to life; their pathology being disassociated with constitutional disease or organic changes in a contiguous or remote viscus, it is evident that the basis of treatment here must be radically different from what obtains in other serous cavities.

PURE MILK.*

By J. BRADFORD McCONNELL, M.D.,
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There is no subject which demands the attention of physicians, journalists, sanitary organizations and the public generally so urgently as that of a city's milk supply. Much is written about it in the medical journals of the United States, especially in reference to the condition of the supply in several of the leading cities, and the difficulties to be contended with in these centres are similar to what exist to a greater or less extent in all towns and cities, and the methods adopted, which have proved effectual in promoting the removal of the possibilities of milk adulteration, may with profit be considered and their application urged. As with the advances of civilization, especially where the people are massed together, there is among women, owing to inattention to the demands of hygiene, in the way of insufficient exercise, improper ventilation of houses, injudicious dietary and a too close conformance to the false conventional ideals in the matter of dress, a marked physical deterioration which necessarily has associated with it an inability to properly nurse and sustain their offspring, and as cow's milk, modified to suit each case, is now recognized as the best food for infants deprived of their normal maternal or healthy wet-nurse supply, it is of the greatest importance that only a pure normal and unadulterated quality should be supplied. But dishonest milkmen and dealers, in order to increase their profits, are prone to make additions, sometimes harmful only by lessening the nutritive value of the milk, or deleterious substances may be added. There may be improper feeding and care of the animals supplying the milk; improper methods of milking, which permit the entrance of impurities and germs; improper care of milk after it is taken from the animals, and ignorantly they may supply milk from diseased herds. All these difficulties can only be avoided by spreading knowledge as to how they are to be surmounted, and having qualified inspectors to enforce the necessary regulations and examiners capable of detecting every abnormal constituent.

A pint of normal milk contains as much nutriment as six ounces of beef, and consists of about 87 per cent of

* Read before the Montreal Medico-Chirurgical Society, May 29th, 1896.

water and 13 of solids, made up of about 4 per cent fat, 4 of albuminoids, 4 1-2 lactose, and ash. Average milk should have about 8 or 10 per cent. of cream, but this varies according to the breed of cow and among individuals, Alderneys yielding sometimes as much as 20 to 30 per cent. Uniformity is better obtained by mixing the milk of different animals, which for children is always preferable to the prevailing idea of using the milk from one cow. It may be faintly alkaline or neutral, sometimes feebly acid, if the animals are not pasture fed, sp. gr. 1029.7. Thompson states that if the lactometer floats below 1029 the milk is watered; if above 1033 it is skimmed.

In regard to the impurities in milk which have to be guarded against, they are found to be many. Diseases may be conveyed from the animal, such as tuberculosis. It is now a well-established fact that tubercle bacilli can be found in the milk of cows afflicted with tuberculosis, even where the udders are not apparently affected, and may produce in the infants using such milk the tuberculosis of infancy. It is estimated that about 7 per cent of cows suffer from tuberculosis, 18 per cent in 3,000 examined in the United States, and in slaughter houses in Hanover and Pomerania the percentage has reached as high as 50 to 70 per cent, hence the importance of having skilled veterinarians examine all herds from which a supply is taken, and destruction of the animals and thorough disinfection carried out. The utility of Koch's tuberculin, from which so much was expected a few years ago, seems limited to its recognized power of detecting the existence of tuberculosis, and is therefore available for this purpose. Diphtheria and the foot and mouth disease, enteritis, anthrax, erysipelas, septic fevers, etc., may also be conveyed direct from the animal in the milk.

The most common contaminations of milk, however, are received between the time of milking and its consumption, and few samples run this gauntlet unscathed. Numerous varieties of disease germs and bacteria may gain access from many sources. Disease may be conveyed through milk from the hands of the milkers, through using impure water for cleansing the utensils employed, from dried fecal matter and other particles dropping into the milk pails, or where impure water is used for adulteration. In this way typhoid, diphtheria, scarlatina, cholera and

other infectious diseases may be conveyed; germs may come from unclean udders and from the vessels used to convey the milk, and with dust from numerous sources. Milk being a good culture fluid, they develop rapidly, changing the milk, and are the cause of diarrhoea and other affections in infants. Drs. Hunter, Stewart and Young recently read a paper on the subject of Bacteria in Milk before the Edinburgh Royal Society. They found three hours after milking that in a cubic centimeter of milk in winter there were 24,000 bacteria; in spring and early summer, 44,000, and in late summer and autumn, 173,000. It was further found that in dairies supplied by milk from the country the average number of micro-organisms five hours after milking was 44,000 per cubic centimetre, while in the milk from town byres the average was 352,000, and according to Sedgewick milk may contain a million bacteria to the cubic centimetre before it comes to the table for use. An inferior quality of milk results where the refuse from breweries or glucose factories or swill is used in feeding, and cleanliness in the care of the animals, and pure drinking water are essential. Dr. Rowland G. Freeman, of New York, and Fokker, in Germany, state that milk has a germicidal action, and that there are fewer bacteria at the end of twelve hours, and sometimes twenty-four hours, than during the earlier hours after milking and contamination, but many circumstances may militate against the exercise of this immunitive attribute. On the other hand, various poisonous substances are produced in the milk by the bacterial growth, and some of these denote their presence by developing coloring substances, hence the blue color produced by the oidium lactis and the bacterium cyanogeneum and yellow by B synxanthum. There are ten different varieties of bacteria which induce lactic acid fermentation.

The foregoing represent most of the features of impure milk. How can they be mitigated? Here is afforded an opportunity for the health officer of any city to confer a substantial benefit upon his fellow-citizens by developing among the members of the health committee a proper appreciation of the great importance of the subject and the remedies to be applied. Capable inspectors should be appointed who cannot be bribed, and comprehensive legislation should be secured which will enable health departments to supervise the milk industry through its various stages from the feeding and care of the animals and the exclusion of all those

diseased or below the standard in the milk they produce, and have stringent measures adopted to secure the proper care of the milk until it is delivered to the consumer. This would involve the daily examinations and certifications in large dairies by a competent physician or veterinary surgeon as to the condition of the animals and quality of milk sent out. The milk should be used within the first twelve hours from the time of milking, and not later than twenty-four. Much of the milk which comes to the city by train from distant places is conveyed miles over rough roads to the station, often morning and evening's milk together, and twenty-four or thirty-six hours may elapse before it is available for distribution. Absolutely full and sterile cans, and aseptic methods of milking, and the placing of the cans in cold water at the farms and on ice in the cars, would lessen the disadvantages of this supply. Keeping the milk below 60 degrees hinders the multiplication of bacteria, and it should be kept below this temperature until it reaches the consumer, and until used. The destruction of all germs in milk by sterilization, by heating to 212 degrees, is a sure means of securing pure milk, but such milk is inferior (if the heating is prolonged) in nutritive value and less digestable, and both the milk sugar and the amylolytic ferment are destroyed. Hence Pasteurization is preferred in which the milk is exposed for from ten to twenty minutes to a temperature of 160 to 170 degrees, which destroys all pathogenic or other bacteria, if repeated on one or two successive days in bottles properly sealed it becomes perfectly sterile, and may be preserved indefinitely. This temperature does not coagulate the envelope of lactalbumin around the fat globules nor injure the lactose.

The removal of cream or the addition of water to milk are the chief methods employed to defraud the consumer. Milk should have 8 to 10 per cent. of cream by volume ascertained by the creamometer or lactometer, the latter giving the sp. gr., which should be 1030.

Milk diluted with water becomes bluish, hence coloring matters are added. In this city some dealers have been discovered using bichromate of potash for this purpose, a substance which would be injurious to the digestive tract. A product from the seeds of a tropical American tree is most frequently used for this purpose, called annatto;

antiseptics are sometimes added, such as boric and salicylic acids, and borax, soda or other alkalies to lessen acidity, all of which would be objectionable in infant feeding or where this food is used constantly. To thicken it, sugar, chalk, whiting, flour, arrowroot and magnesia are added.

It will be seen that for inspection to be worthy the name of such the services of expert veterinarians, chemists and bacteriologisits are indispensable. We find in the statutes of this province a fair recognition of the difficulties to be contended with and provision made for proper inspection, and if properly carried out, and the laws enforced, we should have a good milk supply. A license is required by all who sell milk in the city, but the standard of 3 per cent butter fat is too low, especially in this, the best district of the continent for dairy products. The total of solids demanded, 12 per cent., is also too low a standard. An excellent method has been adopted in Essex County, New Jersey, an account of which is given in the "New York Medical Journal," January 25, 1896. A medical milk commission is formed of medical men from different parts of the county, who certify as to the quality of the milk furnished by certain dairymen:

The members of the commission disclaim any pecuniary interest in the sale of the milk to the character of which they certify, and assume no obligation further than that of enforcing the contracts made with them by dairymen and that of publishing among the medical profession the results of the investigations made by the chemist, the bacteriologist, and the veterinarians employed by them. In the contract the dairyman agrees to pay for the chemical and biological examinations of the milk and to defray the cost of bi-monthly inspections of his dairy stock.

They employed the following examiners: Professor Albert R. Leeds, Ph.D., chemist; Rowland G. Freeman, M.D., bacteriologist; Professor Alexander Liatard, M.D., D.V.S., William B. E. Miller, D.V.S., and Walter Runge, D.V.S., veterinarians, Professor Liatard serving in a consulting capacity. These gentlemen make reports to the commission in writing, and the commission passes upon them. The specimens of milk are delivered to the commission, and issued by it to the chemist and the bacteriologist. The chemist's report gives the

specific gravity of the milk and an analysis showing the percentage of water, that of the total solids, and those of the fat, lactose, and albuminoids contained in it, also the percentage of ash. The bacteriologist examines the specimen for micro-organisms and states whether or not he finds it in accord with the commission's requirements. The veterinarians visit the dairy and investigate the condition of the animals and their hygienic treatment, the quality and amount of food given to them, the quality of water supply from all sources, the sanitary condition of the stable and the surroundings, and the hygienic state of the attendants. They also determine what feed and fodder shall be given to the cows and in what quantities.

In the way of preventing the spread of disease by milk, Dr. Rowland Godfrey Freeman, of New York, sums up as follows at the conclusion of an excellent paper in the "Medical Record" of March 28th, 1896:

"A Study of These Epidemics Teaches Us—1. Whenever a case of communicable infectious disease is reported, inquiry into the source of the milk supply should be made.

"2. Milk traffic should be separated from houses where people live. The dairy building should be at least one hundred feet from either the house, barn, or privy, and should be on a higher level than any of these, and should have a pure water supply of its own. At this dairy building all the dairy work should be done, including the cleansing of pails and cans.

"3. It should be unlawful for any one who has come in contact with a sick person (when this sickness is not positively known to be non-contagious) to enter the dairy building or barn or to handle the milk.

"4. All men connected with the milk traffic should be compelled to notify the authorities on the outbreak of any disease in their respective abodes, and to abstain from their work until permission to resume is given them by the authorities notified.

"5. Cities should accept milk only from dairies which are regularly inspected and where all the cows have been tested with tuberculin and those giving the characteristic reaction have been killed and the premises disinfected.

"6. The tuberculin test should be applied to all cattle, and those which react should be killed, the owner being reimbursed from State funds. The premises on which such

tuberculous cattle have been kept should be thoroughly disinfected. All cattle which are brought into the State should be quarantined until the tuberculin test has been applied.

"7. The use of one long trough for the purpose of feeding many cattle should be avoided, since it is a ready means for the conveyance of pathogenic germs from one animal to another.

"From the excellent regulations of the New York City Board of Health for the sale and care of milk I take the following important rule: 'Milk shall not be kept for sale or stored in any room used for sleeping or domestic purposes or opening into the same.'

"Undoubtedly the adoption of the above regulations would do much in reducing the amount of sickness due to the conveyance of pathogenic organisms by milk. It does not seem probable, however, that any regulations can entirely eliminate this danger.

"I would, therefore, add one word of caution for physicians who order milk diet. Use some sufficient sterilizing process, so that in case the milk supplied contains pathogenic organisms, they may be destroyed before the milk is used by the patient."

Modified milk is a means adopted to secure a pure quality with any desired proportion of the various constituents of milk, thus making it available for every variety of disease and condition of the individual patient. Physicians write a prescription for the proportion desired. The Walker-Gordon laboratory of Boston, established in 1892 under the supervision of Dr. Rotch, has proved a success in diminishing the mortality among infants using it. A similar laboratory has been opened in New York, and one is now in existence in this city, but even these must be under competent supervision in order to secure the confidence of the profession, and get the best fruits of the system.

We cannot do better in closing this resume than give the conclusions of an exhaustive report, as quoted in the "Medical Record" of April 18th, 1896, by Drs. S. C. Busey and G. M. Kober, of Washington:

When we recall, say the authors, the many ways by which milk may acquire morbific properties, we see the necessity for the proper protection of the public by placing dairies, the herds, and the milk market under a strict sani-

tary control. The owner of a dairy should be required to subject his stock to frequent inspection by a competent veterinarian, and all animals found to be suffering from diseases like tuberculosis, erysipelas, anthrax, pleuro-pneumonia, foot and mouth disease, septic and other fevers, specific enteritis and other intestinal disorders, rabies, tetanus, garget and other inflammatory conditions of the teats and udder; and also those animals which are being treated with medicaments for any or all causes, all of which are disqualified from producing a pure or sound milk, should be excluded. The milk of animals five days before and after parturition is likewise unfit for human consumption.

The pasturage of the animals should be looked after with the greatest care; the animals should be groomed daily, and before milking the teats and udders should be thoroughly washed with water previously boiled. The necessity for this has been repeatedly pointed out and is of special importance, since we consider the presence of excrementitious matter and faecal bacteria in milk next in danger to the presence of disease germs. The requirements of cleanliness apply with equal force to the milkmen and as to their persons and clothing, and they should be requested to keep their finger nails free from dirt and to make a careful toilet just before milking. All persons engaged in handling the milk should be free from disease. No family ever thinks of employing or keeping a cook afflicted with a communicable disease, and yet not the slightest restriction is placed upon, nor a question asked about, the persons who handle our milk supply, which we know affords an excellent culture medium for disease germs.

A most excellent suggestion of the authors is that the products of each ten cows should be mixed, not only to insure uniformity but also to diminish the danger of transmitting disease germs in concentrated doses from any one animal.

Absolute cleanliness, of course, should be observed in transferring and bottling the milk, and the retailer should be duly registered and be required to furnish the health officer with a list of customers. These lists should be arranged at that office on the "index-card system," so that the simultaneous occurrence of infectious diseases in a number of families supplied by the same milkman may be promptly discovered and the mischief checked.

On the subject of "Milk Standards" the authors conclude, after an examination of the best data on the subject, that we have a right to expect a milk containing 12.52 per cent. of total solids, composed of 8.75 per cent. non-fatty solids and 3.75 per cent. fat, and also that the legal standards should be modified accordingly.

The official standards in force vary from 13 to 12 per cent.; it seems to us that the standard should be at least 13 per cent., as in Massachusetts.

The authors go on to say that while it would be manifestly unjust to condemn a milk as adulterated when it has more than 87.5 per cent. water, on the other hand the adoption of a minimum standard would result in the sale of a very large quantity of adulterated milk, which, apart from diminishing the nutritive value of the milk—a matter of great importance in infant-feeding—is often the immediate cause of transmitting disease germs by the addition of infected water. In the opinion of the writers all this can be prevented and milk of uniform standards can be obtained by encouraging the establishment of milk depots like the Walker-Gordon laboratory of Boston. In the management of this establishment farm and herd are under the absolute control of the laboratory, and are used for laboratory purposes only; the cows, their food, their stables, their pasture, and their drinking water are subjected to the frequent, paid, critical examination of the best veterinary surgeon that can be procured in Boston. The dairymen dress in white suits before milking, each having previously had a bath. The cows are milked into glass pails, and the milk, after being aerated and cooled to about 44 degrees Fahrenheit in a tank of ice and water, is delivered at the laboratory in Boston within four hours of the milking.

At the laboratory a ventilating engine keeps up a constant change of air, and a hose keeps the enamelled brick walls and stone floors wet to prevent any remaining dust from contaminating the milk while it is being "modified." The whole milk, after being "Pasteurized," passes through a Stockholm separator which makes sixty-eight hundred revolutions a minute, yielding a cream of an almost constant 16 per cent fat. It not only does this, but it removes all dirt that from unavoidable causes has gained access to the milk, thus yielding a clean, skimmed milk, practically free from fat (only 0.13 per cent. remaining).

Such milk laboratories would accomplish the following objects:

1. The source of the original milk would be closely controlled.

2. The producer would be paid according to the quality of the milk.

3. The milk would be Pasteurized before it reached the consumer.

4. The milk would be sold under uniform standards of "full" and "skimmed" milk, and its sale perfectly controlled by the sanitary authorities.

5. The milk could be modified in the laboratory according to the wishes of the consumer, and for invalids and bottle-fed children according to the formula of physicians, with a justice and accuracy not possible by any other method.

6. Condensed milk preserved in glass bottles is a special necessity during the prevalence of blizzards or other interruption of the milk traffic, also upon long journeys; and, since a higher standard than the present is demanded for correct infant-feeding, the milk could be modified by the addition of sugar of milk and thus form the best possible basis for condensed milk of a proper standard.

Finally, we sincerely trust that this excellent report will cause an immediate and widespread agitation throughout America for proper legislation as to the milk supply and the establishment of "milk laboratories" and of milk-cattle inspection.

Progress of Medical Science.

MEDICINE AND NEUROLOGY

IN CHARGE OF
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A REPORT ON ANTIPHTHISIN.

In November, 1895, the Parish Medical Society of New Orleans appointed a commission for the investigation and a public test of antiphthisin, as to its value in tuberculosis, to be made in the Charity Hospital of New Orleans.

The treatment of cases was begun on November 27th, and the commission's final report was presented to the Parish Medical Society at its regular meeting, on March 28, 1896. We learn that the report, which is voluminous, will be published in full. The following are the conclusions arrived at:

Conclusions in Surgical Cases.

A consideration of the three cases of improvement would certainly lead us to believe that antiphthisin has decided value, and we should commend its careful tentative employment in such cases, in conjunction with general measures and the usual appropriate operative treatment. The glandular case we consider especially encouraging. This case would seem to have required a most serious operation for the removal of the gland, with great uncertainty of ultimate benefit. The improvement under antiphthisin treatment would alone justify us in stating that we have in this remedy a most valuable aid in the management of such cases. We beg to call attention in this connection to the case of Dr. Ambler, of Ohio, reported recently in the "New York Medical Record," as confirmatory evidence of the value of antiphthisin in glandular tuberculosis. The hypodermic employment of the remedy would seem to be especially advantageous, with careful aseptic precautions.

Conclusions in Medical Cases.

In nearly every case the area of lung involved decreased, if it did not clear up entirely. Auscultation bore

out the results of percussion, vesicular respiration replacing morbid breath-sounds in a greater or lesser degree. In cases which were classed as cured, the departure from health is only such as is due to the results of every continued pneumonic process. Secretion was diminished even in the cases marked only improved, and entirely absent in others. Bacteriological reports in most of the cases bore out the results obtained in physical and other examinations. The general condition of the patients improved in the large majority of cases, even in those whose physical examination did not show any great improvement. The use of the remedy was not attended with any danger to the patient. Finally, antiphthisin does seem to have curative, and not simply palliative qualities.—*New York Medical Journal, April*, 1896.

SYPHILIS FROM AN INSURANCE POINT OF VIEW.

Dr. P. H. Maclaren, of Edinburgh, in considering this subject without reference to general mortality statistics, from which it is difficult to obtain accurate information, states that he is inclined to classify for insurance purposes all syphilitics under the three following groups:

1. If a man has been properly treated, the probabilities are that, provided he is of good constitution and habits, no complications will arise, and the expectation would be that he will go through life with scarcely more appreciable risk that one who has never had the disease.

2. If proposer has not undergone a sufficient course of treatment, and applies for insurance before the expiration of six years, the period at which the disease normally terminates, and yet is not suffering from any tertiary manifestations, and is otherwise satisfactory, the chances are that he may escape the malign form, but a 10 per cent. extra should be charged until the expiration of the six years, and the case then reconsidered.

3. When tertiary symptoms have developed, the proposal should be absolutely declined, because, while treatment may temporarily remove these, it cannot eradicate the tendency to recurrence; and clinical observation has shown that those so affected rarely live beyond a term of ten years, and often much less where palliative treatment is not carried out.

While his personal experience is almost absolutely favorable regarding the prognosis of the cases included in Class 1, it is questionable when the cases are looked at, with the interests of the offices perfectly safeguarded, if they should not practically be treated in the same way as those in Class 2.—*Edinburgh Medical Journal, March*, 1896.

MICRO-ORGANISMS IN THE BLOOD OF SCARLATINA.

Dr. Crajkowski secured blood from scarlatina patients by a needle prick of the ear, and from it made cultures and cover-glass preparations ("University Medical Magazine"). The culture media used were glycerin agar, agar with haematogen, blood serum, gelatin, bouillon, serous transudate from the peritoneum and from the tunica vaginalis testis. The cover-glass specimens were dried, fixed, and stained in Chencinski's mixture. These specimens showed micro-organisms in the form of diplococci. They were found in relatively small numbers—one or two in a field of vision—and generally occurred singly, though sometimes in twos or short chains. They were never seen in the blood corpuscles. The shape of the individual was oval, though with ordinary magnification no difference between the diameters could be observed. They were not stained by ordinary methods and decolorized readily when stained by Gram's method. The specimen from fresh blood had a surrounding capsule which was absent in the dried form. The growth of the organisms on culture media was carefully studied. Upon the solid culture media it was very slow. Upon all the solid media the colonies appeared under the microscope as minute dewdrop-like points measuring one-half by one-half millimetre, and not becoming confluent for months. The organisms continued vital upon the solid media for from three to four months if protected from drying. In liquid culture media, especially in bouillon, the organisms formed a yellowish-white, finely granular, light precipitate, at the bottom of the glass. The inoculation of the organisms beneath the skin and into the blood of rabbits was without result. Inoculated mice died in three days with the cocci distributed through the blood.—*Medical Record, April* 18, 1896.

SPECIAL MILK FOR INFANTS.

Dr. Edmund Cautley, of London, has had a special milk for infants prepared by taking an equal quantity of mixed cow's milk and a 10 per cent. solution of lactose, the whole being passed through a separator so arranged that the two outgoing streams are equal. It is thus divided into two equal parts, one of which contains practically the whole of the cream and may be termed cream milk, while the other contains practically no cream and may be termed skimmed milk. That the cream milk closely resembles human milk will be seen by the following table:

	Cream Milk.	Human Milk.
Total solids	13.11 per cent.	13.20 per cent.
Proteids	1.82 "	2.00 "
Fats	4.02 "	4.00 "
Lactose	6.88 "	7.00 "
Ash	0.39 "	0.20 "

The milk was well taken and digested by infants, but it was found that the percentage of fat was higher than some of them could digest, and this was reduced to 3.7 per cent., with excellent results. The milk is supplied in air-tight bottles and is previously Pasteurized at a temperature of 160 degrees Fahrenheit (71.1 degrees C.). It is rendered faintly alkaline.

The advantages of a milk supplied of this nature are, according to the author, numerous and obvious. 1. By the process of separation a large number of deleterious substances which accidentally contaminate milk—such as particles of manure, epidermal scales from the hands of the milker or the udder, hairs, dust, etc.—are removed. Needless to say, such constituents are very liable to be injurious to an infant. 2. By the process of Pasteurization the countless organisms present in milk are destroyed. It has been shown that a temperature of 160 degrees F. (71.1 degrees C.) destroys the bacilli of tubercle, typhoid fever, diphtheria, and many others. The liability of the transmission of disease to the infant by the milk supply is consequently abolished. 3. A substitute for human milk is supplied ready for use, and the trouble involved in the methods at present adopted is abolished.

An infant weighing 3,000 grammes (6½ pounds) would require of this milk during the first week, 30 grammes (1 ounce); second week, 37 grammes (1¼ ounces); third week, 44 grammes (1½ ounces); fourth week, 51 grammes (1¾ ounces). During the second month the amount may be increased gradually by a quarter of an ounce a week, the total amounting to 3 ounces (93 grammes) by the end of the ninth week. From the age of nine weeks to six months from 3 to 4 ounces (93 to 125 grammes) are sufficient for a feed, and from six to nine months from 5 to 6 ounces (155 to 186 grammes) are enough. After the second month six or seven feeds may be given in the twenty-four hours at intervals of three hours. When the child is first put upon this milk it is advisable to give it diluted for a few days in order to gradually accustom the stomach to the change in diet. This is especially necessary in the case of children under three months of age, on account of the difference in the relative proportion of proteids from those of human milk. (Lancet, January 11, 1896.)—*The Universal Medical Journal.*

QUININE IN ENURESIS.

Dr. Charles S. Rotts, instructor in nervous diseases, University of Pennsylvania, in the "University Medical Magazine" for March, advocates the use of quinine in enuresis. This disease, he states, is due in most cases to a weakened or deficient inhibition exerted over the vesical

centre in the cord, and as quinine stimulates inhibition, it seems rational that it should be of value in this condition. In one case reported, a child, aged 12 years, who had since birth suffered from this condition, and had had four attacks of chorea, four grains, three times a day, produced some improvement, but four grains four times daily led to a complete cure of both affections in about six weeks. In a second case, that of a young woman, aged 19, four grains three times daily caused the trouble, which had existed since childhood, to entirely disappear.

ALCOHOL AS AN ANTIDOTE TO CARBOLIC ACID.

Dr. Donald B. Fraser, of Stratford, Ont., in the "Medical Record," reports a case where a woman, attempting suicide, after experimenting with mixtures of carbolic acid and beer, took a large quantity of equal parts of alcohol and carbolic acid, it did not have a corrosive action on the mucous membranes, a condition of unconsciousness existed for eight hours, vomiting for twenty-four hours, and then rapid convalescence. Locally, also, alcohol counteracts the corrosive action of carbolic acid; if the alcohol is applied continuously, until heat ceases to be developed in the pad soaked with alcohol applied to the burn, the pain and staining disappear.

GYNÆCOLOGY.

By A. LAPTHORN SMITH, B.A., M.D., M.R.C.S., Eng.
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OPERATIONS FOR RETRODISPLACEMENT OF THE UTERUS.

These form the topic for numerous papers and endless discussion in the medical journals and at the medical societies, not only in America, but throughout Europe. That some better treatment than that by pessaries is needed does not seem to require discussion, for no one hardly ever says a word about the necessity of operative treatment. A few words on this point may therefore be opportune. It must be admitted that a considerable number of patients with retroversion have been cured by simply replacing the uterus and allowing the intestines to fall in behind it; and even when in some of these cases the uterus fell back again, if not supported, it has remained up permanently after the patient has worn a pessary for from three to six months. Other patients again are kept cured by becoming pregnant, and only require the help of a pessary for the

first few months, after which the uterus rises out of the pelvis and falls forward. I cannot deny this, for I have had many such cases. But, on the other hand, there are many other cases in which the uterus falls back again time after time as soon as the pessary has been removed, and these are the patients who, becoming impatient of the chains that bind them to the doctor's office, finally demand from us some treatment that will hold out a reasonable hope of a permanent cure. By these women an operation, which is entirely devoid of danger, is not only consented to, but gladly welcomed. But why, we are sometimes asked, is any treatment required at all? We are frequently told that retroversion, even very marked, does not cause any discomfort. This is a mistaken idea; these women do suffer very seriously some of them, otherwise they would not travel around as they do from one physician's office to another, spending their money and time; nothing but real discomfort or suffering would induce them to do so. Patients have over and over again been sent to me for pain in the back, coccygodynia, constipation and piles, pain in the ovaries, dysmenorrhoea, frequency of micturition, menorrhagia and headache, all of which I attributed to a markedly retroverted uterus pressing on the great sympathetic nerve and obstructing the circulation of the rectum, uterus and bladder. And yet when attention has been called to the condition of the uterus, the attendant has told me that that did not cause her any inconvenience, while the blame has been put upon a trifling laceration of the cervix. The result fully justifies the operative treatment, as all operators are agreed, provided always that the cases are suitable ones. On this point of selection of cases, a very important one, there has of late been a great deal of discussion, and the opinions of a great many different and widely scattered authorities seem to have crystallized into the following proposition: In all cases of retrodisplacement, uncomplicated with marked disease or any adhesions of the uterus or appendages to the sacrum, Alexander's operation alone is indicated; in all cases of retroversion, with adhesions, ventrofixation is the only satisfactory one. At some of the most recent discussions a new alternative has been advocated, especially by Polk, of New York, namely, the opening of the vaginal cul de sac and the breaking down of adhesions until the uterus can be brought easily into proper position, after which it is held there by shortening of the round ligaments. According to many operators, a great improvement takes place in even very diseased appendages within a few months of their restoration to the normal position. Many, if not all, are agreed that, as much as possible, ventrofixation should be reserved for these cases of retroversion in which the appendages are hopelessly diseased, and must therefore be removed. The reason for this is that

in several cases in which they have been left, the woman has become pregnant, and the uterus has either torn away from its adhesions or else a miscarriage has taken place. I have only left the ovaries half a dozen times when I have performed ventrofixation, and so far as I am aware, only one of these patients has become pregnant, and she miscarried, so that I have had but little experience of the dire results mentioned by others. Neither have I lost any case of ventrofixation. But I feel inclined to follow Polk's procedure in future, and by first breaking up adhesions by the vaginal opening in Douglas' cul-de-sac, replace a comparatively safe abdominal section by an absolutely safe shortening of the ligaments. I say absolutely safe, because I can hardly conceive how a death could follow this simple although delicate operation, if performed with the same precautions as we are accustomed to employ in all abdominal work. Mackenrodt, in Germany, introduced a few years ago a new operation for retroversion called vagino-fixation, consisting of opening the anterior vaginal cul de sac and stitching the uterus into the opening. This has been followed by such bad results in subsequent pregnancies that the operation has now been abandoned, not only in Germany, but even by the inventor himself, although it still finds a few defenders in New York. Although I was opposed to Alexander's operation at first, I have been completely converted to the opinion, which is now almost general among gynaecologists, that it is one of the best methods of treating every case of retrodisplacement without adhesions, and the more often it is performed, of course, the easier it is to find the ligaments and draw them out. I am certain that in no case operated upon by me has the operation been followed by hernia.

LARYNGOLOGY.

"Fatal meningitis caused by exploring the frontal sinus with a sound," is the subject of a paper by Dr. Mermod in the April number of "Annales des Maladies de l'Oreille," etc. Every possible antiseptic precaution is claimed to have been taken before passing the instrument. The lesson is drawn that it were better to open the sinus externally with antiseptic measures than pass any instrument internally, for the information gained in the former case would be definite, and afford the opportunity to operate further if necessary, while in the latter it would be more or less uncertain, while the risk would be certain. The method described by Schaeffer, of opening this sinus internally, by passing a trocar inside the nose from below upward is condemned most strongly, as being in the highest degree dangerous, and unwarranted.

AUTOSCOPY OF THE LARYNX AND TRACHEA.

Dr. Kerstein, of Berlin, describes this manner of examining the throat without a mirror, and claims some advantages over the usual method when it can be done. He discovered that operations could be done on many persons under the direct control of the eye without mirror or prism. The method is claimed to secure very important practical benefits, yet the practice of one does not exclude the other. The instrument consists of a long hollow tongue depressor, sufficiently long to overlap the epiglottis (the latter being previously cocainized); a cover to elevate the jaw, upper lip, etc., and a handle. By tilting the head backwards and inserting this instrument sufficiently far, the entire larynx, trachea and division of bronchi are seen. After practice it is said this instrument facilitates the extraction of tumors much better than the old way, by mirror illumination, and the posterior laryngeal wall is better shown than by any other method, and autoscopy in expert hands should be neither hurtful nor cause nausea.

TONSILLITIS AS A FACTOR IN RHEUMATIC FEVER

Is discussed by Sir W. Wade in the April number of the "British Medical Journal." The poison of rheumatism is believed by some to be fabricated in the mouth and throat, gaining entrance to the system through the tonsils, producing first a tonsillitis, then rheumatism. Wade sustains the theory that tonsillitis is a primary infective disease of the lacunae; rheumatic fever a secondary disease, arising from the absorption of microbes or their products into the system. The microbic theory of rheumatism is claimed to be gaining ground, hence the above theory. The basis of this theory is: 1. That the clinical phenomena of this disease corresponds in every particular to an infective disease. 2. Cases have been noted where rheumatism was undoubtedly transmitted from one person to another. 3. Various species of coccus and bacillus are found in the lacunae during the acute stages. Wade concludes his argument by stating that the facts and considerations occurring in his experience have convinced him there is a very high degree of probability that rheumatic fever is directly due to microbic poison. But to confirm this further, clinical evidence is wanted of the association of the disease with slight throat disorders.

RÖNTGEN RAYS IN LARYNGEAL SURGERY.

Have not thus far proved of much practical benefit owing to imperfection of apparatus. This will soon be remedied, and in the locating of foreign bodies we may expect the best results with improved appliances. McIntzie is preparing a good demonstration for the next meeting of the British Laryngological Association.

HARD CHANCRE OF THE TONSIL.

Bayer relates to the Belgian Laryngological Society an undoubted case of this nature. He was consulted regarding a tonsillitis of three weeks standing, which had received daily cauterizations. Considering these the cause of the continued inflammation, he gave palliative and antiseptic treatment. Later the inflammation increased with glandular swelling, leading him to suspect syphilis, and under treatment for the latter the disease at once improved. The appearance soon after of the characteristic rash left no room for doubt.

Medical Society Proceedings.

MONTREAL MEDICO-CHIRURGICAL SOCIETY.

Stated Meeting, January 23, 1896.

F. S. FINLEY, M.D., First Vice-President, in the Chair.

PATHOLOGICAL SPECIMENS.

Dr. C. F. Martin showed two fallopian tubes removed by Dr. W. Gardner, interesting as illustrating a condition mentioned by many observers, i. e., a large dilated tube simulating a hydrosalpinx, but which, from the history and microscopic examination, was probably an old pyosalpinx, the cellular elements having been absorbed, leaving a clear fluid. They were dilated with thickened walls, and shreddy mucous membrane, both containing a clear watery fluid, with some granular contents, but no cellular structures. Examination of walls showed chronic progressive thickening, with small round-cell aggregations at various points. No evidence of tuberculosis.

Dr. Gardner said the case had been unusual also in its history. The patient was a woman of 35, healthy, with the exception of profuse menstruation up to within eight weeks of operation, when she was attacked with sudden and severe pain in the pelvis, "cramps," vomiting and fever, confining her to bed up to the time of operation. On admission her evening temperature was two to four degrees above normal, and externally, a tender mass could be felt on the right side of the pelvis, but not large enough to project the abdominal wall. The uterus was found bound down into the pelvis by masses, that on the right side being the larger. He had not been able to decide on the most suitable operation until the patient was under ether, when he had chosen abdominal incision, on account of the firm fixation of the uterus made out under anaesthesia. The operation had been an unusually difficult one owing to the dense adhesion and involvement of the intestines. The vermiform appendix had been found in the mass, and re-

moved. The extensive bleeding surfaces left by removal of mass he had packed with gauze. The case had not done well; convalescence had been slow, and a suppurating sinus and faecal fistula had formed. The speaker felt that a vaginal incision would have given better results, its better drainage obtained by that method being a great advantage. In view of the difficulties mentioned, a double operation, part of the work being done by the vagina and part by the abdomen, might have answered best. The microscopical examination had been disappointing to him. There had been no evidence of any form of septic infection, puerperal, gonorrhoeal, or other, and the macroscopical appearances had led him to expect the presence of tubercular disease.

Dr. Lapthorn Smith thought the amount of thickening and the dense adhesions could not have been formed during the short time the patient was complaining of pain. He thought it more probable that she had become infected at the time of her marriage, and the ends of the tube becoming sealed, had produced sterility.

Dr. G. E. Armstrong asked Dr. Gardner for his experience in relation to the connection between disease of the uterine appendages and the appendix vermiformis. In this case they had been incorporated in the same mass. He had himself operated several times for appendicitis, and found pus in the pelvis in connection with the ovaries and tubes. A French anatomist had described a layer of peritoneum passing from the neighborhood of the appendix to the tube, and had stated that it was not uncommon for septic infection to pass down along this to the pelvis and set up local trouble there. He would like to know if any bacteriological examination had been made. The speaker thought the abdominal method was to be preferred in these cases, as it offered an opportunity for removal of a diseased appendix, if such were present.

Dr. Gardner, in reply to Dr. Armstrong, said that his experience in finding the appendix involved was small. He did not believe that the condition was common.

Aortic Aneurism.

Dr. H. A. Lafleur exhibited the specimen, which was from the case alluded to by him on the 8th of March, 1895, and he felt would be of interest. The history of the case briefly is as follows: The patient, a man aged 69, had suffered from aortic insufficiency for fifteen or sixteen years, and had exhibited the well-known signs of that disease. A short time previous to the date on which he had referred to the case, symptoms of pressure upon the trachea had appeared, and Dr. Birkett, on laryngoscopic examination, had detected an aneurism as a small pulsatile tumor projecting into the lumen of the trachea. The symptoms then

subsided, and the case again became one of aortic regurgitation merely. There had been no signs of intrathoracic pressure, no increased area of dullness and no obvious pulsation beyond that due to the enlarged heart. Tracheal tugging was detected after the aneurism had been made out by Dr. Birkett.

The specimen showed a little projection into the trachea, less marked post-mortem than it had been during life. Dr. Lafleur thought that the early deposition of lime salts in the walls of the aneurism had prevented its growth, the whole expanded portion of the vessel being walled in by calcified masses.

Dr. F. G. Finley asked if there had been any pressure by the aneurism on the left bronchus, or if, in any way, the explanation given by the late Dr. MacDonnell of tracheal tugging was borne out.

Dr. Lafleur, replying to Dr. Finley, could not say that there was any pressure upon the left bronchus. He was not prepared to say how the tugging in this case had been produced, but the aneurism was closely and intimately related to the trachea. The tugging could not have been due to the small aneurism, as here pulsation was directed towards the centre of the trachea, not downwards. In reply to Dr. McConnell, he stated that there had been no difference in the radial pulses.

Parotitis in Pelvic Diseases.

Dr. W. S. Morrow read a paper with the above title, in which he alluded to a form of parotitis little mentioned in text books, but none the less interesting, occurring in disturbed functions of the male and female generative organs, and in pathological conditions of the urinary and digestive system and abdominal parietes. As far as he knew, the most complete account of this condition was to be found in a paper by Dr. Stephen Paget, in the "British Medical Journal" for March, 1887. In that paper Dr. Paget had collected 101 cases of parotitis in connection with derangements of the abdominal and pelvic organs; of these the generative organs were the original site of the trouble in fifty.

These cases were important, first, because their correct diagnosis saved the patient the inconvenience of isolation, and, secondly, because they opened up the interesting question of connection between distant organs.

The writer then reported three cases occurring in his own practice. The first was during a pelvic peritonitis of moderate severity, the temperature keeping up for about three weeks. A fortnight after the onset of peritonitis, one parotid became swollen, tense and tender. In two days the inflammatory process had extended beyond the capsule, and the face became puffy up to the middle of the forehead. A free incision into the gland resulted in an alarming

hemorrhage, but no pus was found. The inflammation then rapidly subsided in both gland and pelvis, and the patient was up in a little over a week.

The second was associated with suppression of the menses in a patient of 25, with a history of no exposure to mumps, but a week previously, had taken a walk while menstruating, and caught cold; menses ceased, followed by pelvic pain. In two days the left parotid was inflamed and painful, and followed by the right side. When first seen, the gland first affected had recovered, and under simple treatment the remaining gland became better, and pelvic pain disappeared.

The third case was similar to the last, and had been associated with suppressed menses, due to exposure to cold while menstruating. The day following the left parotid became sore and swollen, with a temperature of 100 degrees Fahrenheit. It was painted with iodine, and a calomel purge given, and in thirty-six hours was quite well, and menses had started again. She had not been exposed to mumps, and the course was not typical, the whole duration of the case being only forty-eight hours.

The course has been found to vary very much in these cases, and, according to Dr. Paget, the severity of the gland inflammation depended largely on the systemic condition at the time. Where it ended in suppuration it was because the powers of resistance had been diminished by some other disease, so that almost any inflammation would tend to run an unfavorable course. Considerable interest centered about the question of how parotitis was set up by morbid processes having their seat in the abdomen. A certain number of cases might be due to bacterial infection through the blood or secretory duct, such as occurred in many of the infectious and septic fevers, and almost invariably went on to suppuration. But there was a group of cases, often milder in type, and especially frequent in connection with pelvic disease, which did not admit of any such interpretation. For these we had to choose between the metabolic theory and the nervous. Against any metabolic theory we had the great number of tissues which might be the seat of the primary affection. Parotitis had been reported by Dr. Paget and others as accompanying or following pregnancy, delivery and abortion, menstruation (which it sometimes replaced), pelvic cellulitis and haematocele, operations on the vagina and uterus, ovariotomy and oophorectomy, the use of the catheter and sound, blows on the testicle, operations and diseases of the bowel, gastritis and gastric ulcer, disease of the pancreas, and injuries and diseases of the abdominal wall.

This varied origin excluded almost absolutely any metabolic theory and favored a nervous one. And there was not wanting considerable circumstantial evidence that

the nervous system was the medium through which the effect was produced.

Some cases, like the last one reported in the present paper, seemed to be rather transitory hyperaemias than true inflammations, and suggested a vasomotor change as the primary one.

It was known that both the pelvic and the other abdominal organs had a powerful influence on the vasomotor centre, as evidence the flushes of menstrual irregularity and of dyspepsia.

Moreover, there were other facts which seemed to indicate a nervous connection through unknown paths between the parotid glands and the generative and digestive systems.

Among these facts might be mentioned the salivation of pregnancy, the dry mouth from which some women suffered during menstruation (Goodell) and the changes in salivary secretion observed in so many affections of the stomach and bowel.

The nervous theory was supported by those who had given most attention to the subject, and until more facts had been obtained, it might be taken as the most probable hypothesis.

Dr. Wm. Gardner had only seen two or three cases of enlargement of the parotid after abdominal operations; one, however, following extirpation of the uterus for fibroid and procidentia, had been very severe. He remembered having read only one paper on the subject, and that was by Goodell, entitled, "Parotitis following Ovariotomy." Probably the reason so little had been written about it of late years was that better and cleaner surgery was being done than formerly. He always looked upon this condition as due to some form of infection.

Dr. J. B. McConnell, referring to Dr. Morrow's first case, said he could not understand how a pelvic peritonitis could exist and have such a speedy cure. He thought that possibly it was an attack of la grippe with manifestations in both the abdomen and the parotid gland. He thought the fact that parotitis in these cases was usually unilateral would point more to bacterial than to reflex origin.

Dr. F. A. L. Lockhart was much interested in the subject of Dr. Morrow's paper. He referred to a case of double suppuration of the parotids reported in Toronto, as having followed vaginal extirpation of the uterus for cancer. The case had done well until the tenth day, when there was a rise of temperature and swelling of the parotid; the second gland became infected also, and both ultimately suppurated, the patient dying on the forty-eighth day after operation. Several observers reported parotitis occurring on the third or fourth day after operation, but in no case had the disease commenced as late as the twelfth.

Dr. Wesley Mills drew attention to the fact that we were just beginning to understand something of the physiology of the ductless glands, and the relations to one another of the organs of the body. Whatever the origin, the connection between enlargements, etc., of certain glands in the throat, and changes in the generative should not be lost sight of.

When we dealt with groups of organs histologically alike we could understand how changes in one might affect the other. He would not say the enlarged parotid was due to vasomotor change, but thought it probable. That the parotid was affected, and not the other salivary glands, was perhaps due to the fact that the parotid had a different nerve-supply. The nervous system influenced metabolism otherwise than through the vasomotor nerves.

Dr. Lapthorn Smith quoted three cases, one of orchitis, one of ordinary delivery, and one of pelvic peritonitis with pus tubes, all followed by a parotitis. The fact that in deficient menstruation the breast swelled showed the nervous relations between these organs and the ovaries, and bore out Dr. Mills' remarks.

Dr. H. A. Lafleur said that in no other instance in the domain of pathology was an inflammation caused by excitation through the nervous system alone, and he thought that every other possible cause ought first to be excluded.

Dr. James Stewart mentioned (at Dr. Martin's request) that he had produced inflammation of the skin, from simple erythema to blistering, by suggestion under hypnotism.

Dr. W. F. Hamilton referred to a case, an old lady of 82, with an abdominal tumor, connected probably with the uterus or ovaries. Five days before death a symmetrical parotitis of stony hardness, with intense tenderness, had set in. He had regarded it as due to septic absorption from the mouth, which was dry and very foul for some time before death.

Dr. F. G. Finley remarked that inflammation of the parotid was not uncommon in typhoid fever, but he had always been inclined to attribute it to septic infection from the mouth.

Dr. W. D. Morrow, replying to Drs. Gardner and Lafleur, said that Dr. Paget, in his paper, mentioned fifteen cases of parotitis secondary to disease outside the abdomen and pelvis, and in all these cases their septic nature could be inferred from other symptoms present; whereas, in 101 cases having their original seat in the abdomen or pelvis there were signs of septic infection elsewhere in less than 10 per cent., although there was local suppuration in the parotids in something over 50 per cent. of the cases where its presence or absence was specially noted. These differences had to be explained. Pain and swelling of the parotid

gland resembling parotitis were set up by very slight causes in some people. Jonathan Hutchison related the case of a woman where the parotid glands became swollen on fatigue, and the swelling disappeared rapidly on resting. Dr. Morrow thought that this was explained by the anatomical structure of the gland; with large blood supply and a tense capsule it was not surprising that hyperaemia caused inflammation.

In reply to Dr. McConnell, he gave further particulars of the cases, showing beyond question the correctness of his diagnosis.

In reply to Dr. Lockhart, he said that Dr. Paget's notes showed the time elapsing before the onset of parotitis to be from three days up to twelve.

Dr. Finley had referred to its occurrence in typhoid fever, and suggested that here it was due to the sepsis. It had been shown conclusively in England that it was proportionately greater in typhoid than in other fevers, and Dr. Paget's explanation of this was that in typhoid the local lesion was found in the bowel.

Hodgkin's Disease.

Drs. A. E. Vipond and C. F. Martin read a report of this case.

Primary Cancer of the Liver.

(Digest of Paper.)

By Drs. C. F. Martin and W. F. Hamilton, read before the Montreal Medico-Chirurgical Society, Feb. 21, 1896.

The exceptional occurrence of a primary cancer of the liver, with secondary involvement of the stomach, rendered the present case of some interest. While, however, they did not regard the condition as undoubtedly of hepatic origin, there seemed, nevertheless, to be many points in favor of that view, while the growths found in the stomach and elsewhere seemed to have been secondary.

The clinical notes on the case were briefly summarized as follows: N. McL., aged 60 years, presented himself for treatment at the Royal Victoria Hospital, complaining of weakness, diarrhoea and pain in the abdomen, chiefly localized in the region of the liver and stomach.

He had been failing in health for six months, and during the last four months had been unable to work. The pain complained of, as well as the abdominal swelling, had troubled him for about three months.

His history gave no evidence of gastric disease, further than recurring attacks of gastritis, following on excesses in alcohol, to which he had been addicted for many years.

His condition was that of one extremely emaciated, and feeble, with rough, dry skin. The abdomen was dis-

tended. There was ascites and some diarrhoea. Examination in the region of the liver showed that organ enlarged. Its margin was felt about 2½ inches below the costal margin in the mammary line. It was hard, and through the thin abdominal wall its surface was felt to be uneven. There was no jaundice.

No tumor was palpable in the stomach, abdomen, testicles nor rectum.

Oedema of lower extremities developed, and the pulmonary signs indicated oedema of the lungs.

The patient died of asthenia after a few days sojourn in the hospital.

The autopsy, performed eight hours after death, gave the following results in brief:

Muscles much wasted; 200 c. c. turpid red fluid in abdominal cavity; suprarenals; pale centres; kidneys, firm capsules adherent, deep red colored, surface dotted with cysts, cortex narrowed, with evidence of interstitial new growth. Bladder dilated, walls thickened. Liver, 4340 grms; common ducts showed swelling of mucosa at duodenal orifice, dilated above; loose adhesions to diaphragm on upper surface of liver, which was much enlarged; surface reddened and dotted over with yellowish nodules, largest 5 cm. diameter, mostly soft, some semi-fluid; outlines fairly well defined, surrounded with usual cyanotic atrophy; organ was of firm consistence, and showed on incision almost the entire parenchyma of right lobe replaced by one large firm rounded mass of whitish color; reddish-yellow towards the peirphery, 18 cm. in diameter, fairly spherical, and nowhere covered by more than 2 cm. of liver tissue. Incision at various levels showed the mass almost everywhere of equal consistence, and that it radiated from a small central cyst, around which the tissue was dense. The periphery, however, was softer, and presented a few hemorrhages, and some bile pigment. The surrounding liver cells were pressed into concentric layers, and presented secondary nodules of infiltration. Left lobe presented a number of smaller nodules similar to those described. Gall bladder, flattened, pushed to one side; contained some viscid green bile. Cystic duct free; periportal glands enlarged, softened and irregular in outline; centres broken down. Vena cava showed on inner surface three small areas where neoplasm protruded into lumen, producing parietal thrombi. portal vein free. Mesenteric glands and thoracic duct, normal. Pancreas small, soft; no evidence of infiltration enlarged cancerous gland size of walnut near tail.

Stomach distended with gas with about 50 c. c. greenish semi-fluid material, free from hydrochloric acid. Mucosa thickened and reddened in patches. Along lesser curvature in posterior wall 4 cm. from cardiac orifice, a round, elevated, circumscribed nodule 3 cm. in diameter;

moderately firm, and not very dense. Serosa involved from within; no protuberance or adhesion externally; no nodules in immediate vicinity, but 10 cm. from it were five or six fine, elevated masses, submucous, largest 1½ cm. in diameter. Lungs, little of note beyond slight bilateral pleural adhesions. Other organs presented usual post-mortem appearances of an old alcoholic subject.

Microscopic examinations confirmed macroscopic diagnosis, epithelial cells large, irregular and polygonal, nowhere any indication of true glandular type of growth. Stomach growth showed superficial necrosis of gland structure, great thickening and infiltration of epithelial cells in submucosa, and a very small fibrous stroma. Cells in some places filled with blood vessels; in others, lymph spaces. Nothing of note in remaining organs.

Conclusions.

The conditions then found presented a neoplasm in the stomach of small size, well circumscribed and circular in outline, with but little evidence of erosion and ulceration, while microscopically the constituent elements were chiefly cellular, with an inappreciable amount of fibroid change, i. e., a growth apparently of very recent date. In the liver, on the other hand, the cancerous tumor was of enormous size, of markedly dense consistence from fibroid change, and on minute examination was seen to be made up of fibrillated masses out of all proportion to the insignificant amount of cellular growth—in other words, a neoplasm of long duration.

In endeavoring to make a pathological diagnosis as to the primary seat of the disease, the general appearances, though of great use as a guide, would not in themselves have been sufficient as evidence, for it was everywhere recognized that growths in the stomach might for a long time remain small and apparently quiescent, while the secondary foci grew to enormous proportions; yet one would have expected in such cases that there would have been evidence either of chronic ulceration or of fibroid change, but neither of these conditions was manifest in the case reported.

Again the neoplasm in the stomach was circular, slightly elevated, regular in outline and well circumscribed, thus corresponding in general characteristics to the description given by Grawitz among the rare cases of secondary cancer of the stomach formed by metastases.

Were insistance laid on this organ as the primary seat of the neoplasm, one should surely render cautiously in future a diagnosis of primary cancer of the liver when the original focus could for so long a time retain characters incident only to the very early conditions of growth, for it might well be argued that on the same basis such growths

in the stomach might remain still smaller, even invisible to the unaided eye, while the secondary foci grew to enormous extent. Considering, on the other hand, that the disease had originated in the liver, we had in favor of the view the evident duration of the growth as seen from its size and minute characters.

From the enormous variations in type of cancer cells it was not always possible to differentiate the original seat by microscopic examination, and the case reported would come under such a category.

There were three chief modes whereby secondary cancers of the stomach might arise: 1. By direct extension from neighboring organs, such as the pancreas, liver, glands and oesophagus, or by the newly formed lymphatics in adhesions between these organs. 2. By implantation from the oesophagus, such as might occur from an ulcerating carcinoma of the tongue. In these cases, which were rare, the cancer cells dropped down, or were carried down into the stomach, and, becoming fixed in their new situation, they proliferated and formed secondary tumors. It was in this way also that secondary peritoneal cancers were so frequently formed in Douglas' pouch by the gravitation of the malignant cells from the serous coats of the stomach or the liver. 3. Secondary cancers of the stomach might form by haematogenous metastases; these last, though extremely rare, had been put on record by Grawitz. In these cases, the tumors had been well circumscribed, circular, and regular in outline.

Further, the possibility of cancer cells travelling against the stream of the circulation was to be noted; in this way moving along the portal vein and mesenteric vessels and lymphatics, and setting up secondary growths in the stomach, just as occurred in involvement of the left supra-clavicular glands, when cancer cells travelled along the course of the thoracic duct.

Stated Meeting, February 7th, 1896.

A. D. BLACKADER, M.D., President, in the Chair.

DISSEMINATED SCLEROSIS.

Dr. F. G. Finley presented a patient with this disease and read a report of the case.

INTRA-CRANIAL NEURECTOMY.

Dr. G. E. Armstrong showed a woman upon whom he had successfully operated by Hartley & Krause's method.

Dr. James Bell said that he had shown a woman two and a half years ago before the Society on whom he had operated for the removal of the Gasserian ganglion for in-

veterate neuralgia of over twenty years standing. In his patient the infra and supra-orbital nerves had previously been stretched, with the result of giving only temporary relief. Two years after the patient reported perfect freedom from pain. A small anaesthetic area on the cheek and inability to masticate on that side. At the time he had undertaken it, this operation of Hartley and Krause was comparatively new; only a small number of cases had been operated upon and the operation had been too recent to allow of a fair judgment of the results. Now a considerable number of cases had been operated upon by this method, and a sufficient length of time had elapsed to justify an opinion on the results, which could be said to be excellent. So far as he knew, there had been no return of pain in any of these cases; the deformity was almost nothing, and the disabilities trifling. No other operation, except that of Mr. Rose, which aimed at effecting the same results by another method, had yielded more than very temporary relief. This operation was infinitely preferable to that of Mr. Rose, in which the ganglion was approached from the base of the skull behind the pharynx. A few points in the technique which Dr. Bell considered worth mentioning were: 1. To enlarge the space for entrance to the cranial cavity by cutting away a portion of the temporal bone below the base of the flap posteriorly down to the level of the zygoma with rongeur forceps, thus also providing a suitable drainage space when the flap was replaced. 2. The hand of an assistant he had found much more satisfactory in retaining the brain and keeping it out of the way than any form of metal spatula. Escape of the cerebro-spinal fluid, which frequently occurred by accidental wounding of the membranes, was also a great advantage, as it allowed the brain to be pushed aside much more readily. In the case to which he had referred, so much pressure had been employed in displacing the brain that he had expected it to be followed by cerebral symptoms, but no ill effects had been observed.

Professor Roentgen's New Method of Photography.

Professor Cox, of McGill University, after briefly outlining the rationale of the method by which the negatives were obtained, and the experiments leading up to the practical application of the discovery, showed several plates, among them one of a bullet imbedded in the calf of the leg for two months, successfully located and removed by Dr. R. C. Kirkpatrick, at the Montreal General Hospital, Feb. 8th, 1896.

Extirpation of the Tonsil for Malignant Disease.

Dr. G. E. Armstrong presented a patient from whom he had removed one tonsil, and described the operation.

SPECIMENS ILLUSTRATING MEDICO-LEGAL PATHOLOGY.

Dr. Wyatt Johnston exhibited specimens from the following cases:

1. Fracture of the skull produced by a hammer (also shown).

2. Homicide by cutting the throat. The specimen itself, with photographs, and experimental lesions of the vessels of the neck and of the vertebrae, made with scissors, were shown.

3. Homicide—revolver wounds of the head, neck and chest. Shooting experiments showing the distance at which the shots were fired.

4. An old bullet-wound of the skull, with consecutive lesions of the meninges and localized softening of the brain. The symptoms were mania followed by dementia.

5. Fracture of the skull in a railway accident.

6. Fracture and fissures of a foetal skull.

7. Thrombosis of the abdominal aorta, with inversion of the intima, following a crush of the abdomen.

8. Laceration of the intercostal muscles without fracture of the ribs in a crush of the chest.

9. The relative extent of the injuries to the muscles and skin produced in cases of crushing.

10. Photographs showing lesions in the Demers and Gauthier homicide cases.

FŒTAL EVENTRATION.

Dr. W. W. Alexander showed a specimen of this monstrosity.

Dr. A. L. de Martigny asked if the missing portion of the leg had been found. The appearance of the stump suggested amputation by the cord.

Dr. Alexander answered that he had not found it.

Stated Meeting, February 21st, 1896.

A. D. BLACKADER, M.D., President, in the Chair.

EXTRA UTERINE FŒTATION—DERMOID CYST.

Dr. Wyatt Johnston showed for Dr. Alloway the following specimens:

1. An extra-uterine foetation sac the size of an egg, with a thick wall showing numerous adhesions; the embryo was not present, but chorionic villi were found.

2. A case of extra-uterine foetation, where the embryo was in good preservation; the date was about the second month of gestation.

3. A dermoid cyst showing teeth, hair, and possibly a rudimentary mamma.

Dr. Johnston called attention to the fact that the pres-

ence of a mamma within a dermoid cyst was consistent with the morphological theory that the mamma was merely a modified sebaceous gland, being derived from the ectoblast.

Dr. T. Johnston-Alloway, referring to the last case of ectopic pregnancy shown by Dr. Johnston, said it was an extremely interesting case, on which he had operated the same day. The patient, a widow for six years, had married again last year and had missed two periods. Six weeks previously she suffered severe abdominal pain, and, losing consciousness, fell upon the floor. The family physician found abdominal tenderness and Douglas' pouch filled with a fluctuating mass; the patient was put to bed and kept there until able to travel. On entering the hospital her pulse was between 130 and 140, and she was extremely anaemic. Examination revealed a mass in the right iliac region running up across the abdomen to the hypogastric region, with moderate tenderness. Operation not being thought necessary the same night, stimulants were given freely. On advice of the anaesthetist, she was not put in the Trendelenberg position. On opening the abdomen the omentum was found adherent to the tumor, which seemed to be firmly cemented to the parietal peritoneum. After some difficulty, the ovarian artery was reached and ligated at the right corner of the uterus. The way in which the condition had formed was probably from rupture of the tube six weeks previously, and nature had supplied a fibrous wall, which had prevented general fatal haemorrhage. After having tied off the artery, the clots and debris were cleaned out. The patient by this time being pulseless, only the respiration going on, the cavity was packed with gauze to prevent oozing, although there had been no fresh hemorrhage during the time the abdomen was open (twelve minutes). The patient did not suffer at all from shock.

Necrosis of the Jaw.

Dr. James Bell exhibited the specimen.

Gall-Stone Specimens.

Dr. James Bell exhibited gall-stone specimens from six cases upon which he had operated during the previous six weeks.

1. A single round stone, about three-quarters of an inch in diameter, removed from the ampulla of the common duct, partly within the walls of the duodenum. The patient, a gentleman, aged 52 years, had suffered from complete obstruction of the common bile duct for twelve months. The jaundice was intense, the color of the face being a dark bronze, the urine very dark, and the stools devoid of color. He had fallen off in weight in the year from 225 to 140 pounds. For four or five years previous to the complete obstruction to the outflow of bile, he had

suffered from attacks of biliary colic. On opening the abdomen, the stomach, duodenum, colon, liver and omentum were all matted together with dense, firm adhesions, so that the bile ducts were exposed only after a very tedious and difficult dissection. The gall bladder and cystic duct were shrunken almost to the point of obliteration, while the common duct was dilated to the size of the index finger. A longitudinal incision was made into the duct, extending into the muscular wall of the duodenum, directly over the stone, and the stone removed, followed by a gush of bile from the incision, arrested by compression of the duct on the hepatic side. The wound was closed by a row of interrupted sutures, and supplemented by a double row of Lembert sutures. A drainage tube was retained in the wound for several days, but there had been no escape of bile. The progress of the case after operation had been uneventful, with one exception. For one week after operation there had been no diminution of the jaundice, and no evidence of bile in the stools. After this, however, bile passed freely, and the jaundice rapidly disappeared.

This experience led Dr. Bell to conclude that the patency of the orifice of the duct should not be taken for granted, as was generally done, but that it should be demonstrated before closing the wound.

2. A small stone (the size of a large pea), from the cystic duct. This patient, aged 35, had been engaged in nursing a case of typhiod fever, when she became ill and feverish, and concluded that she had contracted the disease from her patient, and was admitted to hospital under this supposition. She even developed some septic symptoms, with localized swelling and tenderness in the right hypochondrium, and was transferred to the surgical side. The more urgent symptoms soon disappeared and a swollen tender gall-bladder could be recognized. Cholecystostomy was done on the 16th of January, and the small stone found impacted in the cystic duct. On aspirating the gall-bladder, a clear viscid fluid first flowed, then flaky sero-pus, and finally pus. Subsequent history uneventful.

3. Four stones removed from the gall-bladder of a lady, aged 37, who had suffered for four or five weeks from acute localized symptoms, pointing to appendicitis. There had been a history of attacks of biliary colic extending over a number of years. The four stones were so arranged as to form a conical-shaped mass, the apex of which lay in the neck of the cystic duct. There was no adhesions, the operation (cholecystostomy) was simple, and the subsequent progress uneventful, except for a phlebitis of the right leg, which developed about a week after operation.

4. One hundred and thirty-five facetted stones removed from the gall-bladder of a woman, aged 27. There had

been attacks of biliary colic at the age of 13. The last attack began in December, 1895, and was of acute inflammatory character, localized, and suggested appendicitis. On opening the abdomen, the under surface of the liver was found firmly adherent to the stomach, duodenum, colon, and omentum. The base and inferior surface of the gall-bladder was used into the greater omentum as a hard, inflammatory mass. On separating this mass many stones rolled out, and those in the neck of the bladder and cystic duct were removed with difficulty. Great difficulty was experienced in attaching the imperfect gall-bladder to the parietal peritoneum. The subsequent history was uneventful.

5. A single large, soft stone from the gall-bladder of a woman, aged 55 years. There had been a history of biliary colic, beginning at 15 years of age, and continuing for a number of years, and then ceasing. Recently had suffered from severe chills, high fever, and at times a slight jaundice. Cholecystostomy February 15th. No adhesions, and the distended gall-bladder contained, contrary to expectation, only pure bile. Subsequent history uneventful.

6. A man, aged 55 years, intensely jaundiced and cholaemic, was admitted to the hospital with a history of sudden onset of jaundice, six weeks previously. Obstruction to the outflow of bile complete. At the operation, the gall-bladder and ducts were found empty, shrunken, and beaded with hard nodules. The gall-bladder was opened and several of these nodules examined. They consisted of hard fibrous tissue (apparently cancerous). The lymphatic glands in the neighborhood were also enlarged and indicative of cancerous infiltration. On this account the operation of cholecystectomy, which had been contemplated, was abandoned. Recovery from the operation, which was prolonged and difficult, was uninterrupted.

THE
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Editorial.

PURE MILK.

We call attention to an article in this number, by a member of our staff, on this subject, which brings out the more salient points which are agitating sanitarians throughout the world at the present time. We trust that the medical profession as a body in this province will give this subject more attention than heretofore. The province includes the most noted district on the continent for dairy products, and as germs of disease may be conveyed in butter and cheese as well as milk, every means of securing an absolutely pure milk supply should be adopted, and many of the most useful are suggested in this article.

POST GRADUATE COURSES IN MONTREAL.

The Faculty of Medicine of McGill University have established a course for graduates in connection with the Montreal General and Royal Victoria Hospitals. The course lasts from May 5th to June 20th, and includes evening lectures, special clinics and laboratory courses. The recent improvements in the Montreal General Hospital have given us a thoroughly modern building, with every facility for the treatment of patients, and the well-furnished clinical and pathological laboratories and operating rooms have placed the hospital in as complete a condition as the Royal Victoria. Every facility is afforded, in both these hospitals,

for the acquirement of information in general medicine and surgery and the specialties. It is an absolute necessity for practitioners away from hospital centres to come to the teaching centres from time to time, to brush up their knowledge and see the carrying out of what is recent in the various departments of medicine, and we heartily endorse this movement on the part of the staff of these hospitals, and feel assured that practitioners will find that Montreal affords as many advantages for acquiring the latest information in the progress of medical science as may be obtained by visiting more distant and larger centres. Physicians while here will no doubt be welcomed to the wards of the Hotel Dieu, Notre Dame and Western Hospitals, where much good work is done.

The Canadian Medical Association holds its annual meeting in this city on the 26th, 27th, and 28th of August. A very successful meeting is being looked forward to, as a number of important papers are promised. It has been determined to make the visit to our city both agreeable and profitable. A committee of arrangements, consisting of Sir William Hingston, Drs. Roddick, Buller, Marsolais, Blackader, Armstrong, Desjardins, Perrigo, Birkett, DeMartigny and Brunelle, has been appointed to arrange the details of the meeting. Dr. J. G. McCarthy, 61 Drummond street, is local secretary for the Province of Quebec. The general secretary is Dr. F. N. G. Starr, 471 College street, Toronto.

APENTA.

We received a case of the laxative mineral water some weeks ago, and have observed its action in several cases, finding it a very reliable and satisfactory aperient. It is a bitter water, and obtained from the Ug Hunyadi Springs, Buda Pesth, Hungary. It has a sp. gr. of 1.0414, and the analysis is reported to have the following composition:

	Grns. per Gal.	Parts per 10,000
Magnesia Sulphate	1474.2	210.6
Magnesia Carbonate	12.8	1.82
Magnesia Bromide	0.85	0.12
Sodic Sulphate	1307.9	186.84

Calcic Sulphate	184.31	26.33
Potassic Sulphate	5.92	0.84
Lithic Sulphate	5.31	0.75
Sodic Chloride	123.80	17.69
Fluorine	Traces.	.....
Sodic Carbonate	33.47	4.78
Calcic Carbonate	8.20	1.17
Ferrous Carbonate	5.42	0.77
Ammonia (free and albuminoid) traces	0.004	0.0005
Alumina	2.10	0.30
Silica	2.24	0.32
Total (Anhydrous) Solids	3166.56	452.3

Carbonic Acid Gas not determined.

This natural purgative water was formerly known as Rackoczy water, owing to the large proportion of the sulphate of magnesia and soda. It is a very active laxative, and is more agreeable to the palate than any we have knowledge of. It is being introduced by the Apollinaris Company.

THE LATE DR. SAUNDERS.

Kingston, Ont., has sustained a great loss by the death of Dr. Saunders, who died early in March, after a short illness. He was well known to some of the older members of the profession in Montreal, where he practised for a short time, previous to his settling in Kingston, and his worth was greatly appreciated by them. Dr. Saunders was Professor of Clinical Medicine in Queen's College, and surgeon to the Kingston Field Battery for over twenty years, obtaining the rank of Surgeon Major in 1894.

Miscellaneous.

THE PREPARATION OF COW'S MILK FOR INFANTS.

One of the best combinations is termed the "Dresden Method." It is as follows:

To the white of one fresh egg slowly add 13 drachms of milk sugar, and stir vigorously, taking care not to beat air into the mixture, for egg foam will not mix well with water. To this paste slowly add 1½ pints of water, stirring constantly. This emulsion is then strained through fine linen into a pint of milk. Slight stirring or shaking completes the mixture. The milk used should be of 9½ per cent. richness in fat.

The following analysis states very fairly the comparison between human and cow's milk:

	Human.	Cow.
Casein	1.2	3
Albumen	.5	.3
Fat	3.8	3.5
Sugar	6	4.5
Ash	.2	.7
Water	88.3	88
	100.0	100.0

Cow's milk is richer in casein than human, and much poorer in lactalbumen. If water be added to reduce casein to the correct amount, the milk will only contain 1-3 enough lactalbumen, and furthermore if the milk is sterilized still further loss is occasioned, as the coagulated albumen is wasted in the scum, and also on the sides of the vessel.—*Scientific American.*

HARVARD UNIVERSITY.

The Medical School of Harvard University has just made a rule which will be a powerful aid to the cause of higher medical education: "On and after June, 1901, candidates for admission to the medical school must present a degree in arts, literature, philosophy, science or medicine from a recognized college or scientific school, with the exception of such persons of suitable age and attainments, as may be admitted by a special vote of the Faculty taken in such case. All candidates, whether presenting a degree or not, are and will be required to satisfy the Faculty that they have had a course in theoretical and descriptive (inorganic) chemistry and qualitative analysis, sufficient to fit them to pursue the courses in chemistry given at the Medical School." The latter provision is commendable.—*Cleveland Medical Journal.*

OVER-PRODUCTION IN THE PROFESSIONS.

At the Annual Convocation of the Bombay University, held on the 25th ult., the Report stated that some three thousand candidates presented themselves at the last examinations, of whom nearly one-third were successful. This, said the Vice-Chancellor, in his address, may be regarded as evidence of the growing popularity of the University, and the increased interest taken in its work by the natives of India, comprising among them Hindus, Mahomedans, and Parsees. But, asks the *Bombay Gazette*, are we quite certain that something like an over-production of qualified professional men beyond the needs of the community at large is taking place in India as well as in other parts of the world? This danger, if such it is found to be, is by no means confined to India, nor our other colonial possessions. It has probably reached its greatest development in Great Britain and other western countries, where the greatest over-production of the professional classes is taking place. In Great Britain there are twenty-four thousand medical men, and the medical schools are yearly adding to the number. The barristers-at-law number over eight thousand, of whom it is said not a thousand can live by their professional earnings. The plethora appeared so great, that last year, for the first time, the number of candidates diminished very considerably. It is the same with the other learned professions. Turn to Germany, six thousand recruits joined the great army of the unemployed of the professional classes, through the ever open gates of the universities. In France the same disproportion between the successful and the unsuccessful entering the profession prevails. To look somewhat deeper into this question, we may inquire: what becomes of that far more numerous body who strive to enter one or other of the professions, and, after spending their means and their youth, fail in their endeavor, and are flung back upon the world without resources and hope for the future? The Vice-Chancellor, the Hon. Mr. Justice Jardine, in the course of his able address, called attention to the fearful sacrifice of health and life too often entailed by students in their struggle to gain University honors. The early mortality among even the more gifted and the more successful suggests doubts as to the absolute perfection of the system which entails such lamentable results. It will not be denied that in India the benefits conferred by the better and more liberal education of the young men has done excellent service by infusing the learned professions with a higher standard of learning, and we cordially reciprocate the Vice-Chancellor's wish that the princely and wealthy classes of the community will emulate their predecessors by further endowing chairs on the medical side for the purposes of original research and bacteriological study.—*Medical Press and Circular*, 2967.

Book Reviews.

Diets for Infants and Children in Health and in Disease.

By Louis Starr, M.D., editor "American Text Book of the Diseases of Children." Published by W. B. Saunders, 925 Walnut street, Philadelphia.

This volume contains in book form, convenient for the pocket, diet lists for children in health for different ages. The quantities to be added by the physician. There are spaces for general directions, and for direction as to clothing, bathing, sleep and exercise. The second half contains forms for diet in the commoner affections of childhood, such as the various gastric intestinal disorders, scurvy, rickets, lithaemia, tuberculosis, chorea.

At the end is a list of directions for preparing various diluents and foods.

These are easily detached at a perforated line, and, besides saving the physician the time required in giving verbal directions, which are difficult to remember, valuable suggestions as to the proper food to order are also made in the comprehensive lists.

These useful forms should be in the hands of every busy practitioner, as the resulting economy of time and labor which their employment secures will repay him manifoldly for the small outlay.

Obstetric Accidents—Emergencies and Operations.

By L. Ch. Boisliniere, A.M., M.D., LL.D., late Emeritus Professor of Obstetrics in the St. Louis Medical College, etc., etc. Printed in Philadelphia by W. B. Saunders, 1896.

Ch. Boisliniere, A.M., M.D., LL.D., late Emeritus Professor of Obstetrics in the St. Louis Medical College, etc., etc. Printed in Philadelphia by W. B. Saunders, 1896.

Such is the title of one of the latest treatises on practical work. The idea is an exceedingly good one to collect together in a concise and practical form the difficulties which an obstetrical practitioner is likely to meet with, and one that would naturally suggest itself to a practical man. The late Dr. Boisliniere had a very large obstetrical practice, and as a teacher both knew the wants of the profession and how to place it before them. It is divided into three parts: Part I.—Accidents to the woman. Part II.—Obstetric operations. Part III.—Accidents to the child.

Part I. has fourten chapters devoted to every accident possible to happen to the woman, and full of good common sense, although here and there exception may be taken to certain statements, such as under the head of Abortion, the recommendation to "wait for bad symptoms" before acting

vigorously. In the chapter on Hemorrhage, he says, for the so-called uncontrollable hemorrhage after delivery, perform Porro's operation, and again that post-partum hemorrhage may cause the death of the child, and again, in placenta praevia the chief method seems to be tamponing the vagina. There are several other statements made not quite in accord with the advanced teachings of the day, but these are only really minor points, which every reader of the work will have already probably decided for himself, and, taking the work altogether, do not really detract from it. Part II. on obstetric operations has eight chapters devoted to the subject, and is well up to date and practical.

Part III. has four chapters, and takes up every possible accident to the new-born child. There is a great deal of information not to be found in any of the works on midwifery, and it is just what is required by the majority of busy men who have not had the great experience of the author, and who desire to keep abreast of the times. We heartily recommend the book to any one needing a practical work.

PUBLISHERS DEPARTMENT.

When you meet an employé of Parke, Davis & Co., whether on the road or in the house, you meet an enthusiast. He does love to expatiate on the wonderful growth of "his" firm—the number of its laboratories, branch houses, agencies, and representatives; its twenty-nine distinct lines of pharmaceutical preparations and its six thousand different products. It reminds you of John Bright waxing eloquent in the House of Commons over his favorite theme—the prosperity of the United States.

But there is good ground for his enthusiasm and for marvel at the amazing success of this firm. Recently they have opened two new branch houses to satisfy the rapidly growing demand for their preparations—one at New Orleans and another at Baltimore.

The price list which Parke, Davis & Co. are now distributing, and which suggested these reflections, is an admirable catalogue in its completeness, convenience of arrangement, and wealth of miscellaneous information. By all means write the house for a copy.

And remember, too, that the products of this firm are so many weapons for your assistance in the perpetual, harassing warfare with disease—weapons upon which you may rely through thick and thin, in emergencies as well as in routine practice. Their label on a bottle or box means that the contents have been prepared with the utmost skill and with scrupulous deference to purity and activity.

There is always an endless surprise of good things to be found in LITTELL'S LIVING AGE, and recent numbers have been no exception to the rule. We note in particular "Recent Science," by Prince Kropotkin, the eminent Russian scientist and revolutionist, which consists of two papers, "Rontgen's Rays" and "The Erect Ape-man." The same issue contains an article by Eivind Astrup, "In the Land of the Northernmost Eskimo," and another, "The Chevalier D'Eon as a Book Collector," by W. Roberts. Notable papers in other late issues are "South Africa and the Chartered Company," by Charles Harrison; "In Praise of the Boers," by H. A. Bryden; "National Biography," by Leslie Stephen; "The Baltic Canal and How it Came to be Made," by W. H. Wheeler; "Spenser, and England as he viewed it," by Geo. Serrell; "Cardinal Manning and the Catholic Revival," by A. M. Fairnbairn; "Personal Reminiscences of Cardinal Manning," by Aubrey de Vere; "The Rival Leaders of the Czechs," by Edith Sellers, etc., etc.

The price, formerly $8.co a year, is now but $6.00.

Published weekly by LITTELL & Co., Boston.

SANMETTO IN URINARY DISEASES.

Sanmetto is my medicine for all bladder and urinary diseases. I have used it in cases of fifteen years' standing where other physicians and medicines had failed—such as catarrhs, or any irritation of either bladder, urethra or tubes running from kidney to bladder, in gleet resulting from gonorrhea or excessive drinking or any other form of irritation of the urinary organs.

SEYMOUR, IOWA. E. H. JONES, M.D.

CHRONIC INFLAMMATION OF THE URETHRA COMPLICATED BY OLD STRICTURE.

Arthur Aulad, M.D., M.B., B.Ch., B.A.C., B.A., Rathmines, Defoe Road, Tooting, London, S. W., England, says: "I have very great pleasure in testifying to the extreme efficacy of Sanmetto. The only case in in which I have used it was what I would call a test case, viz., one of inflammation of urethra of long standing, complicated by old stricture. I gave it in drachm doses three times a day, and in four days the patient was completely relieved."

ILLINOIS CENTRAL HOSPITAL FOR THE INSANE.

I have repeatedly prescribed antikamnia for various neuroses with good effect. Recently prescribed it in a case of croupous enteritis, patient adult, highly nervous, and during continuance of paroxysms, and preceding it, is

nervous and hypochondriacal, suffering intense pain. The case is one of long standing, and one where opium was objectionable because of the tendency toward forming opium habit. However, opium has been used, but the effect of antikamnia has been more magical, more persistent, and followed by no digestive disturbance, as has been the case when opium was used.

My directions have been to use antikamnia whenever a paroxysm occurs. Have also found it invincible in protracted neuralgia.

FRANK P. NORBURY, M.D.

JACKSONVILLE, Ills., September 19, 1891.

"A BRIGHT LAD THAT WAS."

A teacher told the pupils to make up a sentence or "story" from the suggestive words "boys," "bees," "bear." Quick as flash up come one hand, "I have it." "What is it, Tommy?" inquired the teacher. "Boys bees bare when they go in swimming," was the astonishing reply! A better sentence would have been—"*Boys* will be interested in *bees* and other insects, *bears* and other animals as well as birds, flowers, etc, as described in *The Observer*, Portland, Conn. Sample 10 cents. One year $1.

PNEUMATIC TRUSS PADS.—Those who are obliged to wear trusses have suffered from pads that are supposed to hold up the ruptured parts, and to alleviate the pain thus caused, hard and soft pans have been devised and all proven more or less unsatisfactory.

A Pneumatic truss pad that is non collapsible has been invented by G. W. Flavell and can be used on any truss. It has been found to correct all the difficulties of the old pads and gives instant relief.

One of the new pads should be in every physician's office, and a sample can be obtained at the nominal price of 50 cents from G. W. Flavell & Bro., 1005 Spring Garden St., Philadelphia, Pa.

ELIXIR SALICYLIC COMP.

Wm. R. Warner & Co.'s Elixir Salicylic Comp. is at the present time no doubt the foremost remedy for rheumatism, gout, lumbago and kindred diseases. In accute inflammatory rheumatism, two tablespoonfuls every few hours, diminished to one tablespoonful every three hours produces desired effects.

It is a pleasant and permanent remedy, and is put up in 12 oz. square blue bottles by Wm. R. Warner & Co. It is advisable to purchase Elixir Salicylic Comp. (Wm. R. Warner & Co.) in original packages to avoid substitution of inferior imitations.

Henry Childs Merwin in *The Atlantic Monthly* for March writes a very instructive article on the Irish in American Life. Sarah Orne Jewett finishes her story entitled "The Country of the Pointed Firs." A Seminary of Sedition by John Fiske treats of the history of "The London Company for Virginia." Eugenia Shelding has an article entitled "A Holy Island Pilgrimage." F. J. Stimson's intensely interesting story, "Pirate Gold" is concluded in this number. It treats of Boston life during the middle of this century. Mary Hartwell Catherwood writes on French Roads. Two New Social Departures by John M. Ludlow deals with the foundation of an Industrial Union of Employers and Employed, and the holding in London of the first International Co-operative Congress. There is also a fascinating love story entitled "Public Confession," by Ellen Mackubin.

Much valuable information is gained in reading Rose Hawthorne Lathrop's "Some Memories of Hawthorne." No one is more fitted to write on such a subject as she.