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ORIGINAL COMMUNICATIONS.

ART. XXXVII.—*On the Nature and Treatment of Spinal Affections.*

By GEORGE PATON, M. D., M.R.C.S.E., &c. — Continued
from No. 7, page 280.

In the views which we have taken of the nature and treatment of Spinal Affections, we have considered the disease principally in its early stage; and have shewn the symptoms by which it is characterised at a period when it is under the influence of medical treatment, and before any organic change has taken place in the part affected, and our object has been to call the attention of the Profession to a class of complaints of very frequent occurrence in practice, the nature of which we conceive has been much misunderstood, and which if neglected produce serious effects on the constitution.

We shall now consider spinal affections in their more advanced stage, when the disease has proceeded so far as to produce an organic change in the part affected, and shall shew, that the symptoms by which these affections are characterised in their early stage, are identically the same as those which we have described in the cases that have come under our consideration. We thus identify the nature of these affections, and shew that cases of spinal irritation, if neglected or improperly treated, terminate in all those symptoms that are characteristic of true spinal affections: in short, that the disease is one and the same in character, only in different periods of its progress. And it will be observed, that we have very satisfactory data on which to determine this question. We have the

symptoms of the disease at its commencement, as manifested during its progress, and when it has produced those pathological effects, the nature of which are known, and admitted to be perfectly understood.

And we may remark, that the nature of the disease in its early stage, is not established from post-mortem examination, as the affection seldom proves fatal at that period; and instances rarely occur, when a patient labouring under spinal irritation is cut off by another disease, and we have an opportunity of examining the state of the spine; but the symptoms to which we have referred to in the previous section, appear sufficiently to indicate its character, and when the disease becomes still more advanced, as in the cases which now come under our consideration, the prominent affection of the spine, manifested by projection, anchylosis, and other concomitant symptoms of diseased vertebræ, remove all doubt of its pathology. It is therefore necessary, in elucidating this subject, to shew, that affections which have every characteristic of spinal irritation at their commencement and during their progress, terminate in decided and permanent disease of the spine; in distortion and anchylosis of the vertebræ. And if this fact be thus established, it affords conclusive evidence of the nature of this class of affections, as the pathology of the disease at this advanced stage appears satisfactorily determined by post-mortem examination.

In corroboration of this view of the subject, we shall refer to the following cases, of the many that have come under our observation, and are constantly to be met with in practice, commencing with every symptom of spinal irritation, and terminating in decided affections of the spine.

Case 11.—A young lady, Miss W., aged twenty-one years, about three years since fell into a delicate state of health; was weak, feeble, and unable to undergo exertion. She was frequently seized with severe headaches and giddiness, accompanied with loss of vision and recollection. In some of these attacks, she lay for hours in a state of deep stupor, like a person seized with apoplexy, totally insensible to everything around her, and incapable of being aroused by external stimuli. She was bled, leeches were applied to the temples, and cold applications to the head; and purgatives administered internally. On one of these occasions, the attack seemed so severe, that the temporal artery was opened, and a considerable quantity of blood abstracted. These remedies afforded only partial or temporary relief; the stupor diminished, but the weakness increased; she had less power over the movement of her limbs, and was chiefly confined to her room. Pains stretched across the chest and abdomen, and she had considerable difficulty in micturition, which soon amounted to total suppression, requiring for two months the constant use of the catheter. She now began to complain of pain and weakness of her back, which caused the atten-

tion of her medical attendants to be directed to the spine: they found acute pain and tenderness manifested on pressure at the lower part of the cervical, and about the middle of the dorsal vertebræ. Issues were employed and kept open; iron and other tonics were administered, and attention given to the regulation of the bowels. Under this treatment she seemed to improve considerably; the functions of the bladder were in a great measure restored, and she acquired more power over the movement of her limbs. But after this amendment had reached a certain point, it remained stationary, and there was no farther symptom of improvement. During all this period the catemena was perfectly regular.

She remains weak and feeble in the movement of her limbs, being scarcely able to walk across the room without assistance; has much stiffness and difficulty in stooping or turning on her side. There is slight curvature of the spine, and every symptom of ankylosis in the dorsal vertebræ that were affected.

Case 12.—Miss E. W., aged twenty-four years. About four years ago, her health became impaired. She grew weak, and more easily fatigued than usual. Complained of headache and giddiness, want of appetite, and palpitation of the heart on exertion. One day she was seized with an acute pain along the left side of the face and neck, extending to the spine, and shortly after this attack she felt pain in the sides of the chest, and particularly at the lower part of the sternum. The right side of the chest became more affected than the left, and there was a severe pain confined to the margin of the ribs, which frequently prevented her from taking a full inspiration. Pressure on the heart increased the pain, and the integuments appeared swollen, and so tender that she could scarcely bear the weight of her dress on them. She suffered much from irritability of stomach, acidity and flatulence. Pains frequently stretched across the abdomen, and she had considerable difficulty in micturition. Some time after the commencement of these complaints she began to complain of pain and weakness of the spine, which was increased by pressure, walking, and every kind of exercise; and at the lower portion of the dorsal vertebræ, touching the part with the point of the finger, caused her almost to faint. Her limbs gradually grew weaker, she lost the power of walking, and was constantly confined to the horizontal posture. She had difficulty in drawing up her limbs; and to use her own expression, they felt as if they were corded, and were cold and benumbed. Sensation was also considerably impaired in them; the pain increased in the cervical region, with impaired power over the movement of her arms. She lay in this state for several months; was leeches and repeatedly blistered along the spine, but the disease did not yield to the treatment employed. One of the dorsal vertebræ began to project at the part of the spine where the pain

had been so severe on pressure, and she felt still more weakness in her limbs. As she would not submit to the application of issues, a strong stimulating liniment was rubbed and applied along the spine, and she constantly retained the horizontal posture. After a very considerable period, she exhibited signs of improvement: the back became less painful, she recovered complete power over the movement of her arms, and gradually but slowly regained the use of her limbs, and by change of air and exercise was ultimately restored to health.

Very little distortion can be observed on examining the spine, but anchylosis has taken place at the two last dorsal vertebrae, where there is a slight projection of the part. In the upper portion of the spine, there are one or two places where she complains of pain and tenderness on pressure, but there is no distortion to be observed. She is occasionally troubled with headaches, and slight pains across the chest and abdomen, but in other respects she is well, and greatly improved in health. During the whole period of her illness, the catamenia was regular.

This lady's eldest sister, Miss W., was a few years previously to this attacked in a similar manner. Her complaint commenced with severe headaches, giddiness, and frequent attacks of syncope, in which she often remained for an hour insensible, and incapable of being aroused by external stimuli. She suffered from pains in the chest and difficult breathing, irritability of stomach, with pains in the abdomen, and considerable difficulty in micturition. She became weak in the limbs, easily fatigued, and incapable of exertion, and began to complain of pain and weakness in the spine. The catamenia was regular. A variety of treatment was adopted without much benefit. Issues were then employed along the spine, and she retained the horizontal posture, and took tonic medicines. After several months, her symptoms began to improve, and she was gradually restored to health, after an illness of two years' duration.

In this case there is no curvature or distortion of the spine, the disease being arrested by the application of issues and other appropriate treatment, before it had proceeded so far. But the complaint both at its commencement and during its progress bore every symptom and characteristic of that with which her sister was affected, and which terminated in anchylosis of the vertebrae.

Case 13.—M. C., aged thirty-four years, has been many years in a delicate state of health, and unable for active exertion. States that at the commencement of her illness she was seized with severe headaches and pains in the left side of the chest, accompanied with difficulty of breathing, uneasy sensations in the stomach, and vomiting of food. She has also pain in the abdomen, and considerable dyspnoea. Some years after the commencement of these complaints, she felt pain in the spine, which was increased by

walking and stooping, and abated when she lay in a horizontal posture. She also felt pains shooting along the limbs, with diminished muscular power, particularly of the left leg, which became so weak and paralytic that she could scarcely move it, rendering her unable to walk or to take exercise, and confining her chiefly to the bed or sofa. A variety of treatment was employed for these complaints, but with little benefit to the patient. She was now seen by an intelligent surgeon, who directed attention to the spine as the seat of the affection, discovering much tenderness on pressure over all the dorsal and a great portion of the lumbar vertebræ. He employed counter-irritation to the part, exhibited tonics, and occasionally purgatives, and recommended rest in the horizontal posture: and after several months, she got so well, as to be able to walk out a little, and felt her health in every respect improved.

Her complaints have remained stationary for some time, and of late little has been done in the respect of treatment. She is still able to walk out, but assists herself with a crutch, as the left leg is considerably weaker than the right. But there is not much difference felt in the power of the arms, the left arm being nearly as strong as the right. Sensation is not so acute on the left side of the chest, and in the integuments of the left leg, as in the opposite side. She complains occasionally of giddiness, and pain in the chest, extending towards the sternum, increased by pressure on the dorsal vertebræ. She has also some difficulty in micturition. Appetite good, bowels rather constipated. During the whole period of her illness, the catamenia has been perfectly regular.

I have frequently visited this patient, along with the medical gentleman who attended her, and on examining the spine, find that there is no distortion, but anchylosis seems to have taken place between three of the dorsal vertebræ, and the part where there was formerly great pain and tenderness on pressure. She complains much of stiffness of the spine, with difficulty in stooping or turning to a side, and has every symptom of a decided and permanent spinal affection.

Case 14.—J. C., aged twenty-eight years, sister of the last patient, has been long in a delicate state of health, suffering from an affection of the spine. States that at the commencement of her illness, about twelve years ago, she was frequently affected with giddiness and dimness of vision, rendering her liable to stumble when she walked. She was seized with an acute pain in the left side of the chest, near the apex of the heart; the part was tender to the touch, and often so painful that she could not bear the pressure of her clothes on it; had difficulty of breathing, and palpitation of the heart. She also suffered from severe pain in the stomach, with weight and sense of fullness after food, which frequently terminated in vomiting; had acute pain across the bowels, difficulty

in micturition, and severe pains often darting down both limbs. For these complaints she was bled, leeched, and blistered on the left side of the chest, where the pain was most severe. Sinapisms and blisters were also applied to the epigastrium, and she took much medicine internally, but with little or no relief to her sufferings. No attention was directed to the spine. Nearly three years after the commencement of these complaints she began to suffer pain in the back, which was increased by walking, stooping, and every kind of exercise; and easiest when she reclined against a chair, or lay in the horizontal posture. She complained much of weakness in her limbs, and inability to undergo exertion; perspired easily and was soon out of breath. Some time after this, two of the dorsal vertebræ began to project, and symptoms of decided spinal disease were manifested. The complaint continued to increase, and more of the vertebræ to protrude, and she is now labouring under confirmed acute curvature of the spine, which has involved most of the dorsal vertebræ, ankylosis having taken place in the part affected. She is unable to walk without the assistance of crutches, having lost in a great measure the power over the movement of her limbs; sensation is also greatly impaired, but she still retains much power over the movement of her arms. She has some difficulty in micturition; but the pain of the side, the irritability of stomach, vomiting of food, and giddiness of the head have subsided. Of late the synovial membrane of the left knee joint has become affected. At the commencement of her illness the catamenia was irregular, and continued so for some time, but she is now perfectly regular.

M. C., aged seventeen years, the sister of the two preceding patients, and youngest daughter of the family, appears of a delicate constitution; has been liable to headaches, to irritability and distention of the stomach after food, sometimes attended with vomiting, and within the last twelve months had an attack of acute pain in the left side of the chest, which much affected her breathing, particularly on taking a full inspiration. The integuments of the part were slightly swollen, and so tender to the touch as scarcely to allow the pressure of her dress on it. Auscultation could discover no signs of pleuritis. On examination of the dorsal region of the spine, she complained of pain and tenderness in some of the intervertebral spaces, to which her medical attendant particularly directed his attention. He employed counter-irritation to the part, exhibited tonics, and occasionally purgatives, and the pains of the chest and tenderness of the spine in a short time subsided; the health greatly improved, and she has since continued well. The catamenia has always been perfectly regular.

These three cases we consider very valuable, as they occurred in the same family, and commenced in a similar manner, bearing every characteristic of cases of spinal irritation—pains in the chest,

with difficulty of respiration, irritability of stomach, &c. ; weakness, lassitude and oppression: then the affection of the spine became more apparent, followed in two of the cases with great loss of power and controul over the movement of the limbs, and terminating ultimately in permanent affection of the spine; and it is very probable, had the complaint been allowed to proceed in the case of the youngest sister, without being arrested by appropriate remedies, the result might have been equally serious.

Case 15.—W. B., a young man, aged twenty-three years, complained of great weakness and prostration of strength, being fatigued and out of breath by very slight exertion. Felt pains in his arms, and extending along the sides of his chest and abdomen; and had frequently nausea and irritability of stomach. There were often severe pains in his loins, darting down his thighs to his knees and ankles, and he felt increasing weakness in his limbs; he was also frequently seized with giddiness in walking. These complaints being considered of a rheumatic character, were treated on that principle. He was bled, and took diaphoretics, &c., but with little relief to his symptoms. This debility increased, and he lost in a great measure the power over the movement of his limbs, and had considerable difficulty in micturition. Attention being now directed to the spine, and pain and tenderness complained of on pressure, issues were applied along the dorsal vertebræ, and he was ordered to observe the horizontal posture. He remained in this state for many months, and took the medicines prescribed for his relief, but derived little benefit from any of the remedies employed. As no amendment appeared immediately to follow the treatment, he lost confidence in any further remedies, and commenced to walk. In a short time some of the dorsal vertebræ began to project, and the number to increase, till the greater portion became involved in the disease, and he is now labouring under permanent acute curvature of the spine, ankylosis having taken place. He retains the use of his arms, but has very imperfect controul over the movement of his limbs, being unable to walk without support, or the assistance of crutches.

Case 16.—J. D., aged thirty-three years. Felt his health declining for three years, being weak and more easily fatigued than usual. In walking he frequently became giddy, and liable to stumble, which obliged him to take hold of an object to prevent himself from falling; had often pains in his chest and bowels, and shooting down his limbs, with some difficulty in micturition; but the complaint which distressed him most, was an acute pain along the margin of the ribs, on the left side of his chest, and extending from the spine to the umbilicus, producing a severe dragging sensation, which prevented him from assuming the erect posture. In walking he stooped and inclined to the left side, and had considerable weakness in the movement of his limbs. For these symptoms he

was bled, leeches, and had blisters repeatedly applied to his side, but derived little benefit from the treatment. About two years after the commencement of his illness, he entered the hospital, and on examination of the spine, there was much pain and tenderness manifested in several places, on pressure being applied along the dorsal and lumbar vertebrae. Issues were accordingly applied along the vertebrae, and he observed the horizontal posture, &c.: some amendment now took place, the pain of the side diminished, his strength increased, and he had more power over the movement of his limbs. After several months he left the hospital considerably improved, but was unable to resume his usual avocation.

Twelve months after this period, I examined this patient along with the physicians under whose care he was during the period he remained in the hospital, and we found slight curvature, with ankylosis, involving the upper portion of the lumbar vertebrae, with pain on pressure about the middle of the dorsal vertebrae. He complained of stiffness in the spine, had great difficulty in stooping, and whilst reclining in a horizontal posture, was obliged to seize hold of an object with both his hands to enable him to turn on his side. He is able to walk out, but still complains of the pain in his side, and of great weakness in his limbs; he appears to drag them in walking, and has every symptom of a confirmed spinal affection.

Case 17.—J. C., aged thirty-four years, complained of increasing weakness in his limbs, and inability to undergo his usual exertion. Had frequently slight attacks of giddiness, with nausea and irritability of stomach. Some months after the commencement of these symptoms, he was suddenly seized with an acute pain in the left side of the abdomen, in the iliac region, amounting almost to tormina. This being considered an attack of peritonitis, he was bled, leeches, and blistered, and took medicines internally. The pain gradually subsided, but he did not regain his usual strength or appetite; he was weak, easily fatigued, and perspired on very slight exertion. After a short time the pain returned with equal severity, in the opposite side of the abdomen; and being visited by another medical practitioner, who formed the same opinion of the complaint, he was again leeches and blistered over the part. The severity of the symptoms abated, but the pain never entirely left him, but shifted to different parts of the abdomen. He however recovered his strength, so far as to be able to walk out at times, to take gentle exercise, and to try the effect of change of air. He now began to complain of pain and weakness in the lumbar region of the spine, in addition to the symptoms of the abdomen; but the pain in the back being considered of a rheumatic character, little attention was paid to it. His strength declined, he was chiefly confined to bed, with great weakness of the limbs, and considerable dysuria. The pain of the back increased, and on examination of the spine, acute pain and tenderness were manifested on pressure

at two different parts of the lumbar vertebræ—pressure on which with the point of the finger would almost produce syncope. Issues were applied along the spine at the affected part, and he was recommended to observe the horizontal posture, &c. The pain in the abdomen still continued to recur, and often in severe paroxysms: he grew weaker, and had less controul over the movement of his limbs; and after the lapse of some months, lost the power both of sensation and motion in them, accompanied with incontinence of urine.

A very remarkable phenomenon of reflex action was now manifested. On irritating the integuments of either foot, the limbs were immediately retracted towards the abdomen, and continued to vibrate for some time, without the patient having the slightest controul over the movement. The right limb was more easily excited, and the reflex movements were always stronger in it than in the left. Even irritation of the integuments of the left foot, caused the right limb to be retracted, and to vibrate more powerfully than the left. During all this period, the patient had not the slightest sensation in the limbs, either from touch, the application of heat, or of cold water to the integuments.

Anchylosis took place between the affected vertebræ, and from the extent of the disease, a great portion of the lumbar and the dorsal vertebræ became firmly united, but with little curvature of the spine. On raising him up, he could not bend his body forwards; his spine appeared one consolidated piece. Sloughing commenced in the integuments of his back, from the constant pressure, and after a short period he expired. A post mortem examination was not permitted, but it is very probable that in this case the disease was chiefly seated in the intervertebral cartilages.

These cases, we conceive, warrant the conclusion that complaints, which have every characteristic of spinal irritation at their commencement and during a considerable period of their progress, terminate in a decided affection of the spine, and must consequently depend on inflammatory action. The symptoms, it will be observed, are identically the same as those which we have described in the previous section, simulating many of the diseases to which the human body is liable, and for which they are often mistaken, and treated on false principles. The pains are felt at the extremities of the nerves, but the disease is seated at their origin, or centre of the nervous axis; and after the affection has arrived at an advanced stage, its real nature and pathology is developed. One thing then seems to be established by these cases, viz., that a class of complaints which bear every characteristic of spinal irritation, and have generally been considered as of a functional nature, depend essentially on inflammatory action, on specific inflammation of the spine, and ought to be treated on that principle.

If this view had been taken of the pathology of these complaints at their commencement, it is very probable that remedies would have been employed, which might have arrested the disease early in its progress, and before such serious effects had been produced; and cases with similar results are frequently to be met with in practice. We are acquainted with the case of one young lady, when the complaint commenced in its usual insidious manner, with pains in the chest, weakness of the limbs, and occasional giddiness of the head; and the disease was considered as a case of spinal irritation by very eminent medical attendants, and treated as of a functional and not of an inflammatory nature; but the disease progressed, and after a considerable period had elapsed, the affection of the spine became so evident, that it demanded the most serious attention. Several of the vertebræ began to protrude, which confined her long to the horizontal posture; and after several years of suffering, she is now only so far recovered as to be able to walk out a little by the use of an artificial support to the body, to preserve in a great measure the pressure from the spine.

With regard to the specific nature of this affection, the inflammation is not of that acute and phlegmonous character, which occurs in patients of a strong and robust constitution, whose blood abounds in healthy fibrin; on the contrary, it is observed most frequently in patients of a weak and strumous diathesis, where there is an apparent want of tone and vigour in the constitution, and is characterized by a deterioration of the fibrin, and a diminution of the globules of the blood: and pathological research has shewn, that the disease may be either superficial or deep-seated, commencing in the membranes of the spine, most frequently we believe in the periosteum; or commencing in the vertebral cartilages; or in the bodies of the vertebræ. The disease is generally slow in its progress, and it may be long before symptoms of a formidable character are developed. The intervertebral cartilages, when the disease is seated in the articulating surfaces, may even be absorbed, and ankylosis produced, without any loss of substance in the bodies of the vertebræ; and in this case there may be no curvature of the spine. But when the disease involves the bodies of the vertebræ, and has proceeded to a considerable extent, they become softened by the inflammation, "absorption of the earthy matter of the bone is produced, attended by a deposition of soft lymph, or of tubercular matter," and acute curvature takes place at the part. The diseased vertebræ may undergo much disorganization, and then become united by ankylosis, which is the only mode by which recovery can be effected; but in many cases the disease appears to consist more in the absorption of the earthy matter, than in the deposition of soft lymph, or other alteration of the osseous tissue, as on post mortem examination we find, that union has been formed by ankylosis between a number of the vertebræ, with

antero-posterior curvature at the part, but without much loss of substance in the vertebræ. Another pathological fact of much importance to observe is, that the paralysis which so frequently accompanies this affection, is produced not simply by the pressure of the diseased vertebræ on the spinal cord, as was formerly believed, but by the inflammatory action extending to the cord, and producing ramollisement, &c. ; so that, whilst the affection of the vertebræ may be arrested by ankylosis, if the effect of the inflammatory action on the spinal cord do not subside, it will preclude hopes of ultimate recovery. But on a subsequent occasion, we may be enabled more fully to enquire into the pathology of this disease ; our object in the present section being principally to shew that a class of complaints which have been considered as spinal irritation, and treated on that principle, depend essentially on specific inflammatory action, and if not arrested in their progress, will ultimately terminate in decided spinal affections.

We are well aware that several pathologists, such as Nelaton and Nichet, consider disease of the vertebræ, as it appears in this advanced stage, to be entirely of a tubercular character, and analogous to tubercles in the lungs, but occurring in a different tissue. This, however, would in a great measure depend on the view which is formed of the cause of tubercular deposition into the osseous and different tissues of the body, whether or not it be connected with specific inflammatory action : but whatever view may be entertained of the nature of this disease, as being developed from a tubercle in the body of the vertebræ ; or from tubercular infiltration into the osseous tissue producing destruction of the bone, and ultimately curvature of the spine ; there can be little doubt that we have abundant evidence of inflammatory action in the progress of this affection. The type which it assumes may be chronic, and the inflammation of a low and specific nature, but it bears every characteristic of similar inflammation in the other parts of the osseous tissue, and as it appears sometimes simultaneously with the affection of the vertebræ.

TREATMENT.—When the disease has arrived at an advanced stage, and several vertebræ are much affected, attended with projection of the spinous processes, the great object in the treatment is to produce ankylosis. With this view, the patient must be confined to the horizontal posture, have his strength supported by nourishing diet, by tonics, and preparations of iron, &c. In some cases, when the patient has long remained in this condition, and appears to suffer from the confinement, without ankylosis being produced, we have seen much benefit derived from the use of steel stays, so constructed that they throw the weight of the body in a great measure on the pelvis, keep the pressure off the spine, and at the same time prevent all motion in the diseased vertebræ. In this manner, the patient is no longer confined to the horizontal

posture, but is enabled to walk out and take gentle exercise, so far as his strength will permit, and to enjoy the change of air which contributes much to the improvement of the general health, and ultimately to the union of the vertebræ by anchylosis. We know the case of one young lady who suffered from this affection in the upper portion of the lumbar vertebræ, with considerable projection of the spinous processes; she had great weakness in her limbs, and had been long confined to the horizontal posture without anchylosis being produced, but her health suffered so much from the confinement, that great fears were entertained for her recovery. She commenced the use of these stays, began to take gentle exercise, though she could do so very imperfectly: her health improved, and in the course of twelve months the vertebræ were united by anchylosis, with apparently less projection of the spinous processes. After a few more months had elapsed, she had recovered much more power over the movement of her limbs, was enabled to take more exercise, and felt so strong that she discontinued the use of the stays, and considered her health in a great measure restored. Another young lady, who had been long confined to the horizontal posture, from disease of the lumbar vertebræ, with little power over the movement of her limbs, but in whose case anchylosis had been produced, but the spine remained so weak that she was much confined to her couch, and unable to walk without assistance. This lady had recourse to the use of steel stays, from which she derived great benefit: her strength increased, she regained more power in walking, and by continuing to wear these stays she is enabled to walk out daily and take gentle exercise, and apparently with little deformity of the spine. Many cases of a similar nature can be produced, in which the patients derived the greatest benefit from the employment of steel stays, both anterior to anchylosis, and after it had taken place.

Indeed, as one great object in the treatment of this disease, is to produce anchylosis of the diseased vertebræ with as little injury as possible to the patient's general health, when the horizontal posture has been employed for some time without anchylosis being effected, it seems advisable to commence the use of these stays, that the health may be improved in order to anchylosis being produced. And again, when patients still complain of much weakness in the spine after anchylosis has taken place, the constant use of these stays becomes of the greatest service, by affording mechanical support to the body, and enabling them to take constant exercise for the benefit of their health.

ART. XXXVIII.—*Cases of Operations for Cataract, chiefly at the Toronto General Hospital.* By W. R. BEAUMONT, F. R. C. S., Eng.

THE following cases will be divided into those which were favorable for operation and those which were unfavorable, i. e. into cases not complicated with any manifest alteration of structure (save of the lens or capsule) or probable or evident impairment of the nervous apparatus of vision, and into those cases which were more or less so complicated.

An operation for cataract is often spoken of as unsuccessful in cases, in which, if the immediate object of the operation be borne in mind, it would more properly be termed successful. I mean that an opaque lens or capsule if removed by operation from the eye, or so altered in position, as no longer to intercept, in any way, the passage of a sufficient quantity of light to the fundus of the eye, and that without any permanent injury to the structures involved in the operation, that then, although the patient may regain little or no vision in consequence of the operation, still it ought to be considered as successful, in as much as the operation will have effected all that any operation for cataract ever effected; the power of seeing well, or impairment, or privation of sight, depending after such result of an operation on the more or less perfect or imperfect condition of the nervous apparatus of vision, and which condition we cannot, a priori, so positively determine, as to refuse a patient the chance of regaining some vision, however much we may be inclined to believe that the loss of transparency of the lens or capsule, may be the least evil affecting the eye under consideration. I have made these observations, because many, if not a majority, of the eyes I have operated on, would fairly come under the class of unfavorable for operation, i. e., the cataracts had more or less unfavorable complications.

Case 1.—Prognosis as to result of operation rather unfavorable—Extraction of Lens after a previous operation by needle.

Joshua Strother, æt. 45, an African black, was admitted under my care into the Toronto General Hospital, July 26th, 1844.—The pupil of the left eye, (that operated on) presented a uniform bluish white opacity, and the same when the pupil was greatly dilated by Belladonna, so that the cataract was evidently large and soft. He could with this eye distinguish light from darkness, but nothing more. In the right eye cataract was forming, and its vision more impaired than one would expect from such a slight degree of opacity alone.

A small mark was visible in the left sclerotica where it had been pierced by the needle a month before his admission, by which operation no benefit had been derived. His general health was not good, he was feeble, and his mind at times somewhat deranged.

On Oct. 25, I operated by extraction, making with Beer's knife a section of the cornea, forming a flap of its outer and inferior half about one-twentieth of an inch from the sclerotica. The pupil being well dilated, I passed the point of the knife through it, and opened the capsule at the same time that I made the section of the cornea, on the completion of which, the lens very soft and broken in pieces, was expelled with a small quantity of vitreous humor. There was no proptus iridis, or other untoward event—Cold water dressing was ordered to be constantly applied over the eye, and the room to be darkened.

Eight hours after operation he had slight pain and heat in the eye, and his pulse rather accelerated—V. S. ad. $\frac{3}{4}$ x, which produced faintness.

Forty-eight hours after oper., still some pain and heat, and the pulse 110, rep. V. S. ad. $\frac{3}{4}$ x., sum. 4 ta q. h : Cal: gr. ij. opii. gr. $\frac{1}{4}$.

Three days after operation, I examined the eye, which was very little inflamed, and the wound in the cornea appeared healed.

Five days after operation, the gums were sore; there was no inflammation of the eye, and the wound in the cornea remained united. A day or two after this, the patient, in a fit of derangement left the hospital during the night; two or three days after which he was found lying in the mud, and was brought back to the hospital quite imbecile, and having a cough, no doubt from exposure to wet and cold; still the eye appeared uninjured, the pupil of a clear bright black, the cicatrix in the cornea firm, but the iris to a small extent adherent to it.

Subsequently, a week or two after his return, the eye became inflamed, and gradually the globe of the eye underwent a change of form, so that on the 6th of Dec., four or five weeks after his return, the sclerotica below the cornea was, and had been for a fortnight past abnormally prominent; the cicatrix seemed softened, but had not given way, and that part of the cornea in front of the pupil remained perfectly transparent.

On Feb. 3, about two months after his return, the bulging of the sclerotica had gradually increased, so as to form a good specimen of staphyloma scleroticæ; this membrane being thinned, prominent, and showing the dark colour of the choroid round two-thirds of the cornea. Vision was not quite lost at this time, but was very imperfect. His health and strength seemed rather improved, and he might be, perhaps less imbecile, but a paralytic seizure shortly after this terminated his life.

In this case I could not make out very exactly the improvement in vision produced by the operation, so completely imbecile was the patient after his return to the hospital, but I am of opinion it was not great, and that this probably resulted from some pre-existing cerebral affection. If neither the cerebrum, the optic

nerve, nor the retina had been impaired, he ought to have seen well, as the operation removed all obstruction to the passage of light to the fundus of the eye, the pupil being, and remaining, of a clear bright black after the expulsion of the cataract. The inflammation, occurring two or three weeks after the operation, is more to be attributed to the exposure of the patient to wet and cold, and other causes of inflammation, than merely to the operation, and the subsequent staphyloma scleroticæ probably was the effect of this latter inflammation.

The prognosis, as to the result of any operation in the foregoing case was unfavourable: 1st, because the impairment of the vision of the right eye being greater than the commencing cataract would account for, this eye must be regarded as becoming amaurotic, and consequently the probability of the left eye (that operated on) being amaurotic also; 2ndly, because the previous operation may have permanently injured some of the important structures liable to suffer.

Case 2.—Cataract of left Eye, complicated with almost obliterated and adherent Pupil—Amaurosis of right Eye—Prognosis of operation very unfavourable.

Joseph Wallace, æt. thirty-four, was admitted into the Toronto Hospital, Feb. 2nd, 1845. There was total loss of vision of the left eye, the pupil being not larger than a small pin's head, and behind it a densely opaque substance, which proved to be a lenticular cataract. Vision of the right eye was very imperfect, but the organ free from any opacity of either cornea or lens, its pupil being a clear bright black. He stated that two and a half years before his admission, the sight of his left eye (that operated on) began to be impaired, and that for about two years it had been entirely lost. He had not suffered from pain or inflammation in this eye, and therefore it must have been affected with a very chronic form of iritis, causing the contracted and adherent pupil.

On March the 29th, 1845, I operated, by making with Beer's knife a section of the cornea, forming a flap of its outer and upper half. With Maunoir's probe-pointed scissors, I then made two incisions through the iris, extending from the contracted pupil downwards, but diverging, by which a triangular flap of iris was made, its base attached to the ciliary ligament. This flap of iris immediately contracted, so as to show behind it an opaque lens, which I thought could not be extracted through the opening thus made in the iris, and therefore I made with Maunoir's scissors a vertical section of the upper half of the iris, thus almost completely dividing the iris into nasal and temporal halves. Even now, moderate pressure failed to dislodge the lens, the uvea being so adherent to the capsule of the lens as to prevent its escape. With small forceps and Daviel's scoop, I broke up and extracted a part

of the cataract, which was soft, and of a light greyish colour. The opening in the iris was of triangular form, its base being near the lower margin of the iris, and about one-eighth of an inch broad. Cold water dressing was ordered to be constantly applied over the eye. About eight hours after the operation, some pain and heat were felt in the eye, which venesection to ξ xxvij immediately relieved. In about twenty-four hours the sensation of pain and heat returned, and was again immediately removed by venesection to ξ xij. After this calomel and opium were given for three days, when the gums became sore, and the inflammation entirely subsided.

A week after the operation, the cornea was quite transparent, the incision in it firmly united, and the eye quite free from pain and inflammation, the aperture in the iris being rather diminished.

May the 12th (six weeks after operation). The right eye (not that operated on), had become more amaurotic, vision almost lost, the globe flaccid, the cornea had lost its regular convex form, and the humors of the eye evidently insufficient to distend the globe to its proper size and form. In the eye operated on there had been no further inflammation, but the cataract was not absorbed, and the opening in the iris had become narrower. I therefore passed Scarpa's needle through the sclerotica, and with it further broke up the lens, and enlarged the opening in the iris. No inflammation followed this second operation, and the blood which had flowed from the iris into the anterior chamber, in a week after the operation was absorbed.

On June the 12th, about twelve weeks after the first operation, he left the hospital: the eye operated on being in appearance perfectly healthy, the artificial pupil of moderate size, of a clear bright black, and near the centre of the iris, but its vision only slightly restored. Had this eye, as well as the other, not been amaurotic, he ought to have seen well, as the operation removed all impediments to the passage of light to the retina.

The prognosis in this case was unfavourable: 1st, on account of the probably amaurotic state of the eye operated on; and 2ndly, on account of the almost obliterated and adherent pupil.

(To be continued.)

ART. XXXIX.—*Case of decomposed Placenta with a living Child.* By EDWARD VAN CORTLANDT, M.D., M.R.C.S.Eng., Lychtown.

ABOUT a year ago I was sent for, after a midwife, to attend Mrs. R., aged about thirty five. She was of spare habit, lax fibre, and highly strumous diathesis, and had been only a year married. On entering the apartment I was forcibly struck with a most noisome smell which pervaded it, and I found three women who

were in the room all fully sensible of its presence, since they were severally engaged in spitting and holding their noses; and one of the first questions submitted to me was, "Doctor, have you any snuff about you? The odour to me was more like that emanating from a neglected ulcer, than anything else I could compare it to, and I at once asked the patient if she had anything sore about her, to which she unhesitatingly replied, "No." On making a vaginal examination, I found the child's head impacted in the bones of the pelvis, but uterine action almost entirely suspended; at the same time I detected most unmistakeably where the noxious incumbent came from. I at once inferred it was a case of dead child, and after an enema had been given and ergot administered without effect, I applied the forceps, and the cry of a living child but too plainly shewed me the incorrectness of my prognosis. Although refined olfactory nerves are not a general characteristic of medical men, I must confess for once mine were tested to my heart's content, and I requested the bystanders to open the window, at the same time that I joined in with the work of spitting, which was going on most energetically around me. I need hardly say my curiosity was excited to its utmost, since on feeling over the abdominal parietes, I satisfied myself there was not a second child, whilst the laws of physiology prevented me even for a moment looking forward to a decomposed placenta, but which nevertheless did exist, and was lying in the vagina, and came off as it does in cases of a dead child. I bandaged my patient, and did all that is usual under similar circumstances; but on turning to examine this physiological paradox, I found, to my undescribable sorrow, it had been thrown into the stove. Of course I am not prepared to say to what extent decomposition had taken place, but I can vouch for its being both very great and of long continuance, since the shape of the placenta was altogether destroyed, whilst for the rest I am lost in amazement, and cannot account for it.

NOTICE TO CORRESPONDENTS.

DR. KEY'S *Communication is under consideration.*

DR. STRATTON'S *emendations shall be attended to when we use his Paper.*

Two Anonymous Communications are declined, in accordance with the principle we have established. One of them, on the subject of the charges preferred by the public prints against DR. SCOTT of the Provincial Lunatic Asylum, for the supposed mutilation of the Corpse of a Pauper in that establishment, is worthy of authentication by its author. At present we decline expressing an opinion on the subject until the matter has been fully investigated.

TORONTO, NOVEMBER 15, 1851.

MEDICAL POLITICS.

WE would direct the attention of our readers to the approaching elections. A judicious exercise of the elective franchise and the exertion of all the influence the Profession can bring to bear at the Polls, must be attended with the good result of securing the return of members, who regard the Practice of Medicine as something more than a *trade*, and who will be prepared to extend to us by legislative enactment that protection which we so much require, and which is enjoyed by the Lower Province. In carrying out this measure of agitation there will be no occasion for the sacrifice of private opinion on general policy, the first object can be in most cases rendered subservient to the other; but the incorporation of the Profession with adequate powers ought to be a point of paramount importance in the electioneering creed of every candidate. We are happy to perceive that two members of the Profession are in the field with every reasonable prospect of success. We allude to Dr. HAMILTON for Halton, and Dr. CLARK for the 1st Riding of York. Both are eminently qualified in every respect to fulfil the important trust they have been invited to undertake. Both are known to be sterling men, independent in circumstances, and keenly alive to the necessities of the Profession; for both we venture to solicit the suffrages of practitioners residing in their respective counties. Our interests may be safely committed to their management. The former from long residence in the country, in the active discharge of his Professional duties is perfectly familiar with all that is required to raise the character of the Profession, and to secure, by the efficient education, of those who are sent abroad to practice, the welfare of the community. The latter who has practised successfully in other countries, and who has been an observant spectator of our condition for some years, can bring to bear the valuable experience thus acquired; and, we believe, that although not practically associated with us—we enjoy his keenest sympathy and good-will. Next month we shall be in a position to analyze the several candidates who will by that time have declared their intentions with reference to the question of Incorporation, and this we shall do, in the case of former members by reviewing their previous votes. In the mean time we would urge upon our brethren the necessity for prudent caution in giving pledges or in selecting candidates.

THE UNITED STATES.

Much has frequently been said and written against the system of medical education, and the condition of the Profession generally in the neighbouring republic. It has been objected to the first, that the curriculum required was too limited in its character, both as regarded the amount of information required and the duration of the period of study. Of the second it is said, that they are consequently insufficiently educated, and do not possess the requirements necessary for the exercise of a liberal profession. We allude to the subject just now for the purpose of showing, that whether this reproach has been well founded or otherwise, great exertions are being made throughout the Union, by the intelligent portion of the Profession, to raise the standard of both medical education and ethics. The following resolutions we take from the *Medical News and Library*, published at Philadelphia, on the first of this month. They are taken from a report of the proceedings of the *Iowa State Medical and Churgical Society*.

“Dr. Stanford, from the committee appointed to report upon the causes which contribute to depress the science and dignity of the medical profession of Iowa, made a report and introduced the following resolutions, which were unanimously adopted:—

“*Resolved*, That the practice of admitting young men to the study of medicine without a respectable preliminary education, greatly contributes to depress the science, dignity, and usefulness of our Profession; and that this society urge upon its members the propriety of examining all young gentlemen who apply for the benefits of private pupilage upon their preparatory education, with a view to discourage such as are deficient in this respect from entering upon the study of a profession, in the ranks of which they can never attain pre-eminence, and the usefulness and dignity of which they are not competent to promote.

“*Resolved*, That discussions upon scientific questions, connected more or less intimately with medical science, would promote a more accurate knowledge of the brilliant modern discoveries in animal chemistry and human physiology, and that to secure this object, it shall be the duty of the president at this, and each annual meeting hereafter, to appoint one member to read a paper at the next succeeding meeting, upon the various improvements and discoveries in medicine which have been made during the year; and one to read a paper upon the relations which the natural sciences bear to recent improvements and discoveries, and their agency in developing the resources of the healing art; and that these papers shall be made the theme of an evening's discussion during the sitting of the Society.

“*Resolved*, That we will exert our influence, both by precept and example, in sustaining our code of medical ethics, and that all

evasions or infractions of the great moral law of the profession, will forfeit the claim of any physician to the fellowship or privileges of our Society.

“Resolved, That the practice of attending families by the year is deemed improper and mercenary by this Society, and that it strongly recommends to its members the discontinuance of a practice which is calculated to lower the moral standing of the profession and lessen the respect of the community for its members.”

There is no disputing the fact, that the United States have produced some men of the greatest eminence in the Profession, many of whom still live to benefit mankind by their skill and attainments; and if the spirit which animates the Iowans be generally prevalent, we shall speedily see the benefit arising from the wise and farsighted revolutions which we now chronicle for the especial benefit of our Canadian brethren.

HOMŒOPATHY.

WE have thought that the publication of the following report of the *Provincial Medical and Surgical Association* of England, would be acceptable to our readers. It is an able document and deserves attention, since we are not free from the evils of homœopathy in Canada:

Dr. Cormack said: I have the honour to be commissioned to offer for the acceptance of this great meeting, the Report of your Committee on Irregular Practice. Although the terms of our appointment might have justified a more general notice of the prevailing delusions and impostures of the day, we have thought it best to direct your attention solely to what is called homœopathy, as along with it is almost invariably associated the practice of other systems of charlatany. I am anxious to state, at the outset, that we have not thought it necessary to adopt the language of controversy, and we have endeavoured principally to mark out the necessity of excluding from this Association three classes of practitioners; first, those who really (and many of them honestly) practice homœopathy; second, those of a mixed, or bastard kind, who practice homœopathy in combination with mesmerism, hydrophathy, allopathy, or *any pathy* which the patient most may fancy; and, third, those who, under various pretences, hold professional intercourse with homœopathic practitioners. It is not necessary, in this assembly, to prove, that homœopathy is a mere chimera—a system opposed to reason, common sense, and all medical experience; and I may, in a few words, give you a brief synopsis of what Hahnemannism is. Dr. Cormack then stated that there were three leading doctrines, or rather dogmas, promulgated by the German dreamer: 1st, that all diseases depended upon three inherent

taints, the principal one being the itch, or psoric, as he called it; 2nd, that like cures like—*similia similibus curantur*; and, third, the giving of infinitely small doses. With regard to all of these chimeras, Dr. Cormack averred that they had no scientific basis, no facts to rest upon, and the statements made about medicines acting when divided into the decillioneth of a grain, are so transcendantly nonsensical as not to be entertained even as a subject of consideration for an instant except by an unhealthy mind. The simple fact is this, that Hahnemann's doses cannot be demonstrated to exist, and are so small that the mind of man can form no conception of their minuteness. Some homœopaths repudiate, in a sort of half-and-half way, the small doses, but the public who feed homœopaths generally conceive that their medicines are given to them in the attenuations of Hahnemann, in quantities ranging from a millionth to a decillionth of a grain. Small doses were lauded at the meeting in Hanover Square Rooms, but these laudations were, perhaps, applauded by men who give more freely than many of us would dare do, strychnia and aconite, and other such like drugs, the most terrible doses of which are drops and fractions of a grain. Large doses of more common medicines, as I well know, are also every day prescribed by men who come forward as candidates for homœopathic practice among the wealthy and the noble. I have said enough to show you how vain it is to define what is meant by homœopathic practice, when I mention that at a recent meeting of the annual congress of homœopaths there was present, as a large participator in the business, Dr. Wm. MacDonald, who, besides being a homœopathic practitioner, is a leading man as a believer in, or lecturer on, the highest degrees of mesmerism. Then Dr. Macleod (whose autobiography I hold in my hand), the keeper of a water-cure in at Bewrydding, in Yorkshire, is a chosen champion of homœopathy, a man whom the *Homœopathic Times* delights to honour, and who treats his patients by globules and wet sheets. But besides the legitimate and the bastard Homœopaths, there is another class of men who have no right to sit with us as brethren on these benches, nor be associated with us in this society. Regarding this class I would wish to say a little; but that little must be plain, and it is this, that we must not—not one member of this association must hold professional intercourse with those traitorous men who meet at the bedside with those whose medical creed and character I have, though perhaps too mildly, depicted. A broad line of demarcation must be drawn, and it must be done this day. (Applause.) Private friendships have, perhaps, made some of us too long in adopting the painful but only right course. To error and imposture there never can be made an honourable exception. After adverting to various other subjects in the report. Dr. Cormack said, that he approached the next topic with feelings of the deepest pain and sorrow. He continued: I will not yield to

any man in my respect for the sacred office of the ministry: myself the son of a clergyman, I have always felt that the only other calling more noble than our own is that of preaching the everlasting Gospel, but, when clergymen assail us from the pulpit, and injure our influence with our patients by their zeal in converting proselytes to Hahnemann, neither delicacy nor duty exacts from us silence. Numerous facts have been laid before your committee, from which we have ascertained, that in some districts of the country, the zeal with which the clergy have taken up homœopathy knows no bounds, and many of our brethren have had their patients wiled away. I would not have ventured, however, to bring this prominently before you, did I not hold in my hand a sermon preached by a Rev. Vice-President of the Hahnemann Hospital, in Bloomsbury Square, from which it is necessary that I should read to you some extracts. The preacher was the Rev. Thomas R. Everest, Rector of Wickwar. He selected his text from the Gospel of St. Matthew: "And as ye go, preach! saying, the Kingdom of Heaven is at hand. Heal the sick, cleanse the lepers, raise the dead, cast out devils: freely ye have received, freely give."—ch. x., 7 and 8 v.

In this text the reverend gentleman finds revealed the doctrine of Hahnemann, but I will give you his own explanation of the words of the Evangelist: "Heal the sick and cleanse the lepers! CLEANSE THE LEPERS! Why pick out disease at all from amongst the ills of man? And if so, why that particular one? Why not blindness or madness, the stone or dropsy, rheumatism or the gout?" Thus you see that the leprosy of St. Matthew and the psora of Hahnemann are the same thing. That, in fact, is the grand idea of the sermon, but the great redemption was not complete, or at least, not available to fallen man—till Hahnemann appeared. I almost feel, sir, that the passage is too awful to recite before you, but I must do it to save myself from the charge of misrepresentation.

"At the fall of man sin entered into the soul and disorder into the physical frame (with which the soul is connected) at the same moment. God sent his Son to repair the mischief, and he bade His ministers preach the Gospel and heal the sick; that is, cure the moral disorder and the physical disorder together; and for 1,900 years that precious wisdom has cried in the streets unheard. The preacher of the Gospel, not aware that that Gospel could never have free course until the physical leprosy of the man was cleansed, and his chronic tendencies cured, has handed over to a separate profession the business with which his Lord entrusted him. And that profession, unconscious of its privileges, its duties, its powers, has, so to speak, ignored the whole question. It leaves those mad whom it might have cured, or it maddens men by large doses of powerful medicines; and then we wonder at the crimes and folly

that mark the career of man. Let us be assured, brethren, that there is in the Gospel of Jesus a life, a power, a spirit, which is so much in harmony with man's happiness, that if it had been understood by those who teach it and had had fair play, it would long ago have altered the whole face of society. But, in spite of Moses, in spite of Jesus, in spite of the law of nature, alike deaf to God's voice and blind to facts, the medical profession has left the leprosy of the flesh to entwine itself with the leprosy of the soul. Between the two, man's tendencies to sin are increased by the disorder of his reason, caused by the abnormal working of his machinery; and the Gospel finds in whom God intended that all should be normal, but with whom it can only communicate by means of nerves in a chronic state of irritation and a brain in discordant working, not a gentle convert but a hardened criminal, a perverse unbeliever, a furious fanatic, or an eccentric unreasoning lunatic. But old things are passed away, behold all things are new made unto us. Let us now see what the new system proposes to do for the human race." That is to say let us see what homœopathy can do to complete the Christian system. The next extract which I shall read is an appeal to the pockets.

"Mothers! do you wish to see your children washed clear of that leprous tendency to disease which fills our graveyards with sweet young flowers, cut off untimely, and which, to those who survive, transmit a legacy of pain, sin, and sorrow? THEN AID US!

"Fathers! do you wish to see your sons grow up faithful Christians and sensible men, with a normal allowance of health, able to use calmly the reason which God has given to man for his comfort here, far from all extravagance and all eccentricity, holding a course of life steady, reasonable, religious—such a course as man, healed, God fearing, and intellectual, should hold? THEN AID US!

"Governors of God's heritage, monarchs, parliaments, magistrates! there is a gloomy thunder-cloud collecting on the horizon, rolling its deep masses over the face of day, threatening, lurid, portentous; but no man knows exactly what. It is called socialism, communism, the rights of man, the rights of labour, the red republic. It is earnest, dark, sombre, avenging. It has been lashed up by hunger, low wages, glaring inequality, wicked passions of psoric origin, roused by alcohol and medicines, maddened by burning eloquence. It has no strain of gentleness in it. It is arrested by neither ridicule nor menace. There is not one smile, or one jest hidden beneath its fantastic twirls. The sword has cleft it, but there it hangs in the calm that precedes the earthquake; baffled, perhaps, but biding its time till the 'hour come and the man.'—Shall I teach you to draw the lightning quietly from it ere it bursts upon your throne and your altar, and piles all your institutions into

one heap? *Aid us!*" I must inflict one more extract upon you. It is the preacher's account of the medicine of love.

"The medicine of love has prepared the soul for the Gospel of love. The seed of the word will soon strike root in such a soil, and bring forth much fruit; not the fruit of thievery and crime, afflicting folly and snarling religion that exists at present, but a wholesome crop of sensible actions and sound opinions ripened by the steady rays of reason and religion. Growing up thus amidst calm and sunshine, and love and harmony, induced by the medicine of harmony, the education of the young candidate for heaven commences. The first care of the parent is, by proper dynamic medicines (for medicines in a brute material state, having a totally different action on the human organism, are perfectly useless, or rather merely injurious) to eradicate all those psoric tendencies which cause or increase all our aches, pains, ill tempers, obstinacies, rebellions, cachexies, and all chronic diseases. Life in the beginning does so long for harmony, that if this be gently aided, it soon overrules all discordant tendencies. The molecular attraction proceeds normally. The infant develops into a normal child of the normal type, in whom all tendencies to irregularity, whether of body or mind, growth or disposition, are much weakened and simplified. It has never been exacerbated by frantic doses of powerful medicines, never been excited by poisonous diet, never been beaten into obstinacy, never imitated the quarrels of its elders, never been spoiled into selfishness, never indulged into evil tempers; continuing the physical education, and watching carefully the cries which life utters for assistance in order to relieve her just where and when she wants aid—never by mere palliatives, but always by dynamic remedies, whose energumonic power, akin to life itself, has been subtly awakened and called forth from the brute mass in which it lay slumbering, and, if well chosen, will, by its unailing elective attraction, restore to life at the very spot, by the very nerve wherein it labours, the very *FORCE* in which it is deficient—you commence the moral and religious training of the child. Plain, simple, easy, and charming, is *THE GOOD NEWS OF GREAT JOY.*"

So much for the medicine of love. Let us now hear what the preacher says of our system of medicine. "There was once a marriage made in heaven; but you put asunder those whom God joined together in heaven when you separated the healing of the sick from the preaching of the Gospel, and made two professions out of that which Jesus made; and therefore it is the art of cure, separated from the holy principles of love, has lost its way and fallen into foul company, and consorted with all unloveable things—cathartics, moxa, the lancet, emetics, and blisters." Now, sir, this sermon was preached in aid of the Hahnemann Hospital, and under the patronage of much of the wealth and aristocracy of this country. Emblazoned on its title page we find the names of his

Excellency Chevalier Bunsen, his Grace the Duke of Hamilton, the Earl of Wilton, the Earl of Shrewsbury, Lord Robert Grosvenor, M. P., and many other noblemen and members of parliament. To such lists we are generally referred triumphantly, but I would only say that it would not be difficult to add to the list hundreds of names of equal note, comprising noblemen, clergymen, and gentlemen who also support this quackery. But, sir, I have yet to learn that these men are fit guides for the physician, and I would say that not all the coronets and mitres in England can convert a lie into the truth, and, layman though I be, I hesitate not to proclaim in this public assembly that the sermon from which I have quoted is replete with quackery, heresy, and impious doctrine. (Prolonged applause.) Dr. Cormack then read the following report on irregular practice:—

“Your committee have, after consultation with numerous members of the association, maturely considered the subject referred to them, and beg respectfully to suggest the adoption of the following resolutions:—

“1. That it is the opinion of this association that homœopathy, as propounded by Hahnemann and practiced by his followers, is so utterly opposed to science and common sense, as well as so completely at variance with the experience of the medical profession, that it ought to be in no way or practiced or countenanced by any regularly educated medical practitioner.

“2. That homœopathic practitioners, through the press, the platform, and the pulpit, have endeavoured to heap contempt upon the practice of medicine and surgery as followed by members of this association and by the profession at large.

“3. That for these reasons it is derogatory to the honour of members of this association to hold any professional intercourse with homœopathic practitioners.

“4. That there are three classes of practitioners who ought not to be members of this association, viz., 1st, real homœopathic practitioners; 2nd, those who practice homœopathy in combination with other systems of treatment; and 3rd, those who, under various pretences, meet in consultation or hold professional intercourse with those who practice homœopathy.

“5. That a committee of seven be appointed to frame laws in accordance with these resolutions, to be submitted to the next annual meeting of the association.

“6. That the thanks of the association are entirely due, and are hereby given to the Presidents and Fellows of the Royal Colleges of Physicians and Surgeons of Edinburgh for their determined stand against homœopathic delusions and impostures.

“7. That the thanks of the association are also due, and are hereby given, to the Universities of Edinburgh and St. Andrew's for their resolution to refuse their diplomas to practitioners of

homœopathy; but the association feels imperatively called on to express its disapproval of any school of medicine which retains among its teachers any one who holds homœopathic opinions.

"8. That these resolutions be printed and transmitted to all the medical licensing bodies and medical schools in the United Kingdom.

"In proposing these resolutions for the adoption of the association, your committee are anxious to state that they are actuated by a strong sense of the importance of the subject in relation both to humanity and morals. They most conscientiously believe that the countenance afforded to the form of charlatanism herein alluded to is detrimental to the true interests of the public, and it is subversive of that strict integrity which ought to characterize practitioners of medicine, and which has ever distinguished the profession in these kingdoms."

Such, then, continued Dr. Cormack, is the report of your committee, and we now ask you to adopt it as an expression of the sentiments of this association. Let us say our own mind plainly and calmly. Silence would be far better than the giving forth a feeble and uncertain sound.

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SELECTED MATTER.

PHYSIOLOGY.

NEW VIEW OF THE SUPPLY OF BLOOD TO THE MUSCULAR FIBRES OF THE HEART.

Dr. Spurgin, in the Harveian oration, delivered by him this year, propounded a new view of the supply of blood to the muscular fibres of the heart. He argued that that supply could not be derived from the coronary arteries, as is universally taught; but that it flowed through certain foramina in the cavities of the heart itself, to which all the coronary vessels stood in the relation of veins. In confirmation of this view, he pointed out a peculiarity in the structure of the coronary arteries, and referred to medical history which afforded an instance of a total obliteration of the passage through those arteries, without causing a cessation of life.—*Boston Med. and Surg. Journal.*

SOME CHEMICAL PHENOMENA OF RESPIRATION.

By Mr. Horn.

Mr. Horn gives the following results of his examination of the gases expired from the lungs under different circumstances:—1. The longer the air is retained in the lungs the greater the proportion of carbonic acid it contains. Thus:—

	Carbonic acid.	Oxygen.	Nitrogen.
Under ordinary circumstances . . .	3.4	16.3	79.19
The breath held during ten seconds . .	5.4	14.5	81.1
“ “ sixteen seconds . . .	7.2	12.4	80.4

When the gases are expired under pressure—*e. g.*, through mercury—the proportion of carbonic acid is still larger. The following average variations have been observed by the author at different periods of the day:—

	Carbonic acid.	Oxygen.	Nitrogen.
Morning	3.4	16.60	79.85
Afternoon	4.6	18.68	93.34
Evening	3.6	16.42	79.92
After midnight . . .	2.2	14.74	66.42

2. The expiration of carbonic acid is at its minimum at nine o'clock in the evening, and between three and four in the morning; the maximum points of the expiration of carbonic acid are from one to two o'clock in the afternoon, from six to eight in the evening, corresponding with the most frequent periods of exacerbation of disease.

3. The expiration of carbonic acid is augmented after taking food.

4. Infants and growing children expire more carbonic acid than aged persons; men more than women; and individuals of a sanguine and bilious more than those of a lymphatic temperament.

5. Moderate exercise, and the temperate use of spirituous beverages, increase the quantity of carbonic acid expired.

6. Drunkenness and narcotism produce the reverse effect.

7. Pain, sedentary occupations, menstruation, inflammation of the lungs, and fevers, induce a diminution of the quantity of carbonic acid expired.

8. Acute exanthemata augment the proportion.

9. Diarrhœa causes a decrease in the expiration of carbonic acid.—*Gazette Medicale*, 1850.

EXTRACTS FROM DR. DONALDSONS REPORT ON M. BERNARD'S
RECENT DISCOVERIES.

The Saliva.—We would naturally suppose that nothing could be easier than to ascertain exactly the office of a secretion which can be so readily procured from the mouth; and former observers had confined their investigations almost exclusively to the action of the mixed fluid there found. M. Bernard began his by inserting into Stenon's, Wharton's, and into one of the small ducts of the sublingual gland, small tubes, by means of which the several fluids making up the mixed buccal saliva could be examined separately. After which he produced a free flow from these ducts, by giving to the dog a piece of meat, the presence of which caused at once a free salivary secretion. What was most curious to observe was that, during mastication, the flow was almost entirely confined to the duct of the parotid and to the sublingual; whereas, during the motion of deglutition, when the tongue threw the bolus back into the pharynx the secretion of the submaxillary was the greatest. Each separate secretion, as well as the saliva, as swallowed, was alkaline in its reaction, the acidity of the mouth during abstinence, which is owing to the secretion of the small buccal glands being neutralized. M. Bernard remarked, he had always found that this, as other alkaline secretions, is best excited by the presence of acids, and the reverse is the case in regard to the acid fluids, which flow most freely when alkalies are administered.

The physical characters of the several salivary secretions are very different; that of the parotid and sublingual glands is clear and as limpid and thin as water, while that which comes from the submaxillary is thick and viscid, resembling in colour and consistence ordinary simple syrup. From these facts M. Bernard has concluded that the mechanical use of these secretions is not the same—that of the parotid and sublingual being principally to saturate the food, and thus facilitate mastication; the submaxillary, on the contrary, rendering easy the process of swallowing by its glutinous properties. In these, as in all his other investigations, he was not satisfied with the result of his first essay, but followed it up by others which confirmed it. He made an opening into the œsophagus of a horse, from which he drew the alimentary bolus as it descended, and on weighing it he found that by the imbibition of saliva it had increased elevenfold—showing what a large quantity of saliva was necessary. He next tied Wharton's duct, and found that it required forty-one minutes to masticate, so difficult was it, what previously had demanded only nine minutes; and the mass, when withdrawn from the œsophagus, was covered with mucus and a glutinous fluid, the interior was dry and fibrous, and the whole only increased in weight three and a half times. By giving freely of water to the animal to drink, it appeared to promote mastication almost as effectively as did the secretion of the parotid; the quantity of parotidian saliva being in proportion to the dryness and toughness of the digested substance. If the ducts of the other two glands be tied, there is not the same difficulty in mastication. The water of the buccal mixed saliva is in the

proportion of ninety-eight parts in a hundred, the other two being composed of the salts of potash and soda, and of the animal substance *ptyaline*. Thus it is shown that the mechanical use of the secretion of the salivary glands is very important.

In regard to its chemical action, it will be remembered, that Beaumont found that a piece of meat put directly into the stomach through the fistula, was digested fully as well as though it had been first subjected to the action of the saliva. From this fact, which has been repeatedly verified by others, it was concluded that this fluid had none other than its physical action on food. That this is a mistake, can easily be shown by placing cane sugar or any amylaceous substance in a test-tube filled with saliva, and applying heat of 98° Fahr.—when in a few minutes, and, according to Mialhe,* if it be powdered starch in solution, in less than one minute, there will be a transformation into dextrine, and then into grape sugar, and, if permitted to remain longer, into lactic and bituric acids. This may be easily tested by the addition, at the different stages, of the tincture of iodine to the solution—whereupon may be noticed the gradual disappearance of the blue of the iodide of starch, which changes at first to a rose, and then, owing to the complete alteration of the starch as such, the iodine is perceived to have no action at all. From these premises M. Mialhe was led to believe that, as the saliva, owing to a peculiar ferment, had that effect out of the body, therefore, such must be the case in the ordinary process of digestion, and concluded that this fluid completed the transformation of all that class of aliments; but Bernard has since proved the action of the saliva upon amylaceous matter to be very gradual, unless it is reduced to a powder, and is in solution; moreover, any acid placed in contact with it at once destroys its power, so that, as it cannot effect any change when it is mixed with the gastric juice, which is acid, the time is too short for it to have more than a very partial transforming power in the mouth and in the œsophagus. To establish this, M. Bernard killed a dog which had been fed upon potatoes, and, on opening the stomach, he found there the merest trace of sugar, but much unaltered starch, even in the mass passing through the pyloric orifice out of the stomach. This he thought conclusive of the point that, ordinarily, the saliva only acted mechanically in digestion, except in a slight degree upon amylaceous substances—nature having provided another fluid for the purpose of fitting this class of aliment, as well as fat and nitrogenized matter for absorption and nutrition. A singular fact, first noticed by M. Magendie † and confirmed by Bernard, is, that neither the secretion of the parotid, nor that of either of the other glands separately, nor when mixed with each other, have any effect even upon amylaceous matter, but yet, that the mixed saliva of the mouth unquestionably has; from which it would appear that the active principle, whatever it is, that effects the transformation, must come from the small buccal glands. In diabetes, neither in the human subject nor as produced artificially in animals, can any trace of sugar be detected in the salivary secretion. We before noticed, that though the cyanide of potash administered by the mouth could be detected in the other secretions, yet it did not enter into the saliva.

The interesting question arises, as to what is the principle of the saliva, which, when permitted to remain sufficiently long in contact with starch, converts it into dextrine, sugar and lactic acid. Berzelius was the first to isolate

* See "Mémoire sur la Digestion, et l'Assimilation des Matières Amylées Sucrées." Paris, 1846."

† See *Précis Element. de Physiol.*, Paris 1816.

by the addition to filtered bucal saliva of six times its volume of absolute alcohol, an organic substance which he called *ptyaline*. Mialhe, in his memoir before the Academy of Sciences, maintained that the organic precipitate obtained by Berzelius and by himself, had properties analogous to the *vegetable diastase*, which in malt converts the starch into sugar, and that it should be named the *animal diastase*. There was no doubt that such was its action; but was it a substance of a peculiar nature existing only in the saliva? To test this, M. Bernard put other fluids of the body with starch, and, on raising them to the temperature of the body, found that many of them had exactly the same transforming power as the saliva. Such was the case with the water in which dried buccal mucous membrane had been soaked, showing, as he had supposed, that the ptyaline was derived from it. The serum of the blood, a liquid obtained from a cyst of the liver, the mucus from the nose in coryza, or indeed from any irritated mucous membrane, had precisely the same effect. On giving a starch injection to a patient suffering with a diarrhœa, he found sugar in the stools, &c. From these results M. Bernard concluded that the fermenting principle of the saliva was not different from some other nitrogenized matters in its action upon amylaceous substances.

The Gastric Juice.—At the commencement of his experiments upon this fluid, M. Bernard made before his class, an artificial opening into the stomach of a dog. He cut through the abdominal parietes in the right hypochondriac region, and, drawing out the stomach with a pair of forceps, he made an incision about an inch and a half in length, into which he introduced a short, wide canula, either end being terminated by a rim resembling very much a button. One of these ends being firmly clasped by the lips of the wound of the stomach, he was enabled to draw the organ near the surface, and fasten the other extremity of the tube to the integuments. A cork put into the external orifice, prevented any liquid from flowing out. In a few days, owing to the slight sensibility of the peritoneum of the canine race, the animal was well, and the wound around the canula healed, so that the gastric juice could be extracted with perfect ease, when its secretion had been excited by the presence of some alimentary substance; the stomach, as shewn by Beaumont, not producing any during the time of abstinence. The operation required but a few minutes, and to show how little uneasiness the presence of such an opening caused the poor animals, a dog was shown on which a similar operation had been performed two years previous, and who had from that time furnished gastric juice whenever wanted. He appeared to be in perfect health.

Bernard has verified, as had previously M. Blondlot,* many of Beaumont's conclusions in regard to the action of the stomach and of its secretions. Their observations are important, as showing the identity of the digestive juices of the dog with that of the human subject. We forbear mentioning many of these results, which are doubtless familiar to our readers.

The gastric juice can be seen exuding from the mucous surface under the coat of mucus always found there, like the perspiration from the skin; but as to what it is exactly that secretes it, there appears to be considerable question. Bernard is inclined to believe that it is furnished by the corpuscles discovered by Gruby, which are very numerous, and exist only in the stomach; they are surrounded by a vascular network, and are found between the villousities. There

* *Traité Analytique de la Digestion.*

are two kinds of small glands perceptible in this mucous membrane—one a slight tube resembling the finger of a glove; the other with a bulb, which terminates in a narrow orifice at the gastric surface. Some have thought that the former of these furnish the mucus, and the latter the gastric juice. That the gastric juice comes more particularly, if not exclusively, from the portion of the mucous membrane around the pyloric orifice and from that near the liver, is proved by Bernard in a very pretty and simple experiment. On introducing into the jugular vein of one side some cyanide of potash, and into the other the proto-sulphate of iron, both in solution, they pass through the circulation side by side without combining, thus revealing the valuable fact that, though substances have a great affinity for each other, yet that no union of them can take place while they remain in the blood-vessels, probably because the heat evolved from a single or double chemical decomposition taking place in the circulation would be too great for the economy, as we see nature making use everywhere in the alterations and destructions in the animal system of mild ferments, and not of strong chemical agents. This fact of itself is one of great importance in demonstrating how unfounded are many of the ingenious theories of the chemical action of remedies after they have been absorbed. These substances, however, when brought into contact in the free secretions, unite at once where there is air. M. Bernard noticed, on examining the stomach of a dog whose jugulars he had injected as above, that the mucous membrane of the stomach was of the normal colour, except near the pylorus and over the hepatic portion, where it was of the deep blue of the prussiate of iron, the result of the union of the two substances in the gastric juice, as it was poured out. The cyanide of potash can be detected in the secretion of the stomach in twenty-five or thirty minutes after its ingestion, earlier than in any of the other secretions. During the period of abstinence the constant presence of mucus renders the reaction of the stomach alkaline, and it is only when the presence of some substance in the cavity excites the flow of the gastric juice itself that it becomes acid. M. Bernard finds, as did Beaumont, that any febrile movement has the effect of arresting this secretion, and thus interfering very materially with digestion—a practical fact which ought not to be overlooked.

The gastric juice as taken from the fistulous opening was invariably acid in its reaction, was clear as water, without taste, as without any odour except that of the particular animal. MM. Leuret and Lassaigue* have confirmed M. Bernard's observation, that the internal membrane of the stomach, when free from mucus, presents always an acid reaction.

In regard to the composition of this gastric fluid, it seems agreed that at least ninety-eight parts in a hundred are pure water, the remaining two being made up of a free acid, the chlorides of lime and ammonia, phosphate of lime, an aromatic principle, and a particular animal matter, generally known as *pepsin*, and called by some *chymosine*, and by others again *gasterase*. M. Blondlot in his book already quoted, denies that there is a free acid in the gastric juice, the acidity of which he believes to be owing to the presence of the acid salt, the bi-phosphate of lime. His principal reason for this opinion was that he found, on the addition of carbonate of lime, that there was no effervescence produced. This, however, MM. Bernard and Barreswil † have proved to be caused by the extreme dilution of the acid, for, on concentrating the juice by evaporation, and then adding the lime, the carbonic acid was evolved. We have, moreover, the

* Recherches Physiol. et Chimique.

† Analyze du Sucre Gastrique, 1844.

authority of M. Dumas in his *Chimie Physiologique*, that there is no liphosphate of lime in the stomach. The question has been much discussed as to what this free acid is, and what is its action in the process of digestion. Dr. Prout tells us that, on testing some gastric juice which he had distilled, with nitrate of silver, he found hydrochloric acid, and MM. Tiedeman and Gmelin say the same. Dr. Dunglison found this acid in the gastric juice of Dr. Beaumont's subject. Dr. Prout thinks that it is formed from the chloride of sodium of the blood being decomposed by a galvanic action, the liver and the gastric mucous membrane representing the two poles—the acid remaining in the secretion, the soda passes off by the liver. Berzelius said he could conceive of no other way than this by which it could be found in the stomach. However formed, there can be no doubting the opinion, now the generally received one, of the distinguished persons named as having detected this acid in the juice when distilled—but this does not establish its presence as a free acid in the stomach itself, for it may be the result of a decomposition of some salt. MM. Bernard and Barreswil state that, on adding a small proportion of hydrochloric acid to the gastric juice, it does not pass in distillation until near the end of the process. They think that, in the rare cases where this acid has been found in the distilled secretion, it was owing, during the last moments of the operation, to a decomposition of the chlorides from the altered chemical affinity caused by the concentration, or from the action of some other principle there found, probably the lactic acid. Their ground for so thinking is that, on distilling water containing table salt, after having rendered the solution acid by the addition of lactic acid, the last drops show on using the nitrate of silver, the precipitate of the chloride of silver, owing to the formation of muriatic acid. Another proof they urge that this acid cannot be present is that if a small proportion of oxalic acid be added, there is produced at once a white precipitate of the oxalate of lime, which formation the presence of a very minute quantity of hydrochloric acid would prevent. Some have thought that the acid principle might be *acetic acid*, but neither Blondlot nor MM. Bernard and Barreswil have been able to obtain it by distillation; which, owing to its being very volatile, is sufficient proof that it is not present. M. Chevreul, some years since, in analyzing some gastric juice for Magendie, concluded that the free acid was the *lactic acid*; this opinion is sustained by Bernard and Barreswil, in their recent memoir presented to the Academy of Sciences. They recognize it by all the characters insisted upon by distinguished chemists. It forms salts of lime, barium, copper, and zinc, soluble in water; it gives a salt of lime soluble in alcohol, and precipitable by ether from the alcoholic solution; and can produce a double salt of copper and lime, the colour of which is more intense than that of a simple salt.* It is, moreover, reasonable to suppose that nature would employ in the stomach, as she does elsewhere, mild agents, particularly as M. Bernard has proved that any acid principle would act just as efficiently as that found in the gastric juice; this he showed in artificial digestion with this secretion. On rendering it alkaline the process was completely arrested, but it commenced again on adding any acid, no matter what, provided the quantity was sufficient to change the reaction. Moreover, in injecting into the circulation food digested artificially with gastric juice, thus rendered acid again, if the acid employed was a strong mineral one, such as the hydrochloric, it was difficult to add so small a proportion that the injection would not prove fatal.

* See "Analyse du Sucre Gastrique." (Comptes Rendus de l'Acad. des Sciences, 1844.)

Bernard found, in trying his experiments in injecting different substances into the veins, that the lactate of iron, which is the most absorbable of all ferruginous preparations, was the only one which was not poisonous. From these facts M. Bernard concludes that *lactic acid* is the free acid found in the gastric juice, and that there is neither acetic nor hydrochloric present.

In regard to the action of the gastric juice, and to the whole process of digestion, we cannot but be struck with how valueless all the theories ever invented are in comparison with such facts as were afforded by the investigations of so accurate an observer as Dr. Beaumont, upon the opening into the stomach of St. Martin. The science now possesses two other cases of the kind in human subjects, a woman noticed by Circaud, and another spoken of by Helm,* and now of numerous ones produced artificially in animals. From these many points in digestion, before obscure, have been determined.

Dr. Beaumont was inclined to believe that the gastric juice was the only solvent, and that it acted upon and digested all kinds of food. This was a natural conclusion from seeing them all in solution, and as ready to pass out of the stomach, in, as he supposed, one homogeneous mass, called *chyme*. His observations unfortunately were confined to the operations in the stomach alone, and he mistook the dissolution of all alimentary substances, from the imbibition of the acidulated water, to be their digestion. M. Blondlot states, as the result of his experiments, that the action of the fluids of the stomach was limited to that class so rich in nutriment, the prominent constituent of which is nitrogen. He found that in artificial digestion such was certainly the case, and he concluded that the process was the same within the body. M. Bernard found, as we before mentioned, that amylaceous substances passed through the stomach, only having been but slightly altered by the saliva; in the same way, on opening the duodenum of a dog, he repeatedly found fatty matters coming from the pylorus perfectly unchanged. He then repeated Blondlot's experiments in regard to the action in the stomach upon meat, the principal constituents of which are fibrin, albumen, and creatin, all nitrogenized substances—he found that the gastric fluid had, when kept sufficiently long in contact with it, rendered it fit for absorption, for when he injected the fluid containing it into the circulation, that it was not discoverable in the urinary secretion, thus shewing that it was assimilable; this was the case also with casein. He was astonished, however to find, on examining the fluid mass passing through the pylorus, that he could still discover, though minutely divided, the muscular fibres in parts, shewing that the whole amount had not been completely digested. So that as the saliva had the properties of converting starch into dextrine, &c., when it remained long enough with it, yet that ordinarily in the process of digestion, the time of contact was too short for the action to take place. So it was in regard to the digestive powers of the gastric fluid on azotized food. M. B. agrees with Blondlot, that liquid albumen is not coagulated at first, before being digested in the stomach, but that it was merely rendered opalescent. Casein, however, is coagulated before being altered by digestion; the mucous membrane itself, as is seen in that of the stomach of the calf, known as rennet, has the effect of coagulating milk. All other classes of aliment are merely saturated and softened by the saliva and the watery portion of the gastric juice, and thus more easily divided by the peristaltic motion preparatory to their digestion further down in the intestinal tube.

* Cours de Physiologie, par P. Béard, 1850.

The action of the gastric juice is found by Bernard not to be the same in all animals, but to be modified by the kind of food used habitually; thus, in herbivorous animals, as proved from that collected from an ox, it acts much less perfectly than does that taken from a dog.

It is thus seen that not only did Beaumont exaggerate the action of the gastric juice, in supposing it the universal solvent, but Blondlot erred even in thinking that in the living subject all the nitrogenized articles were digested in the stomach. So that the term *chyme* has in fact no definite meaning—the bolus passing out of the stomach being composed partly of digested and partly of undigested food—there being only a portion of the amylaceous and of the azotized, which are ready for assimilation, and in ordinary digestion the whole mass is submitted to further action from the intestinal fluids. Instead of digestion being completed in the stomach, it is merely commenced.

The question has often presented itself as to what was the principle in the gastric fluid which acted upon food? Those who believed that there was present more or less of free hydrochloric acid, taught that it was it, or at least that because acids destroyed meat, therefore it by so doing digested them. Of this hypothesis Blondlot disposed by trying in separate vials the comparative action of mere acidulated water and the gastric juice; in both there was a change, but in the former there was merely a disaggregation of the muscular fibres. Bernard's experiment was still more conclusive. After submitting pieces of meat to the action of the two liquids, as did Blondlot, he injected them into the circulation, and found that that which had been subjected to the action of the simple water and acid, had passed off entire in the urine, whereas the other, having been assimilated, could not be detected in the renal secretion. The action, moreover, stated M. B., of the two fluids upon bony matter was very different, the acid water attacked and destroyed the mineral portion, whereas the gastric juice digested the gelatin and left the phosphates and carbonates unaltered. This may be easily seen by examining the stools of dogs fed upon bones. The active principle of the gastric fluid is now generally admitted to be the organic principle *pepsin*, which can be precipitated by absolute alcohol. It differs from all other organic substances by its coagulating casein without the aid of an acid. It does not, however, digest any species of food when not mixed in an acid solution, as may be easily seen in artificial digestion by rendering the liquid alkaline, but the process may be again commenced by adding any other acid; whereas, if you raise the temperature above 98° Fahr., you destroy forever the digestive properties of the pepsin, and the fluid ceases to act. The action of the acidulated water is necessary before the pepsin can effect anything; the latter acting in force in proportion as the food is softened and divided by the other.

The influence of the nervous system over the secretion of the gastric juice, and consequently upon digestion, has been much discussed, and contradictory experiments have been published, even by such men as Sir Benjamin Brodie, Dr. John Reid, Longet, and Magendie. Some asserting that the integrity of the pneumogastric was necessary, and some the contrary; others again that it was through the grand sympathetic that the nervous influence was conveyed. To show what M. Bernard has done to elucidate this point, we propose giving two or three of his experiments. The two substances, *emulsine*, the albuminous matter found in almonds, and so named by Liebig, and the *amygdaline*, the principle of bitter almonds, when administered separately, are perfectly innocuous, but when united, there is at once a formation of hydrocyanic acid, and of course

if they come in contact in the stomach of an animal, they must prove poisonous. Aware of this, he selected two dogs, on one of which only he performed the resection of the pneumogastric nerve; to both he administered at the same time a certain quantity emulsine, and half an hour afterwards he gave to each of them the same amount of amygdaline. The dog whose nerves were intact escaped without injury, whereas the other died in a few minutes. From this it was concluded that the first animal had digested the emulsine before the amygdaline reached it, but, in the second dog, in consequence of the cutting off of the nervous communication the gastric juice was not secreted, and the first digested substance was not acted upon, but remained in the organ, and the other coming in contact with it, there was a formation of prussic acid; which, being absorbed, proved fatal. Another experiment proved indirectly the same fact. He gave to a rabbit which had been fasting thirty six hours, and whose urine had become clear and acid, a meal of carrots, and in two hours and a half the urinary secretion became opaque and alkaline, and so remained for eighteen or twenty hours. He found by cutting the pneumogastric during that time, that the urine changed again to be acid in its reaction, and clear. On another animal he perceived that a resection of the nerve, immediately after the meal of carrots, prevented entirely the urine from becoming filled with carbonates, which cause the alkalinity and opacity, and which are derived from the digested vegetable. So the urine remained clear exactly as if there had been no carrots in the stomach. This effect is attributed to the non-secretion of the gastric fluid by which the substances could be digested; or, as in this case, prepared for digestion. There being no liquid in the stomach, of course they were not softened or divided, but remained there unaltered. We are at a loss to conceive of any other than M. B.'s explanation of these results, namely, that the gastric juice is under the influence of the eighth pair. But he has given us still more conclusive evidence of this in his researches on the stomach by means of fistulous openings. He cut the pneumogastric of an animal into whose stomach he had previously introduced a canula at a moment when there was a free flow of gastric juice excited by the presence of an alimentary bolus; at once he saw the mucous membrane, which had been tense and turgid the moment before, become withered and pale (the vascularity greatly diminished), and the gastric juice ceased to flow. On introducing his finger into the stomach itself, the walls were perceived to be perfectly flaccid, and there was no longer the gentle pressure which he had previously felt. Another proof that after the resection there was no further secretion, was that on putting sufficient salt into the stomach to destroy the power of the gastric juice secreted before the operation, the bolus became putrid in consequence of the arrest of digestion.

(To be continued.)

MEDICINE.

ON THE TREATMENT OF LEAD CHOLIC BY THE INTERNAL AND TOPICAL EMPLOYMENT OF CHLOROFORM.

By M. Aran.

Although M. Aran's paper is only based upon eight cases, the benefit he derived from chloroform in them was so marked, as to lead him to at once publish the results. He gave spoonful doses of a mixture containing 40 parts of

chloroform in 130 of water and syrup, and administered an enema containing a small portion. Upon a compress previously moistened with water and slightly squeezed, from 4 to 8 grammes of chloroform, (according to the intensity and extent of surface occupied by the pain) were poured and kept applied for from 15 to 30 minutes by means of the hand to the abdomen. On the next day and day after, the application was renewed, but it was very rarely required the third time, and the other means were continued until spontaneous and natural stools became established. Alkaline and sulphurous baths were used every other day, in order to remove any lead that might adhere to the surface. In five of the eight cases, the pains at once disappeared, never to return, after the local application, the patient being quite cured of the disease in from two to six days. In the others the pain did return, in a mitigated form, requiring a new application. In only two cases relief from the internal use of the chloroform was obvious, while in some the clysters produced positive irritation. It is upon the local use of the substance, therefore, that the author lays the greatest stress. Of the three cases in which it was less successful than in the five, he gives particulars. In two of these the primary relief was just as rapid, but the patients leaving the hospital, relapses were at once induced; on returning and again being promptly relieved, however, and remaining a few days until the alvine evacuations and appetite returned, they too were effectually cured. In the third case, in which *liq. cubac. plumb.* had been drank in mistake, the pain too was promptly relieved, but castor-oil was required in addition to remove obstinate constipation.—*Bull. de Therap.*

SURGERY.

FEMORAL ANEURISM CURED BY COMPRESSION.

By Dr. H. N. Bennett, of Bethel, Ct.

The Dr. relates the following interesting case:—

“Thomas J. Elwell, a blacksmith, 30 years of age, during the winter of 1842-3, suffered from pain about the knee-joint, which he supposed to be of a rheumatic character, and applied only domestic remedies for its relief. After a walk of twenty-two miles over frozen ground, the pain and lameness of the knee increased to such a degree, that he consulted me in reference to it. Upon examination, I immediately detected a pulsating tumour in the popliteal region, nearly the size of a hen's egg, and having all the characteristics of aneurism.— This was in the month of March, 1843. At the end of five or six weeks from this date, the tumour had increased considerably in size, so much, that I advised my patient to submit to ligation of the femoral artery at once, as the nature of the difficulty could not be doubtful, and as I had at that time little confidence in any other mode of treatment. Feeling unwilling to endure a surgical operation, he soon went to New York for further advice. He consulted Drs. Mott and Rogers, who both gave him the same opinion which I had done, and urged him to remain at the New York Hospital for operation. He then passed over to Staten Island on a visit to his friends, where he consulted some physician, whose name I cannot recall, who also pronounced it a case of aneurism, but recommended him to try the effects of pressure upon the tumour. He returned home, and commenced the application of pressure, *himself*, by bandaging the limb from

the toes to the knee, and placing a compress of folded cloth directly upon the pulsating tumour. He persisted in this course for two or three months without the least benefit, when he determined to substitute a firmer compress. Instead of folds of cloth, folds of *sheet-lead* formed the nucleus of his compress, which was applied in the same manner as before. I called upon him occasionally to watch the progress of his treatment, and, after the end of ten days after the application of the lead compress, I found him suffering much pain in the knee-joint, from the severe pressure he had made, but no diminution in the size of the tumour or the force of the pulsations, the latter being readily felt through the compresses when applied with all the force which he could endure. I advised him to discontinue what I considered a hazardous proceeding, and to abbreviate his sufferings by submitting to the usual operation. Notwithstanding, being a man of very strong resolution, he determined to pursue this course still longer, and abide the issue. At this time, however, he threw aside the lead compress, and filled its place with a *ball of caoutchouc*, which he bound upon the tumour with all the force he could endure. Not long after, perhaps two or three weeks, I called again to see him, and was much surprised, upon examining the limb (which he exhibited with no little triumph), to find the tumour much diminished in size, and the *pulsation gone*. I could also distinctly feel several arteries pulsating about the knee-joint, evincing an increased development of the anastomosing branches of the femoral. From this time, the tumour in the popliteal space was gradually absorbed, and at the end of a few months had entirely disappeared."—*New York Jour. Med.*, July 1851.

MIDWIFERY.

EPIDEMICS OF PUERPERAL FEVER.

In an extremely interesting discussion which took place at the meeting of the Edinburgh Medico-Chirurgical Society, April 16th last, on the reading of a paper by Dr. Arneth on a case of puerperal fever at the Lying-in Hospital of Vienna, Dr. Moir made some remarks on a few of the epidemics of puerperal fever in hospital and private practice, as detailed in the late Dr. Hamilton's lectures, and on some facts tending to prove the contagious nature of that disease.

1. During 1814 and part of 1815, nine women had puerperal fever in the Edinburgh Lying-in Hospital, and only one recovered.

2. In 1830, bet. cen 18th September and 5th November, out of forty-eight patients delivered, eighteen had the disease in a well-marked form, of whom sixteen died; the two who recovered were the last cases, and insisted upon being taken home to most miserable apartments. They both slowly recovered—one after the discharge of a considerable quantity of dark offensive matter per vaginam.

3. During the above epidemic in 1814-15, three cases occurred in the private practice of the matron of the hospital, who at that time was much employed as a midwife.

4. In Dumfries and neighbourhood, during 1813, twenty-seven individuals in the better ranks died from this affection in about six weeks; and only one affected with it recovered—a discharge of pus from the umbilicus having in her occurred about two months after delivery.

5. In the summer and autumn of 1823, Dr. Kellie had a number of cases in Leith and its vicinity. The first cases occurred at Inveresk, early in May; and the fifteen patients whom he delivered in succession afterwards, or sixteen in all, were affected with the disease, and all died.

6. Dr. Hamilton saw one of these cases in consultation on the 6th May.—On the 8th, he delivered a lady of her third child in Gayfield Square; she had the disease, and died on the 8th day.

7. In May and end of June of same year, Dr. H. saw two cases with the late Dr. Beilby, one of whom recovered. On the 7th July, he delivered a lady of her first child, after an easy labour. On the fourth day she was seized with the disease, was bled copiously more than once, and sunk next day.

8. Dr. M. mentioned several instances of individual pupils of the hospital having had a succession of cases in various quarters of the town; while other pupils, as extensively engaged at the same time in midwifery practice, and in the same localities, had none.

9. Dr. M. read the copy of a letter, sent in Feb. 1824 to Dr. H. by a Dr. Reid, an old pupil, in which he says: "That puerperal fever is contagious, I think I shall be able to adduce some tolerably good proofs. In 1817 I visited Ireland, and attended gratuitously a number of poor. The third woman I attended in labour was attacked with puerperal fever; and from that time not one escaped it who came under my care. After my return to London in the autumn, I was called to a labour, on which occasion I happened to be dressed in some of the clothes I had worn in Ireland; and that woman was seized with the fever, as were two others, whom I attended a few days subsequently. On a voyage to New South Wales, several weeks afterwards, in the Atlantic Ocean, a soldier's wife was taken in labour, and, being badly provided with necessaries for the occasion, I gave her some old sheets, and a piece of garment, which had been packed in one of my trunks at the time I was attending the puerperal cases in London; and she was attacked with the fever two hours after delivery. Four other women were confined on the voyage, and all had the disease."

After commenting upon the contagious nature of this fearful disease, as indicated by the preceding facts, Dr. M. stated that it was mentioned in Dr. Hamilton's lectures, that when puerperal fever prevailed in the lying-in ward of the Royal Infirmary, all the sores in the surgeon's ward, which was on the same floor, were in a very bad condition; and erysipelas followed every operation, however trifling; and that Dr. Kellie had also observed that, during his attendance on the cases occurring in his practice in 1823, there was inflammation of one or more veins of the lower extremities, accompanied in some with erysipelatous efflorescence on the surface. From which facts Dr. H. had, at one time, concluded that there was a strong connection between erysipelas and puerperal fever, though he changed this opinion in after life from not finding them always to go together.

Dr. M. next related at length the particulars of three cases which had occurred lately in his own practice, and which in several ways deserved the consideration of those engaged in obstetric practice. He delivered a patient, A., on the 8th February, at midnight; another, B., early on the morning of the 9th; and on the 10th, in the afternoon, a third, C. The infant of A. having died early on the morning of the 10th, and, it being wished to ascertain the cause of death, Dr. M. opened the body that evening, some time after having delivered C., and, much to his surprise, found the cavity of the right pleura so completely

filled with a sero-purulent effusion, that no air had penetrated that lung, which was otherwise quite healthy. He ordered the nurse not to approach his patient till she had changed her clothes, and washed carefully with chloride of lime: and he did the same. On the morning of the 14th this nurse was found feverish, and suffering considerable pain in one arm, from inflammation of the lymphatics. It was ascertained that she had pricked her finger a short time previous to the opening of the baby, some of the matter from which had doubtless been absorbed, and given rise to the above symptoms. Dr. M. afterwards visited A. and B., about ten o'clock: and did not see C. till next day. On the evening of the 12th, A. had slight rigors; on the 13th and 14th, pulse was very rapid; but on the 15th fell to 80, and she seemed altogether better; but that evening rigors again supervened; the pulse became rapid, and skin variable. Erysipelatous efflorescence appeared soon after on the left leg. Tympanities also supervened some days before death; but there was from the first little or no pain or uneasiness of abdomen, or of any part of the body, except the knee of the affected leg, and the back of the shoulder and right side for three or four days before death, which occurred on the 24th. The appearances on dissection were unusual, there being no trace of peritoneal inflammation or its consequences, and no apparent affection of the uterus, its appendages, or vessels, except redness of one of the Fallopian tubes, and in two small spots a substance, of whitish colour, apparently like pus, where the placenta seemed to have been attached. The left knee-joint was distended with sero-purulent fluid. The muscles and cellular membrane on the back of the shoulder and right thorax was infiltrated with a dark sanious fluid. The large veins were distended with blood, and their walls thin and almost transparent, but their internal coat healthy. The blood in the great veins very fluid, watery, and uncoagulated; and, when examined microscopically, containing white corpuscles in greater numbers than usual. B. was seized, early on the 13th, with rigor and violent pain of abdomen, which continued for nearly fortnight; during which time effusion took place in one pleura, and soon after it into the other; but, though exceedingly prostrated and worn out, she is still (about a month from the attack) alive, and it is hoped may recover.—C. was also seized with rigor early on the 13th; pain confined to the uterus, which was hard and painful on pressure; was leeches over it, and so far relieved that on the 15th her pulse was in the morning down to 90, and soon after mid-day to 72; yet the symptoms became aggravated, and she died on the 19th.

Dr. M. called the attention of the members to the great difference of the local symptoms in all the three cases; the pain in C. being chiefly confined to the uterus; in B. to the peritoneum generally, the whole abdomen being exquisitely tender to the touch; while in A. there was neither pain of the abdomen nor of its contents during life, nor morbid appearances after death, with the slight exception already mentioned. And he lastly requested their particular attention to the probable exciting cause in three cases, or to the manner in which the disease had been communicated; because, believing, as he did, in its contagious nature, it appeared to him a question of great importance to trace out the cause. At first sight, it might appear that the most probable cause was the communication of some morbid matter from the opening of the fœtus, it being admitted that the application of the inflammatory products effused on mucous or serous surfaces may communicate the disease, as amply proved by Dr. Arnet's paper, as already read: but, on more particular attention to the subject, there

were several great difficulties in admitting this as the cause in these cases, as all the patients had been delivered *prior* to the opening of the body; as the hands were all cleaned with chloride of lime, and the clothes changed, before *two* of the patients were visited that night, and as the *third* was not seen till next day, and as in none was any vaginal examination made by Dr. M. *subsequent* to the sectio. Dr. M. then submitted what to him appeared, on a careful review of all the cases, as the cause. He believed that there must have been some peculiar condition of A.'s system, which had been not only the cause of the disease discovered in her infant, but also of the subsequent symptoms in her own case, and which had communicated to Dr. M. some virus or *materies morbi*, which had been the means of inducing the disease in the other two patients. In support of this, there was: 1st, the state of the infant, which was well grown, and in every way healthy, with the exception of the sero-purulent effusion in the right pleura; and that this was dependent on some morbid condition of the mother, was borne out by there being, 2d, for some days previous to labour coming on, a feeling of occasional faintness and of listlessness, very foreign to her usual habits—3d, by the difference in the nature of the labour, which on former occasions was generally very rapid, and without premonitory symptoms—whereas, on the present occasion, besides supervening a fortnight before her full period, there was a threatening of labour for four days, during the whole of which time Dr. M. was frequently in attendance on his patient, often for a considerable period at a time; 4th, by the scanty or almost total want of secretion of milk, whereas on all previous occasions it was very abundant; 5th by the rigors, which in attacks of puerperal fever are generally more severe; 6th, by the total want of the usual local pain in the regions of the uterus, its appendages, or the peritonium; and 7th, the appearances after death. From the preceding facts, Dr. M. inferred that the disease in this case, A, was the result more of some primary morbid state of the system than connected with any local cause, such as the application of morbid matter to the vagina; that, moreover, this condition had existed prior to delivery, as indicated by the state of the infant, and the symptoms both prior and subsequent to delivery; and lastly, that, as he had been in such a close attendance on this patient for four days, he most probably was the means of conveying some infectious matter to B. and C, the former of whom was delivered about two hours after he left A.'s house subsequent to her delivery, and the latter on the next day.—*Monthly Jour. Med. Sci.*, July, 1851.

ON THE INDUCTION OF PREMATURE LABOUR.

By Dr. Lehmann, of Amsterdam.

After passing in review the various means of effecting this, Dr. Lehmann gives the preference to that practised by the Dutch accoucheur, Zuydhok, viz., detachment of the membranes by means of a wax bougie. A bougie, nine inches long, and two or three lines in diameter, is passed within the uterus, carried for six or eight inches along its anterior wall, and then at once withdrawn. This detaches the membranes, and *directly* excites the motor nerves of the uterus; while the prepared sponge, usually employed for this purpose, merely acts upon the sensitive nerves, or the cervix, and affects the uterus itself only by a reflex action. By remaining within the organ for so long a period, too, the sponge may induce inflammation, which the bougie does not; and from this cause Dr. Lehmann lost two patients in whom he resorted to the sponge.—*Rev. Med. Chir.*

CASE OF QUINTUPLE BIRTH OF LIVING CHILDREN.

By Dr. Serlo.

Dr. Serlo of Krossen relates the following remarkable case:—The mother *æt.* 34, had had five favourable labours, and was now pregnant for the sixth time. During the last few weeks, she had become so large and cumbersome as to be obliged to keep her bed. Dr. Serlo saw her the day before delivery, and found her abdomen enormously distended in every direction, and hard, and projecting much towards the right. The fetal movements were feeble. She was weak, and had a small, rapid pulse, with oedema of the thighs and legs. On examination the os was found partly open, and the membranes flaccid; but no part of the child could be felt. As the pains proved very inefficient, Dr. Serlo next day delivered her by the forceps of a small living child, and soon after of another, which presented by the feet. In like manner three others were successively delivered by the feet, the accoucheur breaking the bag of waters in each which presented while he was in search for the placenta. Contraction of the uterus was produced after some minutes.

All the children were alive and crying, but the second died in three hours, the fourth in twelve, the third in seventeen, the fifth in twenty five hours; and the first, which had been delivered by the forceps, in nine days. The author supplies the weights and admeasurements of the children and the funis; but we are not aware of the exact relation which those of that part of Germany bear to our own.

	Length.		Weight.	
	Child.	Funis.	Child.	Placenta.
1st child.....	15 inches.....	24 inches.....	3½ civil pounds.....	28 oz.
2d „	12 „	11 „	2½ „	14 „
3d „	13 „	15 „	3½ „	25 „
4th „	14 „	14 „	3 „	20 „
5th „	14 „	11 „	3 „	20 „

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ORGANIC CHEMISTRY.

ON THE IODINE OF FRESH-WATER PLANTS AND ANIMALS.

By M. Chatin.

In his second memoir, M. Chatin comes to the following conclusions, the results of very multiplied investigations.

1. The detection of iodine in the aquatic plants of the various parts of the world confirms the deduction derived from the examination of those of the vicinity of Paris, *viz.*, the presence of this substance in the mass of the globe, and in most of its fresh waters. 2. The different conditions of the soil of former epochs of vegetation, in reference to the prevalence of water, may be deduced from the amount of iodine in fresh-waters, is proved by the examination made of those of about 300 rivers, fountains, and wells. From this it results (*a*), the water is rich in iodine in proportion as the soil through which it flows is ferruginous. (*b*). The proportion contained increases with that of iron, so that ferruginous waters may just as truly be termed iodined waters. (*c*). Waters of igneous soils are, upon an average, more iodined, and especially more uniformly so, than waters

from soils of deposit; waters of soils containing green chalk and ferruginous oolitic holding the first rank among the latter, and may even be placed before those of igneous ones. (*d*). Though rich in iodine, the waters of the coal formation come after those of the igneous soils, or ferruginous deposits. (*e*). Waters of essentially calcareous and magnesian soils hold very little iodine. (*f*). Iodine is especially rare in the saliferous marls, the habitual seat of rock salt. (*g*). The iodides are by no means necessarily proportionate to the chlorides. (*h*). Rivers fed by glaciers contain little iodine especially at the period of the melting of the snow. (*i*). The waters of rivers are, as a general rule, more iodined and more uniformly so, and less charged with earthly salts, than those of their sources. (*h*). The waters of wells are most calcareo-magnesian and least iodined. 5. The relation which exists between iodine and iron in the waters, the easy decomposition of the iodide of iron, and the complete decomposition of the iodide of the waters on evaporation without the addition of potass, render it probable that the iodine exists in the form of iodide of iron. 6. Iodine exists in terrestrial plants and animals. 7. The salts of potass, and the greater part of the salts of which they form the base are iodined; but nitre, cream of tartar, tartar emetic, and the double tartrate of soda and potass do not contain it. Ammoniacal and soda salts contain it, as also the salt of saline marshes. Rock salt and the *salines d'Est* are almost completely deprived of it. 8. Fermented liquors contain it, wine, cider, and perry in larger proportions than the average of fresh water. The quantity in wines differs according to the richness in iodine of the soils upon which they were grown. 9. Milk, and especially that of the ass, is yet richer in iodine than wine. Apart from the influence of the soil, according to which it varies, the quantity is inverse to the abundance of the secretion. 10. Eggs (but not the shells) are highly iodined. A fowl's egg of 50 grammes contains more iodine than a litre of milk, or than two litres of wine, or Seine water. 11.—Iodine exists in arable lands abounding in sulphur, iron, manganese, and sulphuret of mercury; it is rare in gypsum, calcareous and siliceous soils. 12. A too small proportion of iodine in the potable waters of certain countries seems a probable cause of *goitre*. The change of such water, or at least the use of wine, of ferrodated waters, watercresses, and animal food, especially eggs, is rationally indicated. Marsh salt, too, should be substituted for the rock salt found usually in goitrous countries. 13. Most of the bodies regarded by therapeutists as pectoral and antiscrofulous, are rich in iodine.—*Jour. de Phar.*, 1850.

FORENSIC MEDICINE.

ON THE SOLIDIFICATION OF FOOT-PRINTS.

By M. Hugoulin.

In cases in which it may be deemed necessary to preserve foot-prints in a dry state for judicial examination, M. Hugoulin recommends the following procedure: an iron plate, supported by bars, is so placed as to be about three or four centimetres above the mark to be solidified, and upon it live coals are placed so that heat may radiate to the subjacent soil. When this has become heated to about 100°C, *stearic acid*, reduced to impalpable powder, (by previously dissolving it in its weight of alcohol, and then, having added abundance of water, evaporating,) is to be dusted over it through a fine hair sieve, so as to form an uniform layer. This, falling as a snowy dust, cannot by its weight injure the

impression, and is indeed dissolved and absorbed as soon as it touches the soil. It is continued until the earth has become too cold to dissolve any more. After a sufficient time has been allowed for it to have become completely cold, the earth is mined around at some distance so as to raise the entire mass in a single piece, cutting afterwards carefully away the superfluous soil. After reversing it on several folds of linen, and surrounding it with a case, plaster is allowed to run in between the case and the reverse of the impression, so as to ensure complete solidity to it. If the soil is muddy or marshy, before commencing these operations, a trench should be dug around, into which plaster is to be introduced, which, on solidifying, will absorb much of the moisture, after which the whole mass may be exposed for some days to the sun and air before commencing to act upon it. M. Hugoulin says this plan is applicable to the most shifting soil, as sand, &c., and indeed to all except snow.—*Annales d'Hygiène.*

ON THE DURATION OF LIFE AMONG THE CLERGY.

By Dr. Schneider.

In this paper Dr. Schneider furnishes an account of the ages of 794 of the clergy who have died within the bishoprick of Wurzburg since 1824. They belonged to the Catholic religion, and may be compared with the 637, almost all Protestants, recorded by Casper in his work. In the diocese of Wurzburg, including priests, professors, and students, the mean annual number of this profession amount to 1050; and between 1824-47, there have died 800. The ages of 794 persons are indicated, and are thus compared with Casper's numbers:—

		Ages.		Schneider.		Casper.	
From	21	to	30	...	45	...	21
"	30	"	40	...	66	...	33
"	40	"	50	...	57	...	39
"	50	"	60	...	102	...	95
"	60	"	70	...	188	...	191
"	70	"	80	...	217	...	188
"	80	"	90	...	111	...	62
"	90	"	97	...	8	...	8
				794		637	

Casper, speaking of the high age which the priestly order attains, refers in explanation to the regularity and sobriety of their lives, the absence of excess of mental or bodily stimulus and efforts, freedom from anxiety, and the wholesome alternation of moderate mental activity with corporeal exertion in the open air. Most of these conditions apply likewise to the Catholic priesthood, and their *celibacy* constitutes their only peculiarity; but this, contrary to what is observed in other positions of life, does not shorten their lives, inasmuch as so large a proportion as 217 out of 794 lived to between 70 and 80. On the contrary, they live longer than the Protestant clergy; for while, according to Casper, the mean duration of life with them is 65, and therefore higher than any other class, that of the Catholics of Wurzburg is 70½. The Protestant clergy have, owing to their families, more cares and anxieties, without better incomes in proportion.—*Casper's Wochenschrift*, 1850.