

CANADA MEDICAL JOURNAL

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OF

MEDICAL AND SURGICAL SCIENCE.

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CANADA

MEDICAL JOURNAL.

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ORIGINAL COMMUNICATIONS.

ART. LXII.—*Observations on penetrating Wounds of Large Joints.*
By JOHN JARRON, Surgeon, Dunnville.

There are few axioms in Surgery so generally admitted as the dangerous consequences liable to follow operations in which the cavities of the large joints are laid open, or otherwise trifling incised wounds, which divide their capsules and allow the synovial fluid to escape. It is not my intention to enquire into the cause of these serious consequences, whether they are the result of even a slight injury to a peculiarly irritable membrane, or of the admission of the atmospheric air into a shut sack on which it acts as a foreign body, exciting the most acute inflammation and its results on tissues and in structures where these are most destructive; the facts are so generally admitted, though medical literature, and the observations of every practical surgeon, afford exceptions in which extensive openings into large joints occur without serious results, that the course of the inflammation and its effects, both on the structure of the joint and on the general constitution are most important, and the treatment thereof worthy of attentive consideration.

In Rankin's abstract of the Medical Sciences, No. 14, is a notice of a paper by Mr. Gay, "on the treatment of diseased joints by free incisions," on which the editor makes the following observations. "Mr. Gay has attempted, in our opinion, a very salutary reform in the method of treating diseased joints, in a valuable paper read before the Medical Society. Mr. Gay commences his paper by observing, that to the present time there was no department of Surgery in which the powers of art have been so comparatively feeble as when applied to the relief of those diseases of the joints which, from their results, might be termed

destructive. Hence, let the articular surfaces of the joint be bereft of their cartilages, a sinus or two be formed around it, and the health of the patient show symptoms of exhaustion, and the joint, and probably the whole limb is doomed to amputation."

Mr. Gay's observations are directed to diseased joints, in which, from some general or internal cause, the structures thereof have become affected, and inflammation and its consequences are the result; mine will be confined to the consequences of an external wound, and where the peculiar diathesis giving rise to the complicated and often incurable change of structure in what is usually termed diseased joints, is not to be looked for, and by the absence of which the ultimate result of the cases will be materially affected.

In this country, where the use of carpenter's and cooper's tools are universal in the new settlement, penetrating wounds of the knee joint are of frequent occurrence. They are often so slight as to excite little notice at the time; a bloody rag or a leaf of tobacco is applied, and the man will go about his work as if nothing had happened; in a week or ten days inflammatory symptoms will come on, but the hope that a few days rest will produce a cure, the difficulty of obtaining medical advice from a distance, and the state of the roads lead to the *vis medicatrix naturæ* being taxed to the utmost extent. I have met with a number of such cases where the preventing of inflammation was out of the question, and my attention could only be directed to the moderating of that already set up, lessening its effects on the constitution, and watching the course of nature in remedying the injury.

The pain in the joint and the constitutional suffering are always excessive; the joint and even the whole limb are often much distended and tender to the touch; the least motion of them, or even of the body, can scarcely be borne, the patient being often in dread of any one touching the bed or even walking across the floor. In the cases that I have seen at an early period, I have seldom found symptoms of acute phlegmenous inflammation; or the patients in such a state that free general or local bleeding could be borne, and the marks of incipient suppuration would soon show themselves.

The wound is generally found to be small, occasionally entirely closed; at others with its edges angry looking and discharging synovia that soon becomes mixed with pus globules. Fluctuation in the joint becomes distinct—the fluid distending the *Bursæ*, particularly the upper one, and pressure of the flat hand over it will be conveyed to every point of the joint. A free discharge of synovia mixed with pus, at last takes place, either from the original wound, or from an abscess about the lower part of the joint—with this the distention of the joint, the pain

and the constitutional symptoms will be greatly lessened, and so long as a free discharge continues, the patient will seem to improve. By and by the discharge will decrease, the abscess will appear to heal, when the joint will again become distended, attended by the previous pain and constitutional affection, only to be relieved by the formation and discharge of new abscesses evidently communicating with the cavity of the joint.

This state of things may continue for many months, and three or four abscesses may be open and discharging at the same time. Hectic fever will show itself, and the general constitutional symptoms will vary with the state of the joint, being always worst when inflammation and distention are present, and the abscesses cease to discharge freely. The ultimate result of this state is an ankylosis of the joint, by which the motion of it is lost, and the cavity becomes in a great measure obliterated. This will be indicated as coming on by the fixture of the patella, and the joint being less and less distended previous to the bursting of new abscesses, the pain and the constitutional symptoms becoming gradually less.

I have now a case under treatment that well illustrates the course of such affections. In it, the injury was at first overlooked, the man continued at his daily employment for ten days; then the inflammation appeared after the wound had healed;—it was days after this that I first saw him, when I found the joint distended and very painful; the surface red and shining, with a good deal of swelling on the thigh; the constitutional symptoms were high, but the pulse was soft and the skin rather moist than otherwise.

I attempted to check the inflammation, and, if possible, to bring about a cure by resolution—pushing local bleeding and calomel and opium as far as practicable, but ptyalism was not induced, nor were the local and constitutional symptoms much mitigated—fluctuation in the joint became more deadened—at last the original wound burst open, and a free discharge of synovia and pus took place with almost immediate relief. This discharge continued for a time, then gradually lessened, when the knee again inflamed and became distended, and the constitution suffered. An abscess pointed at the lower and back part of the joint, near the head of the fibula, was opened, and discharged pus and synovia. This healed, and the joint again enlarged to near its size before the first abscess burst. The cicatrix of the original wound again gave way, and the discharge was direct and free. The patella was now found to be fixed, and the integuments adhering more firmly than natural to the side of the joint; flexion and extension were gone and the pain on motion much abated. A distinct fluctuation was

present at one or two points, but that general fluctuation, indicative of an uninterrupted distention of the whole cavity of the joint was gone.

Such, I believe to be the general course of these cases when supuration in the joint has once set in. The extent of the local affection and the constitutional symptoms will vary in different cases, and may be protracted for months or even years.

I have seen many cases, some of them most severe and protracted in such situations, that little medical aid could be given to them, further than directing a general course of treatment to be followed according to the means within the reach of the patients. In some of these the constitutional symptoms have been so alarming, that I have regretted that I had not an opportunity of watching them more closely, in order to resort to amputation at a favourable period; but I have now so often seen the most hopeless cases recover, that I would be slow indeed in resorting to such a step, and only to save the constitution from the effects of a lingering and exhausting disease, but the tendency of which was the resolution in a certain way, if the patient could be supported under the effects of it. The results of such cases in the country, with all the wants and inconveniences to which even the labouring classes are subject, is very different from that in even the best regulated Hospitals, and limbs will be saved in the former case that no one would attempt to do in the latter.

Such being nature's mode in remedying this accident, we can only arrive at a just conclusion as to the mode in which we can assist her by an inquiry into the character of the tissues and structures involved in disease, and the effects of inflammation on either or all of them.

Joints are shut sacks and their synovial membrane lines their capsules and the ends of the bones, which glide smoothly in immediate contact with each other. When this membrane becomes inflamed, we don't find the same tendency to adhesion, by the immediate effusion of lymph and its organization, as in serous membrane generally, and I am aware of no fact to show that such a process ever takes place. The effects of its inflammation seems more to resemble that of the mucous membranes of open cavities; its natural secretion becoming increased in quantity and changed in quality, and in a little time pus would seem to be secreted or effused from its whole surface, which ultimately becomes covered with granulations by which the natural character of the secreting surface is lost, and it is brought into such a state that its opposite points only require contact and rest to adhere, like the granulating surface of an open wound. I have had no opportunity of examining these joints while the process of cure was going on, or even the change

effected in them by complete ankylosis, so that my conjectures are the result of a careful observation of symptoms and their analogy to what takes place in other structures, but may be sufficient to guide us in a rational course of treatment.

The excessive pain in the joint, its swelling, and that of the limb generally, as well as the constitutional symptoms, would seem in a great measure to be the result of the pressure of fluid in an inflamed cavity, surrounded by structures more unyielding than any fascia, the effects of which, in similar cases, are daily seen. Ulceration of the cartilages and extensive caries of the ends of the bones seldom occur, these are often the effect of the exposure of such structures in the cavity of suppurating wounds, but when produced by such causes, are to be looked on in a different light from diseased bones and joints, where the inflammation and abscesses take place in consequence of a primary disease in them, and consequent change of structure; and if, as Mr. Gay distinctly points out, the exfoliation and discharges from such diseased structures, and their effects on the joints and on the constitution are lessened, and the curative process of nature forwarded by free incisions into the cavities of the joints, how much more are we called upon, in cases of suppurating joints from local injuries, to make free openings for the discharge of the collected fluids and to lessen the serious consequences of distention of the cavities?

In cases where penetrating wounds of joints heal up without serious inflammation of the cavities, we often find that the openings have been large, and so situated, that a free discharge of the synovial fluid could take place, even when joints are traversed by a musket ball, or otherwise injured by gun-shot violence, the openings are either from the first exceedingly free, or made so at once to facilitate the discharge of fractured bones.

My own practice furnishes the following cases in point:—

The ulnar half of the wrist joint was blown off by the accidental discharge of a gun on which it was resting. No synovial inflammation of consequence followed, though the inflammation from the lacerated tendons was severe and led to the formation of abscesses in the course of the arm; the hand was saved.

A man fell on a sythe, the edge of which came in contact with the upper part of the patella, round which it glided, cutting the tendon and going down to the femur—making a wound into the curve and joint, of between three and four inches in length. This healed by adhesion, and scarcely a symptom of synovial inflammation or distention of the joint took place during the process.

A lad brought his elbow in contact with the revolving cylinder of a

thrashing machine which was thickly set with spikes. The cellular substance of the back part of the arm was torn off for about three inches above and below the joint, as well as the muscles on the radial side of the arm—the tendon of the triceps was two thirds gone, and the olecranon grated to a point to which the remaining third adhered—the joint was not opened, but the capsule on the radial side was dissected bare. The limb was placed in a straight position and attempted to be saved. The surface of the wound sloughed, as well as the exposed part of the capsule which laid open the joint. No synovial inflammation took place, and the wound ultimately healed by granulation. The joint was very inadequately covered on account of the original loss of substance—no ankylosis took place, unless at the point of the olecranon, so that it was only fixed by this, the cellular substance.

On two subsequent occasions a compound dislocation of the joint took place by falls, tearing the newly formed parts across and completely exposing the cavity. In both instances the wound closed up readily with little or no appearance of synovial inflammation. Indeed the want of this, and consequent ankylosis is, in my opinion, the cause of the weakness of the joint, which can only be strengthened by such a degree of inflammation as to lead to the agglutination of the opposing ends of the bones.

In the treatment of all penetrating wounds of joints, perfect rest and the relaxation of the limb must be adopted. In those of the knee joint, to which these observations are more particularly directed, these are more requisite, from the character of the joint, and the serious consequences of inflammation. When inflammation has arisen, it must be treated on the usual antiphlogistic system, and pushed to the utmost extent the constitutional symptoms will admit of. So soon as the pulse begins to get soft, the skin moist, and symptoms of suppuration in the joint to show themselves, warm fomentations and poultices will give much more relief than cold applications, and ought instantly to be adopted and applied in the most effective manner. Any discharge from the original wound should be encouraged, and so soon as an abscess points it should be freely opened. I have often, in such cases, cut deep in order to reach an obscure fluctuation, and the consequences have always been beneficial.

I have never cut directly into the knee joint for the purpose of relieving distention, but am now satisfied such a course would be safe and often attended by the best results. The giving way of the original wound in the case mentioned above, prevented me having recourse to it. And the effect of this showed nature's course in remedying the injury. When suppuration, or the effusion of pus into a large joint

like the knee, has once taken place, the formation of ankylosis can seldom be prevented, and in most cases our endeavours are to bring this about. A free incision into the joint will completely relieve the distention, and lessen the local and constitutional irritation, nor will it in any degree interfere with the slight chance of resolution and the preservation of the motion of the joint, as this depends, in all cases, on the extent of the inflammation and suppuration, and not the size of the opening into the joint.

The repeated application of blisters around the joint is most beneficial; they may be commenced so soon as the first inflammatory symptoms subside, and be repeated once or twice a week afterwards, irrespective of any abscess that may continue to discharge.

The constitutional symptoms must be treated on general principles; but towards the latter stage of the disease a free use of quinine and iron will often be necessary.

A small low bed with a firm bottom and mattress must be provided for patients with such an affection of the knee joint. Any apparatus for fixing the limb is out of question; when once inflammation has set in, a single splint under the limb cannot be borne—it must then be placed on a firm pillow, and kept as straight as possible, which will be the more easily done, as this is generally the easiest position.

Instead of amputation or the operation of resection for diseased joints, the plan Mr. Gay recommends, is “free and deep incisions made along each side of a joint, so as to lay open its cavity freely, and to allow of any discharges being by any possibility retained within its cavity. They should be made of such a length, and so treated, that they do not heal in the form of sinuses. They should be made, if possible, one on either side of the joint, and in the direction of the long axis of the limb. They should extend into the abscesses in the soft parts so as to lay them open. If sinuses exist, the incisions should be carried through them, if this can be done without departing from a slight curve. If either of the bones be carious or necrosed, the incisions should be carried deeply into such bones, so as to allow the dead particles of the bones to escape. Ligaments which stand in the way of a free discharge from the joint should be cut through. Of course important vessels should be avoided. The wounds should be kept open by pledgets of lint, and free suppuration encouraged.

The constitutional powers have, in each case, rallied immediately after the operation; and the discharges from the joint have altered in character and become healthy, which they in general do in the course of two or three weeks, these become invigorated and improve with the improving joint.”

ART. LXIII.—*Case of Rupture of the Uterus.* By THOMAS CHRISTIE, M. D.

ON the morning of the 21st August, 1852, I was summoned to attend Mrs. M—— during her sixth accouchment. Before I had proceeded half way (the distance being 7 miles,) I was met by a second messenger, who urged me to make the greatest haste, as Mrs. M—— was just dying. On my arrival, I ascertained from the midwife (who had been in attendance all night) that the patient had been in labour twenty-four hours; the pains had been regular but not severe; the membranes had ruptured a few hours prior to my arrival; the head had advanced so far as to press on the perinaeum, that just when she expected that another pain would have effected delivery, the patient felt something give way, since then the child's head had receded, so that it could not now be felt, and the pains were suspended, or to use the midwife's own words, were bearing the wrong way.

Suspecting the nature of the case, I immediately visited the patient, and found her in bed, with her shoulders raised by an attendant, her face was pale and ghastly, with an expression of intense suffering and anxiety—pulse rapid and feeble, respiration difficult. The expulsive efforts had entirely ceased. I at once resorted to an examination, and found a large rupture in the front of the uterus, through which the body of the child had escaped into the cavity of the abdomen, the head still remaining in the cavity of the uterus. Passing on my hand through the laceration, after a little search, I succeeded in laying hold of one of the feet, and effected version and delivery without any difficulty, the pelvis being capacious, and the soft parts well relaxed. The child was dead. After delivery she was attacked with severe vomiting, I administered a large dose of laudanum, and waited beside her for three hours, expecting that she would die. At the end of that time, however, she appeared to be better. I then left her, prescribing Tr. Op. M. 30, three times a day.

August 22. Much stronger, has dozed almost constantly. Prescribed Tr. Op. M. 20, three times a day.

August 24. I found her much worse. The pulse had taken on the inflammatory character—tongue coated, abdomen extremely tender, and much distended. I bled her largely, and ordered eight grains of calomel and one of opium to be given three times a day, and a large blister to be applied to the abdomen.

August 25. Still worse; pulse 130, tongue brown and coated, countenance anxious, and pinched, hiccup and vomiting. Hot fomentations to the abdomen, and calomel and opium every four hours.

August 26. Considerably better, pulse 110, abdomen less tender, tongue moister, pains very rare. I now omitted the calomel, but continued the opium. From this time she gradually recovered without any untoward occurrence.

Lachute, Canada East.

ART. LXIV.—*On the use of the Persesqui-nitrate of Iron in Leprosy.*

By W. KERR, M. D., Galt.

It is with considerable reluctance I lay before the readers of this Journal this communication in its present shape, but not possessing any other means of obtaining my object, I trust you and your readers will bear with me while I explain my views.

In the first number of your Journal are given two interesting cases of Leprosy in New Brunswick, and you invite suggestions respecting this fearful and loathsome complaint. Mr. Wilson on Leprosy, as known to the Hindoos, in the first volume of the Transactions of the Calcutta Medical and Physical Society says: "the known connexion between the stomach and skin will dispose us to concur generally in the possibility that the affections of the former may induce the leprous disease of the latter, and the most intelligent of our own writers have given admission to this doctrine." Settled indigestion is stated, by this author, as a symptom of a fatal termination. In the two cases in your Journal, which are related as characteristic specimens out of twenty-two, it is evident that a long period of ill health and pain in the region of the stomach precedes the appearance of the cutaneous disease, which slowly proceeds to ulceration, and this to mutilation. At last, too slowly, the unfortunate patient is relieved by death, after many years of suffering.

Looking at the fact, that a long period of weakness, listlessness, and affection of the stomach precedes the cutaneous disease, three or four years in your first case, and that before ulceration commenced several additional years elapsed, during which the malady might be described as an affection of the skin connected with pain in the stomach. (Impaired appetite and digestion may, I presume, be inferred.) I beg to suggest the persesqui-nitrate of iron, from what is known of its properties, as well fitted to combat this stage of leprosy. Both in Scotland and this country I have had numerous cases of cutaneous diseases connected with impaired digestion, which have yielded to the steady and prolonged use of the persesqui-nitrate. One lady afflicted from the age

of twelve months to twenty one years, was thus cured. Several physicians of eminence had been consulted without benefit, and the seat of the affliction being the face and hands, she had previously been nearly excluded from society. For additional information on this subject, I refer to the Monthly Journal of Medical Science for May, 1848. Leprosy is a chronic disease, and it is certainly in chronic diseases that the persesqui-nitrate is most efficacious. In diarrhœa of long standing its utility is acknowledged over the whole world, and in ague, especially in chronic, its use, as I learn from medical friends, is rapidly extending in this part of the country. When I name ague, a disease decidedly endemic, I possibly afford another presumption in favour of the persesqui-nitrate in leprosy, also an endemic disease.

Many may think that I am unreasonably fond of the medicine now suggested, but I have long had experience of its powers, and am gratified to find that my statements regarding its utility have been confirmed by others. For chronic diarrhœa, I may appeal to the general voice of the profession, and though time has not elapsed since the publication of my paper in the Monthly Journal of Medical Science for October, 1851, to have independent testimony through the medium of the press, yet I have heard, and seen enough to convince me, that its judicious use in ague (*i. e.* with quinine when there are paroxysms, and by itself when there are none,) will render this disease far more certainly curable than it is at present. Persesqui-nitrate of iron must be admitted to be a potent medicine, in every sense of the word, in those diseases to which it is suited. Dr. Graves in his Clinical Medicine states, that with it he has easily and speedily cured cases of chronic diarrhœa which had for years resisted every other medicine. Yet its ordinary dose contains only about 0.4 of a grain of metallic iron, 0.3 of nitrogen, and 1.1 of oxygen, making a total of 1.8 of anhydrous persesqui-nitrate. The quantity of iron is so small, that we are reduced to the conclusion, either that persesqui-nitrate, as such, is possessed of great power in disease, or that the elements of its acid in assimilating with the system, afford a stimulus, or supply a deficiency in the various maladies in which the medicine is beneficial.

I now venture to recommend the persesqui-nitrate of iron for leprosy, I trust for reasons which will not appear inadequate or ill founded. I cannot allow myself to hope that in the advanced stage of ulceration, at least unaided by other remedies, it will be productive of much benefit, but if, during the years which precede this stage, it should prove to be a medicine capable of controlling or curing the disease, a great step will be gained. Medical men residing in the districts where leprosy

is endemic will greatly oblige me by giving the medicine a fair trial, and reporting their experience.*

I am, gentlemen,

Your obedient servant,

WM. KERR.

Rosehill House, Galt, 28th December, 1852.

Having learned from several medical friends that they had failed in making the persesqui-nitrate of iron, I take this opportunity of stating the mode of preparation, I trust with sufficient fullness and perspicuity.

Mix three fluid ounces of nitric acid with fifteen ounces of water in an earthenware or glass vessel. Put into this one ounce of iron-wire (that known by the name of No. 18) broken into several pieces, and so twisted as to extend into every portion of the liquid. Let the temperature of the apartment, if possible, be not lower than 55° or higher than 75° . In twelve hours the solution will be completed, when the liquid is to be poured off the residue of the wire, and one hundred and two ounces of water added, thus increasing the solution to one hundred and twenty ounces. The liquid ought to have the color of dark brandy, be perfectly transparent, and with carbonate of soda give a red precipitate unmixed with green. A greenish tint in the precipitate indicates that the temperature of the liquid was not sufficiently high while the solution was going on, or that the liquid has been allowed to remain too long on the residue of the iron. A turbid solution or a red magma indicates too high a temperature while the wire was being dissolved. The large quantity of water finally added is for the purpose of preserving the solution transparent a reasonable length of time in warm weather.

If a smaller quantity of the persesqui-nitrate is to be made, say one third, then the dilute acid in which the iron is to be dissolved ought to be stronger, otherwise owing to its smaller bulk, its temperature will not rise sufficiently high to peroxidise the metal. Not to leave free acid, the wire ought to extend into every portion of the liquid, and

*Jackson, in his account of Morocco, says, "that leprosy is very prevalent, and that on any change of weather, and particularly if the sky be overcast, and the air damp, lepers will be seen sitting round a fire warming their bones, as they term it, for they ache all over till the weather resumes its wonted salubrity." Similar conditions of the system will give rise to similar symptoms; no person acquainted with ague can fail to recognize in the above a description as applicable to ague as to leprosy, and every one acquainted with the use of the persesqui-nitrate in the former disease must know that this medicine easily removes the disposition to the extraordinary chillness now described.

ought to be in slight excess. Saturation is known by the dark, rich color of the solution. The noxious fumes of nitrous acid evolved during the process will be altogether avoided by placing a large receiver over the vessel in which the solution goes on; the lower edge of the receiver being immersed in water.

Dose. A tea-spoonful three times a day in half a tea-cupful of sweetened water, about an hour before meals.

ART. LXV.—*On the arrest of Hæmorrhage from bleeding arteries.*

By S. J. STRATFORD, M.R.C.S., Esq., Toronto.

BLEEDING from a divided artery, whenever that vessel is of considerable size, is generally attended with great hæmorrhage, and the speedy arrest of the bleeding is a point of absolute necessity to the life, and safety of the patient. The means which nature takes to stop hæmorrhage from bleeding arteries, after a complete solution of continuity, is by the simple retraction or contraction of the vessel, this influence is exerted by the middle or muscular coat, which alone is possessed of contractile properties, in this coat we find a layer of annular fibres, possessing no small resemblance to that which exists in the muscular coat of the alimentary canal. The contraction of these circular fibres, are doubtless one of the means by which bleeding is arrested in the living body, and this in a vessel of moderate size, and distant from the heart, may occasionally exert a powerful influence, and be sufficient for the end for which it was designed.

The second mode adopted by nature, appears to be a combination of the contractile influence of the middle coat, with violent extension of the outer coat; a layer of yellow elastic tissue, which is thick in proportion to the size of the arteries. In this tissue exists the simple elasticity of the arterial walls—this is a purely physical property, intended in a great degree to preserve the calibre of the vessel, and facilitate the transmission of the blood along its course. The violent extension of this fibrous layer, destroys this natural elasticity by separating and deranging the fibres of the yellow elastic tissue, the action of these elastic fibres was intended to operate on the transverse, not on the longitudinal calibre of the vessel, and by stretching and dividing these fibres, we destroy the natural elasticity of the part. The walls of the vessel approach at all points upon longitudinal extension, if this is moderate, the elasticity of the vessel restores it to its natural size; but if the structure of the yellow fibrous element has experienced a certain amount of separation, the tone of the vessel appears to have

been destroyed, and upon laceration of the artery, the elastic property ceases, the fibrous walls of the artery remain collapsed, it fails to resume its natural position, while the mouth of the bleeding vessel remains closed; and this, with the inner and middle coats of the vessel, which are usually torn for some lines above the opening in the fibrous coat, their shrinking are retracted into the canal, forming a kind of *cul de sac* or valve—a clot of blood forms in the vessel and subsequent inflammation, and plastic exudation result in the torn coats of the vessel, and by these means, the sides of the closed mouth of the artery become united to each other, and the bleeding is effectually restrained. The canal of the artery itself is afterwards converted into an impervious structure up to its next lateral branch.—This is the means adopted by nature in closing the navel strings of animals. Farriers and Gelders take advantage of the process to restrain bleeding in their operations upon animals. In surgery we often see similar phenomena exhibited, for in the laceration of parts, even the largest blood vessels do not always bleed—a remarkable example is related by Cheselden, in which the arm was torn from the body of a miller, without any Hæmorrhage occurring from the axillary artery. Surgeons have lately revived a practice which operates upon a somewhat similar principle, although the operation is as old as Galen, still it has been particularly re-introduced into practice by the French surgeons MM. Amussat and Thiery, and is described by them under the head of *Tortion*. M. Amussat seizes the artery by means of a pair of forceps, gently draws it out, and taking hold of the vessel with a second pair, when it is in immediate connection with the soft parts—the artery is now twisted round upon its axis, until the end is torn off. The result he says, is, that hæmorrhage is certainly arrested. The effects produced upon the bleeding vessel are somewhat similar to those I have endeavoured to explain above, and in many cases would doubtless be attended with the desired result; but such is not invariably the case, if the vessel is large, in any way diseased, or the amount of fibrine in the chemical composition of the blood be deficient, then the natural and necessary changes are impeded, or totally prevented, and secondary hæmorrhage is a necessary result.

The next method employed in the arrest of hæmorrhage, which approximates most nearly to the process of nature, is the use of styptics; these have been employed by the vulgar from time immemorial. In some cases, such as puff-ball, or cobweb, the coagulated blood merely becomes entangled in these substances, and in the extremities of the bleeding vessels, and so arrests the hæmorrhage,—while in other cases, the result is mainly dependent upon the influence of certain chemical

means acting upon the albumen and fibrine of the blood or on the gelatine of the living tissues ; one of the principal of these, and will serve for an example, is Tannic acid. The astringent effect is here the result of an insoluble tannate of gelatine formed upon the superficial structures of the tissues, the consequence of which is a corrugation of the albuminous compounds, by which means the mouths of the bleeding vessels are closed, and hæmorrhage impeded or prevented. It must be sufficiently obvious that so comparatively trifling an influence can have but little power over the larger arteries, so as to arrest active hæmorrhage from their patulous extremities ; in the smaller vessels it may sometimes be useful, but cannot be trusted with any degree of confidence, whenever any of the main arteries are wounded. A variety, however, of this description of agent has been employed for ages. It is the actual cautery, and in some cases of secondary hæmorrhage, it has doubtless been judiciously employed, and often with remarkable success. It consists in the application of a heated iron, to the mouth of the bleeding vessels, the result is an immediate coagulation of the blood, and contraction of the fibrous elements, which is soon followed by the inflammatory process, whereby plastic exudation is thrown out, this unites the mouths of the blood-vessels and arrests the hæmorrhage. Such may be occasionally employed with advantage, when the vessels are small, but when the bleeding occurs from larger arteries, this method would in all probability be impotent, and the plan recommended by the younger Cline, would alone seem to deserve attention, this consists in laying open the wound so as to introduce a canula into the open mouth of the bleeding vessel, until we arrive at a healthy part of the artery, when a hot iron is to be introduced through the canula and with it the coats of the artery are to be burnt, so as to produce coagulation of the blood puckering of the arterial coats, as well as inflammation and adhesion of the sides of the vessel. When cauterization is used, it not unfrequently happens that the slough formed by the heated iron, separates too quickly before the wounded artery is healed, and bleeding again returns, making it necessary to repeat the process. Again, the pain, the terror to the mind of the patient, and the excessive inflammation, and suppuration that may occur, are sufficient reasons against its general employment in all cases of active hæmorrhage. The active influence produced by all these means, in an inflammatory condition, and this, in all cases of quick adhesion, it is our particular desire to prevent, as it would impede or derange the process, for we should particularly remark, that union by the first intention, is a natural and healthy process, not a

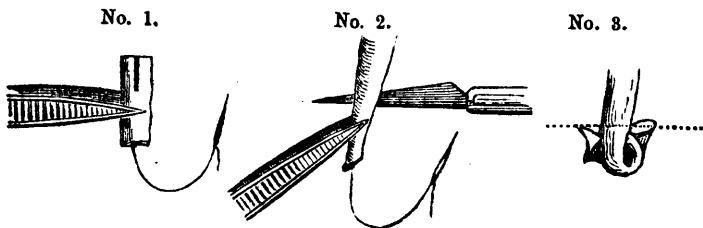
diseased action or condition of the part, and not dependent upon the processes of inflammation for its accomplishment.

The process now most generally adopted by surgeons in the arrest of active hæmorrhage from the larger blood-vessels, is by means of the ligature—doubtless it is the most simple that has yet been advocated, and it commends itself to common sense, as a most plain and certain means. Still, nevertheless, its employment is open to serious objections in many cases. To say the least, the ligature is always a foreign body—it may become a source of irritation and inflammation,—at all times it must be a certain injury to the part, and more or less impede the healing of the wound, preventing that quick adhesion it is so particularly our desire to accomplish in simple incised wounds. When the ligature is placed upon the artery in the most approved manner, the inner coats of the artery are cut through by the round ligature, and the compressed fibrous coat excited to inflammatory action, that shall effectually close the vessel, and prevent further bleeding, and this is the happiest result that can be anticipated—but even here a certain amount of irritation and ulceration is necessary to free the ligature from the living vessel, and who can say at what point this shall be arrested; under any circumstances this inflammatory action may be an objection, and in many cases is actually the cause of the formation of matter along the sheath of the blood-vessel, that causes ulceration of all the tissues of the artery—the re-opening of its calibre and secondary hæmorrhage results, which science and nature alike agree it would be most desirable to obviate.

I need not here expatiate upon the accidents that frequently attend upon the use of the ligature, especially when it has been applied without due care and attention. It will suffice to show that secondary hæmorrhage, arising from excessive inflammation (and ulceration of the vessel may occasionally occur—that irritative inflammation) of the vein, may sometimes result from it—while, should the nerves have been included in the ligature, a long train of painful symptoms will be sure to show themselves, presenting all the symptoms of an intense neuralgia, that not unfrequently imbitters the life of the patient; these facts will clearly substantiate the disadvantages of the employment of the ligature as a means of arresting hæmorrhage, and would call for its abandonment, could any other method, free from these objections, be substituted in its place, especially could it be shown, that the new method shall as quickly, surely and permanently arrest the bleeding, without the necessity of producing in any degree irritation or inflammation of the parts—doubtless such a method would be a great desideratum, and I respectfully submit that all these points may be certainly and effectually

secured by the following means, whereby the open extremity of the bleeding artery is effectually closed, and hæmorrhage prevented without the use of the ligature. In a case of amputation for example an assistant seizes the artery, with a tenaculum or forceps, and gently draws it down. The operator takes hold of the vessel, with a pair of forceps transversely across its calibre, a sufficient distance from the wound in it, say upwards of once and a-half the diameter of the vessel, and holds it firmly until the other steps of the operation are accomplished; and this effectually secures the bleeding for the moment.—Having armed a straight needle, rather thicker than the ligature, he passes it laterally through both sides of the artery, and firmly tying its extremity to the vessel, leaves it hanging in readiness to lead the end through the longitudinal cut in the artery; now by means of the forceps he gives the artery a half turn to the point, then taking a lancet shaped knife, he passes it through both walls of the vessel immediately above the forceps, in the centre of the artery, and parallel to its course, the size of the wound in the vessel must be about the diameter of the artery; the armed needle attached to the lower extremity of the vessel, must now be introduced into the wound, and the end of the artery must be drawn through the sides of the vessel, until it is firmly secured in its position; now having removed the forceps and cut out the ligature, the resiliency of the artery quickly retracts into its sheath, and firmly confines the transfixed portion, of the vessel in its new position—by these means the bleeding will be permanently arrested without a chance of further hæmorrhage, did we fear the removal of the portion of the artery drawn through the wound, it would be but necessary to cut a small transverse nick in the artery immediately above its open mouth, which would act as a barb upon the sides of the vessel, and effectually hold it in position under any circumstances, but this we believe to be quite unnecessary to the perfect security of the operation—at all events the presence of any thing like a foreign body is hereby obviated, and not the least impediment offered to the quick union of the incised wound.

The steps, and result of the operation may be fully comprehended by the following diagrams,—



No. 1. The artery held in position and the armed needle attached, ready to be passed through the slit in the vessel.

No. 2. The same turned upon its axis, and the knife passed through it.

No. 3. The extremity of the artery drawn through the wound, and retracted into the soft parts.

When fully comprehended the various steps of the operation are scarcely more complicated than the application of the ligature, to the divided vessel, will doubtless be found equally certain and complete in its effect, and without any fears of producing irritation, or inflammatory action.

A somewhat similar process for the arrest of hæmorrhage, was sometime since proposed by Stilling, but the complexity of its detail, seems to have prevented its introduction into practice. I think however, that the more simplified, and easy operation here recommended, will not be open to such objections—while the plain and desired advantages gained by the proposed method, must address itself to the judgment and common sense of every surgeon.

ART. LXVII.—*Four cases of disease of the Ear producing Cerebral affections, one terminating in death, with remarks.* By HENRY HOWARD, M. R. C. S. L., Surgeon to the Montreal Eye and Ear Institution, Ophthalmic and Aural Surgeon to St. Patrick's Hospital.

So little has been written upon diseases of the ear, and so little are the diseases to which it is subject understood, that every little light that can be thrown upon its pathology is of the greatest importance. Constantly in the habit of seeing children and adults with discharges from the ear, arising from various causes, such as inflammation of the mucous membrane lining the meatus; inflammation from deeper seated structures of the same part; some of them modified from various causes, polypus of the meatus, granulations of the membrana tympani; inflammation of the middle ear, &c., &c., seeing such cases daily, and hearing that the only advice given, is "better be cautious, do not interfere with the discharge or

"syringe your ear with a little soap and water," the surprise is that we do not find more deaf people than we do. That there are very many who lose their lives by diseases of the ear, I have not the slightest doubt although death is often attributed to other causes, either from the ignorance or the knavery of the attending physician. Indeed, any doubt that may have existed heretofore upon this subject has been well cleared up by the pathological researches of Mr. Toynbee, to whom not only the Profession, but society at large, owes the greatest debt of gratitude for the light he has thrown upon the diseases of this important organ.

About six years ago, I was called upon by a widow lady to examine the ear of her son, a fine lad of about ten or eleven years old. She stated that it had been discharging for about twelve months. On examination I found that the whole of the *membrana tympani* and small bones of the ear were gone, and a small fungous growth filled up the cavity of the middle ear. I told his mother that I considered the case of great importance, that I had no doubt if not interfered with, it would end in death, and that it was possible that such would be the result even under the best directed treatment. She said she would call in a few days and let me know what she would do. She did call, and told me that she had informed *two* of her medical friends what I had said, and their answer was, that "I only wanted to frighten her, that there was not the slightest cause for alarm, that the discharge would wear itself out, and produce no injury." She determined to follow their advice, I bowed and we parted. In less than twelve months the boy died, with *some* affection of his head, which he himself while sensible, attributed to his ear, and to which the mother to this day, if I am rightly informed, attributes his death. He was attended by her two medical friends, from whom I, of course, never will hear the particulars of the case.

Considering the few following cases of peculiar interest, I have chosen them, out of many, for publication :

CASE FIRST.

April 30, 1852, A. H., aged 10, was brought by her mother to the Montreal Eye and Ear Institution, she was a very pretty little girl, with blue eyes, light hair, but of strumous habit. The mother of the child stated that for two years the child had had a discharge from her right ear, but she took little notice of it until lately, as the child *only* complained of deafness but no pain, until within the last four or five weeks. On examining the meatus I found that it was filled up with a small pendulous polypus, which I easily removed with small forceps.

There was a little bleeding which soon ceased, after having cleaned the meatus from all clots of blood, I found that the polypus grew from its superior and posterior portion, near to, but not in connection with the membrana tympani. I also observed that the whole surface of the membrana tympani was covered with granulations. Being in the habit, for some years, of removing these granulations by the daily application of the saturated solution of the acetate of lead, and a compress of either sponge or bit of fine scraped lint, I adopted this treatment with her, and in about five weeks the granulations disappeared, and of course the otorrhea. She came occasionally, however to see me, at which times I examined the ear, watching for granulations, and checking their growth by touching them with a ten or twenty grain solution of the nitrate of silver, by means of a fine camel-hair pencil. For the first two weeks I prescribed for her small doses of quiniæ, after that I put her upon the cod-liver oil, a tea-spoonful three times a day. On the 19th of August, 1852, the mother called at my surgery stating that her daughter had been playing the evening before, and came in with a pain in her ear from which she suffered severely all night, that the pain was accompanied with high fever and severe delirium. I gave her five grains of calomel to be taken immediately, and half an ounce of sulphate of magnesia, to be taken four hours after, telling the mother to call again in the evening if the child was not better. She called the next morning stating the child was much better. The next time I heard of her she was *dead*. It appeared that I was sent for on the evening of the 22nd, and not being within, Dr. Fenwick visited her, who has kindly furnished me with the following statement:—

At 7 P. M. on Sunday, the 22nd August, I was requested by the father to see his child immediately, as she had taken a fit. Upon entering the room, I found the little girl labouring under the following symptoms:—She was perfectly unconscious, lying on her back, the limbs rigid, arms and legs strongly rotated inwards, the thumbs clasped by the hands, the head was thrown backwards, and she seemed to rest on the occiput and heels, the breathing was short and hurried, pulse fluttering and weak, there was constant moaning, about every two or three minutes she would be seized with a convulsive spasm, during the seizure the features became frightfully distorted, on one occasion, the lips were protruded, on another they were drawn over the teeth and the tongue forced out, the tongue itself seemed like a board, the teeth were firmly clenched on the tongue, so much so, that I was apprehensive of injury being done to the tongue, the eyelids were raised and the eyes rotated downwards and inwards. I noticed the pupils were much dilated; these convulsive spasms lasted only a few minutes;

during the interval there was no relaxation of the muscles of the back and extremities, nor did they appear to be affected during the spasms. My treatment consisted in applying mustard sinapisms down the spine and to the calves of the legs; at the same time I ordered leeches to be applied to the back of the ears, and gave a large dose of submuriate with pulv. antimon. I left, determining to return in an hour. About $\frac{1}{2}$ past 8 o'clock I returned with my friend Dr. Jones, the child had been dead nearly three quarters of an hour, I learnt from the parents that she had complained of headache for some days past, had lost her appetite, the bowels did not act, and that morning the mother had given her a dose of castor oil. Dr. Jones recognized the patient as having been under your care for otorrhea.

G. F.

I made every effort to get a post mortem examination in this case but could not succeed. And I regret it the more, because I am perfectly confident, from the various careful examinations I made of the ear while the child was alive, that there was no caries of any of the bones, and perfectly certain, that there was not even perforation of the membrana tympani. Mr. Toynbee has shown by his pathological examinations, that inflammation of the external auditory passage can produce death without caries, and that in such cases, the cause of death is found to exist in the lateral sinuses and cerebellum, both of which parts he shows have an intimate connexion with the external auditory passage. This case was probably analogous.

CASE SECOND.

M. S. aged 5, was brought to me on the 4th of November, 1852. His mother stated, that three weeks previous he had had measles, since which time there was a discharge from both his ears, and for the last two days his face had become deformed. On examination, I found that there was paralysis of the right Portio-dura, with all its unpleasant consequences. That there was a copious purulent discharge from the right ear with perforation of the membrana tympani. From the left ear there was a mucous discharge. I at once syringed his ears with a ten grain solution of the sulphate of Alum. Then painted the ulcerated membrana tympani of the right ear with the ten grain solution of the nitrate of silver. I had the hair removed from the whole of the temporal region of the right side, and applied freely the Biniodide of mercury ointment both behind and in front of the ear and on the angle of the jaw. I gave him five grains of calomel to be taken immediately, and two drachms of epsom salts, to be taken in six hours after. On the second day, having learned from his mother that he had been well

purged by the calomel and salts, I continued the same local treatment, and gave him one grain of calomel and half a grain of quinine night and morning. This treatment was continued for ten days, by which time the discharge from both ears had ceased. The only sensible effect of the calomel was slight mercurial fœtor. So much improved was the state of the portio dura, that he could nearly close his eyelids. I then discontinued the treatment and put him upon Cod-liver Oil, a teaspoonful three times a day. He is now a fine healthy boy, hearing well, with a small perforation in the right membrana tympani. the portio dura restored to a healthy state.

CASE THIRD.

O. F. aged 31, received into one of the private Wards of St. Patrick's Hospital on the 30th of November, 1852, stated that for many years he had had a discharge from his right ear, of which he was completely deaf. That for six weeks he had had a discharge from his left ear, and that for the last three, he was suffering from pain in the head, giddiness, loss of appetite, loss of sleep, and was becoming greatly emaciated. On examining his ears I found that the membrana tympani and small bones of both ears were gone, and that there was a small fungous tumour, which bled when touched, in the cavity of the tympanum. I put a seton in the back of his neck, and every day for four weeks, touched the small tumours with a thirty grain solution of nitrate of silver, during which period he took a teaspoonful of Cod-liver Oil three times a day, and daily applied the Biniodide of mercury ointment behind his ears. After the fourth day, I discontinued the use of the nitrate of silver, and substituted the twenty grain solution of sulphate of Alum. The Cod-liver Oil, seton and ointment were continued until the 11th January, when he left with his hearing very much improved, the discharge checked and the tumours removed. All the head symptoms had disappeared after the first two weeks. I recommended him to keep the seton in his neck for three or four months longer. In this case, with the most minute examination, I could discover no caries of the temporal bone.

CASE FOURTH.

M. aged 17, admitted into the Ophthalmic and Aural Ward of St. Patrick's Hospital, November 27, 1852, stated that for eight weeks she had been suffering with a discharge of matter from her left ear, and that for six weeks it had been accompanied with pain which had extended to the whole side of her head. She was suffering from giddiness, double vision, and numbness of the whole of her left side down to

her toes. She was quite lame on that side and could exert but very little power of her arm. All these symptoms had increased for a week before she came to me. The moment I saw her, I observed that there was partial ptosis of the left eye-lid. She further stated, that about five weeks previously she left home, and came to Montreal for the purpose of placing herself under my care ; but from some arrangements made by her uncle she was placed under the care of Dr. — who having heard the history of her case, said that all her sufferings was dependant upon suppression of her catamenia, and treated her accordingly, and never took any notice of her ear. Her uncle confirmed this, her statement. On examining the ear, I found there was suppuration of the middle ear with perforation of the membrana tympani, but I could observe no signs of caries. There was slight tenderness over the upper part of the cervical vertebræ. I put a seton in the back of her neck, ordered her saline purgatives, low diet, and to remain quiet in bed. The next day on my finding that she had been well purged, I put her upon one grain of calomel and half a grain of quinine three times a day, and had the biniodide of mercury ointment applied behind her ear and to the temple of the affected side. This treatment, with syringing her ear every day with a twenty grain solution of the sulphate of Alum, I continued regularly for ten days, at the expiration of which time the mercurial fætor was slightly perceptible, and the discharge from the ear ceased. The ptosis, double vision and giddiness disappeared, feeling was restored to the left arm, and in a very great degree to the left leg. In walking about the Ward of the Hospital very little lameness was observable. A fuller diet was then prescribed. I discontinued the use of the syringe, but to keep up the action of the mercury, I ordered one of the pills to be continued at night. Three days afterwards, the thirteenth in Hospital, I was surprised to find her in bed after having passed a very bad night. Her face was flushed, tongue furred, pulse rapid, with constant twitchings in her left arm and leg. A blister was applied at once to the spine the whole length of the cervical and part of the dorsal vertebræ, the calomel pill was discontinued, and I gave her saline purgatives every four hours till she was freely purged. Next morning all these unpleasant symptoms disappeared ; I gave her no more medicine. She left me in a week afterwards perfectly well, with the exception of a slight halt or lameness in the left leg, scarcely perceptible to a stranger. I recommended her keeping the seton in for three or four months, and to let me know if she had any return of the disease. A month has passed since and as I have not heard from her, I presume that she still continues to improve.

ART. LXVI.—*Successful Treatment of Varicose Veins by Needles and Ligatures.* by J. C. BUTLER, M. D., Dunham, C. E.

Mr. Frederick Chambers, of the Township of Stanbridge, aged 23 years, of a scrofulous diathesis, consulted me 30th July last, for varicose condition of the veins of the left leg. The patient informed me that it had been produced by over muscular exertion made several years previously, from which time it had constantly increased, accompanied by occasional ulcerations of an obstinate nature. Upon examination the internal and external saphena veins, together with their branches, presented the appearance of a complete mesh work of diseased veins, also, on placing the thumb upon the principal vein above the knee, the patient reclining in the recumbent posture, and removing the compression suddenly in the erect position, a sensible regurgitation of its contents was apparent, producing a sensation which the patient described as being "very disagreeable." I recommended an operation as the only means of effecting a medical cure. Accordingly, Sept. 2nd, in the presence of Dr. S. L'Hommedien, of Cincinnati, Ohio, and assisted by my student, Mr. H. N. Curtis, I performed the following operation. Common brass pins were introduced behind the veins; strong waxed ligatures was then passed tightly round the pins so as to include a portion of the integument and a fold of the veins to induce sloughing of the cinctured parts. Thirteen pins were thus applied to different portions of the veins below the knee and one to the common saphena, a few inches above it. Enjoined quietude and light diet. Visited him the fifth day after the operation—no constitutional disturbances and but little swelling of the foot and leg. Applied new ligatures.

Sept. 8.—Patient suffered much pain during the night previous—foot and leg more swollen; Elevated the limb. Applied saturine lotion, gave pulv. Doveri Grs. x., and ordered a black draught the following morning.

11th.—Sloughing of the strangulated parts. Tightened the ligatures, and ordered the pulv. Doveri to be repeated every night.

15th.—Several of the pins completely removed by the ulcerative process.

25th.—Pins all removed and ulcers presenting a healthy appearance.

Oct. 7th.—Ulcers all healed, and the appearance of the leg much improved. Applied a ligature to an enlarged vein, passing over the internal malleolus, the only one remaining.

14th.—Was called to visit the patient. Found the leg and foot swollen and very painful. He had walked yesterday the distance of a mile and was soon after taken with cold chills, followed by pain in the

head and leg. Took xvi. ʒ blood from the arm, elevated the leg, applied cold water. Ordered Pul. Doveri. Grs. x., combined with Hydrarg. Submur; Grs. vi., every eight hours.

15th.—Patient rested quietly through the night. Redness and extreme sensibility along the internal saphena to the knee. Applied a blister one inch in width from the foot to the knee, over the vein, and repeat powders.

16th.—Less febrile action; the common saphena to the groin somewhat painful and tender to the touch. Applied blisters as before.

17th.—Patient better; leg less swollen. From this time the patient rapidly convalesced. I have seen Mr. Chambers from week to week since then, and have reason to believe him permanently cured. He is pursuing his usual avocations and experiences no inconvenience from the limb whatever.

ART. LX.—*Observations on the Sanatory Institutions of the Hebrews as bearing upon Modern Sanatory Regulations.* By the Rev. ABRAHAM DE SOLA, Lecturer on Hebrew Language and Literature in the University M'Gill College, &c.

(Continued from page 666.)

WE continue our examination of the animals enumerated in the text:

3. ארנבת (arnebet) hare, v. 6, "he cheweth the cud, but divideth not the hoof" O. ארנבא (arneba). S. J. T. and de R. liebre; G. T. and M. haase; F. lepus; Sept. dasipous; all *hare*. "From ארה (arah) to *crop*, and ניב (nib) *the produce of the ground*—the hare—these animals being very remarkable for destroying the fruits of the earth. Bochart who gives this interpretation of the word, excellently defends it by showing from history that hares have at different times desolated the islands Leros, Astypalæa and Carpathus. See his works, vol. ii. 63 and 995."—P. "The hares," says Cuvier, "have a very distinctive character in their superior incisors being double; that is to say, there is another of small size behind each of them."—This is identical with the old Talmudic definition to which we have already referred, on p. 46. Although placed among the *Rodentia* by modern naturalists, it is to be observed that the partial division in its stomach (see Carpenter's Zoology, v. 1, p. 268) would well warrant its classification among the *Ruminantia* where the text places it.

4. חזיר (chazir) swine, v. 7. "he divideth the hoof and is cloven footed, yet he cheweth not the cud." T. O. חזירא (chazayra) S. J. T. and de R. puerco; G. T. and M. schwein; B. and F. porcus. "The root means to encompass. As a N., a hog or boar, so called, perhaps, from his round shape when fat, which is his natural state: *Totus teres atque rotundis*."—P. Order *Pachydermata*. We shall have reason to speak of the nature and habits of the swine, when inquiring into the third point of discussion laid down. We now pass on to the birds.*

*In Leviticus, twenty species of unclean birds are enumerated, while Deuteronomy specifies twenty one. We cite the following reconciliation of the apparent contradic-

1. נשר (nesher) eagle, v. 13. T. O. נשרא (nishra) S. J. T. and de R. aguila ; G. T. and M. adler ; B. and F. aguila ; D. L. and G. eagle. "The root means to lacerate, tear in pieces. The eagle species is eminent for rapacity and tearing their prey in pieces, for which purpose they are furnished with beaks or talons remarkably strong."—P. "The assertion of our sages that the eagle has no additional claw, has been attacked, but I, myself, have examined one, found in my native place, and found that it had no such additional claw."—W. The eagle is classed by Cuvier among the *Accipitres* or birds of prey, which are, he says, like the *Carnivora* among quadrupeds. "They are pre-eminent for their strength," adds Carpenter, "and attack not only birds for their prey, but the smaller quadrupeds also, such as the hare, sheep, fawns, roebucks, &c."

2. פרס (peres) ossifrage. T. O. ער (ngar) S. J. T. and de R. azor ; G. T. habicht (hawk or goss hawk, also of the order *Accipitres*) M. beinbrecher and small black eagle ; B. and F. ossifraga. "Peres is a large bird found rather in deserts than inhabited places, and R. Yonah, saith that it is identical with the Arabic *Akab*."—K. The root means to break, hence the remark of the *Critica Sacra* "withstrength of beak or talons she breaketh her prey ; *nomen est avis magna quæ deserta incolit, inquit R. David, ab unguis fissis dictæ. Alii accipitrem, vel aquilæ genus putant. Alii Gryphum malunt. Ita Septuaginta Chald. & Vulgat. vertunt.*" "As a noun a species of eagle called by the Romans *ossifraga* or *bone breaker*, because he not only devours the flesh, but even breaks and swallows the bones of his prey. Comp. Mic. iii. 8 ; and see Bochart, vol. iii. 186, &c."—P. "According to most of the translators, it means a kind of eagle."—W. Order *Accipitres*, Cuv.

3. עוריה (ngosnyah) ospray ; T. O. עויא (ngasya) S. J. T. esmerejon (martin also the yellow-legged falcon, *Falco Elesalon* Linn. Order *Accipitres*) G. T. fischaar fischadler (sea eagle) M. schwarzen adler (black eagle) B. Halicæctus, (species aquilæ). F. aquilæ species, a visus perspicacitate (Job 30:29). Crit. Sac. halicæctus, a marine eagle, so called from its sharp vision, *quia adversus solis radios in-*

tion from the "Conciliator" of R. Menasseh ben Israel, Mr. E. H. Lindo's translation. "In Siphre (which is adopted by Rashi) it says, in solution of this doubt, that the difference between Leviticus and Deuteronomy consists in the former saying ואת הדאה ואת האיה 'And the vulture and the kite and their species,' whereas Deuteronomy has it ודאה ואת הדאה והאיה למינה ודאה. Here the *raah* is named, which is not in Leviticus ; there is also another difference in Deuteronomy, saying, *dayah* instead of *daah* as in Leviticus, the *yod* being in place of the *aleph* which being considered, it says that ראה איה דיה *Raya, Aya, Daya*, are all the same species of bird, but having various appellations from their different properties ; so that there is no difference between the two passages, one only having an additional name, although of the same species. The difference between the words *daah* and *raah* is nothing, for the Hebrew language admits this change of letter. (See note on question, 132.) The learned Aben Ezra says, that *raah* is the denomination of the genus which includes the different birds mentioned, whereby the objection is also answered, for the *raah* mentioned in Deuteronomy, is not a distinct species, but the name of the genus. This author avails himself of what is said of the patriarch Abraham, when, by the command of God, he took 'a young heifer, a goat, a ram, a turtle dove, and pigeon.' The scripture relates that he divided all in two, except the bird called צפור (which is applied to birds generally) and in that place, it is used instead of תור (a turtle dove,) which was mentioned before. R. Levi Ben Gershon holds that *daah* and *raah* is the same bird which from being sharp sighted and flying quickly, had both names given it in Hebrew, signifying those two properties, *raah* being derived from the verb *raah* 'to see,' and *daah* from the verb *daah* 'to fly,' and Deuteronomy, to avoid error, and for greater perspicuity enumerates both, without, however, adding another species, and he understands *dayah* and *ayah* to be the same, being commonly called by both names : so the verses thereby agree."

tucri potest, Plin. l. 10. c. 3, "called the black eagle, according to Bochart, from its great strength in proportion to its size. * * The Targum renders it *ngasya* [strong one] and so preserves the idea. * * Bate, Crit. Heb. explains it by the whining kite, from *ניח neyah* its noise and *נע nges* impudent, strong and bold disposition and in his note on Lev. xi. 13, he says they have on the South Downs in Sussex, a whining kite which may be heard when very high in the air. * * Whatever bird was intended, I think it was so named from *nges* its strength, and *nyah* its moaning."—P. "Pandion halicætus. Some think the black eagle is here intended, but the probabilities are at least equally in favor of our version."—Pict. Illus. Bib. Order Accipitres, Cuv.

4. דאח (daah) vulture, v. 14, T. O. דיתא (dita) S. J. T. milano (glead kite) *falco miloris* Linn. G. T. Geier; M. Weissen habicht (white hawk) B. milvus. "Vulture, changed in Deuteronomy into דאח probably through an error of the copyists"—F. "Primary meaning flight, the bird is so called from the extreme rapidity of its flight"—K. "The kite is called in Hebrew, Lev. 11, 14, *Daah* of flying, Deut. 14, 13, *Raah* of seeing, for the kite fieth with violence, and espieth her prey from farre."—Crit. Sac. "A kite or glead, so Vulg. milvus, which is remarkable for flying, or, as it were, sailing in the air with expanded wings. Thus our English glead is from the v. to glide, &c."—P. Order Accipitres, Cuv.

5. איה (ayah) kite; v. 14., T. O. טרפיתא (tarapheta) S. J. T. bueytre, G. T. meibe M. Schwarzen habicht (black hawk) B. *cornix* (crow, rook.) "An unclean predaceous bird of the vulture species, probably so called from its cry,"—F. Crit. Sac. *cornix*. "A species of unclean bird, remarkable for its sharp sight. See Job xxviii, Lev. xi, 14, Deut. xiv, 13. In the first passage, the English translation renders it a vulture, in the two latter, a kite, I should rather think it means a vulture and that this bird was so called either from its ravenousness, or, from the cry it makes,"—P. "In Deuteronomy, the text has 'the raah, and the ayah and the dayah after its kind.' Our sages affirm (in Cholin, folio 63. that the raah and daah are identical, as are the ayah and dayah; and according to R. Abuah (loc. cit) the daah, raah, ayah and dayah, are merely different names for the one bird, * which is called raah, which in Hebrew means to see, because of its quick sightedness; daah from its rapid movement, the expression moving, 'as the eagle,' being proverbial and the ayah may also be thus called, [for the word *ayeh* means where in Hebrew] and the exclamation *ayeh* is the most likely to rise to the lips when this bird is in flight, since it is so soon lost in view. These qualities are more particularly found in that bird which in German is called *habicht* (hawk)"—W. "It is so called because it is accustomed to frequent known places (*eyim*)"—Ab. Ez.; Milvus, Order Accipitres, Cuv.

6. ערוב (ngoreb) raven, v. 15, T. O. ערובא (ngoorba) S. J. T. cuervo; G. T. and M. raben; B. and F. *corvus*. The root means to mix, hence the following remarks of Bochart and Aben Ezra. "The color of a crow or raven is not a dead, but a glossy shining black like silk, and so is properly a mixture of darkness and splendour." "It is of the same signification as *ngereb*, i.e., evening, implying mixture," "Order Passerine "It scents carrion at the distance of a league, and also feeds upon fruit and small animals, even carrying off poultry," Cuv.

7. בת היקנה (bat hayanganah) owl, v. 16, T. O. בת נעמתא (bat nanga-meta, S. J. T. hyja del autillo, Ser. and Cass. de R. abestruz (*Strix Aluco*, Linn.) G. T. strauss (ostrich) B. *ulula*. "It resides chiefly in desert places, and has a lugubrious cry"—K. "Ostrich, so called from their loud crying to each other. 'In

* See note. p. 64.

the loneliest part of the night,' says Dr. Shaw, 'they frequently made a very doleful and hideous noise which would sometimes be like the roaring of a lion; at other times it would bear a near resemblance to the hoarse voices of other quadrupeds, particularly of the bull and ox. I have often heard them groan as if in the greatest agonies, &c. &c. &c. See the continuation of Parkhurst's interesting remarks on Lam. iv. 3, etc. Rad. ענה "Aben Ezra on Exodus xxiii, 19, writes, that the flesh of the yanganah is dry as wood, that men eat it not, because of its lack of moisture, but the young female's is eatable as possessing some. The additional word *bat*, our sages say, refers to the egg of the yanganah." "Some say that the *bat* [meaning daughter or young female] *hayanganah* present a species in which there is no male found;—that the word in the plural has a masculine termination, is nothing, since we find it frequently applied to feminine nouns, e. g. yangalim, rechalim,"—Ab. Ez. There is certainly a female Ostrich, wherefore Ab. Ez. cannot refer to them. Cuvier classes the owls among the Accipitres and the ostriches among the Grallæ or stilt birds, which "feed upon fish, reptiles, worms and insects."

8. תחמס (tachmass) night hawk; T. O. ציץ (tsitsa) S. J. T. mochuelo (horn-owl) *strix otus*, Linn. G. T. nachteule; M. schwalbe; "So called because he violently pursues other birds seizing them for his prey, thus the Targum Yerushalmi translates it *chatoofita*"—K. The root means violence, rapine. "The LXX. render it *glauka* and Vulg. *noctuum*. I think, therefore, it was some kind of owl, and considering the radical import of its Hebrew name, it might not improbably be that which Hasselquist, Travels, p. 196, describes as "of the size of the common owl, and being very ravenous in Syria, and in the evenings, if the windows are left open flying into houses and killing infants, unless they are carefully watched, wherefore the women are much afraid of it."—P. "Some say it is the male of the bat *hayanganah*."—M. "Schwalbe, it is of the predaceous kind; some consider it to be the falcon, and this name well becomes it, from its comparative fierceness among birds."—W. "From the root *chamas* violence."—Ab. Ez. Order Accipitres, Cuv.

9. שחף (shachaf) cuckow; T. O. צפור שחפא (tsippor shachafa) S. J. T. cerceta (or garceta, like Cass. de B. and Ser. widgeon, a kind of small wild duck *Anas querquedula* Linn). G. T. kukuk; B. larus (sea mew). "Larus; according to Kimchi, a bird laboring under phthisis." So Furst translates shachafat. "Æsalon Jun. accipitris species, circulus, rather the cuckow. Pagnine rendereth it Phthitica."—Crit. Sac. "The sea gull or mew, thus called on account of its leanness, slenderness or small quantity of flesh, in proportion to its apparent size LXX caron, Vulg. carus. "It is of the same signification as *shachafat* and implies atrophy, consumption; the bird is an exceedingly thin one."—Ab. Ez. Cuvier places the cuckoos among the Scansores (climbers). "The cuckoos have a lax stomach, cæca like those of the owls and no gall bladder."

10. נץ (nets) hawk; T. O. נצא (natsa) S. J. T. gavilan (sparrow hawk, *Falco Nisus* Linn.) G. T. and M. sperber (sparrow hawk). B. accipiter. "From the root נצץ *nitsats* to fly, so called, according to Aben Ezra, the Baal haturim and Shelomoh Yitschaki, from its being so constantly on the wing."—F. "It is a bird with which men hunt, and it will return to the hand of its master."—K, Crit. Sac. Accipiter; "It occurs in Cholin Per. El. Ter. where it is translated like Rashi by the French word *autour* (gashawk)."—M. H. "The hawk, from his rapid flight, or shooting away in flying; occ. Lev. xi. 16, Deut. xiv. 15, Job. xxxix. 26, which last passage seems to refer to the migration of the hawk towards the south, for most of the genus

of hawks are birds of passage."—P. "When its plumage is ample, it is constantly on the wing, and flies southward for heat."—Ab. Ez. Order Accipitres, Cuv.

11. כוס (kos) little owl; T. O. קריא (karya) S. J. T. halcon, (falcon hawk. Falco Linn.) G. T. kauzlein; M. huhu; B. bubo; F. pelican; a bird having a cup-like appendage to the craw." "R. Selomoh explains it by the foreign word, falcon, which resides with men, and is employed by them in hunting."—K. "Targ. and in Mas. Nidah it is translated *karia* and *kephupa*, and Rashi explains it as a bird which cries during the night, and having something human about the appearance of its face. Compare Ps. cii. 6."—W. Perhaps the Kos is identical with the Lilith (Isa. xxxiv. 14) which is no doubt the *bubo maximus* or eagle owl. In the travels of Captains Irby and Mangles, the following observation occurs in their account of Petra. "The screaming of eagles, hawks, and owls which were soaring above our heads in considerable numbers, seemingly annoyed at any one approaching their lonely habitation, added much to the singularity of the scene." Order Accipitres, Cuv.

12. שלך (shelach) cormorant; T. O. שלילונא (shaliluna) S. J. T. and de R. gavista, gavia, (sea-gull, gull, *larus* Linn.) G. T. schwan; M. fischreihier (heron) B. mergus. "According to the Gemara, a bird that draws up fish from the water [Chol. fol. lxxiii, 1.] lxx, katarraktes; Vulg., mergulus,"—F. "Cormorant is so named in Hebrew of *shalach*, of casting itself down into the water"—Ainsw. ap. Crit. Sac. "Root means to cast; as a N. a kind of sea fowl, the *cataract* or *plungeon*. Its Heb. and Greek names are taken from a very remarkable quality, which is, that when it sees in the water, the fish on which it preys, it flies to a considerable height, then collects its wings close to its sides, and *darts down* like an arrow, on its prey. See Bochart vol. iii, p. 278, and Johnston Nat. Hist. de Avibus p. 94, who adds that by thus darting down it *plunges* a cubit depth into the water whence evidently, its English name *plungeon*,"—P. "Under the common appellation *shalach* the shag and some other species of *Phalacrocorax* or *cormorant* were included." Pict. Illust. Bib. where see a most interesting account of them. "As conveyed by the Targumist, a bird drawing fish from the water"—R. "Some say a bird that is accustomed to cast its young"—Ab. Ez. "Order Palmipedes (having webbed toes) their voracity is proverbial," Cuv.

13. ינשוף (yanshoof) great owl; T. O. קיפופא (kifufu) S. J. T. lechuza (*stirix passenina* Linn.) G. T. huhu; M. nachteule; B. noctua; "According to Kimchi, a bird that flies or cries at night only (nachteule) so also the Targumist; according to Aben Ezra a bird only flying at evening because it cannot bear the light of the sun"—F. "An owl or bat, because it fieth at twilight."—Crit. Sac. Parkhurst, however, says that this interpretation, so generally accepted among Jews and Christians, is very forced, and endeavours to show at length that the Ibis is meant; but we think his position quite untenable, and this for the reasons he himself states. "Rashi says that the *kos* (little owl) and the *yanshoof* are called in French, *chouette* (screech—owl) and there is another species like it which is called *hibou*, (owl). Rashi does not mean to say here that the *Kos* and *Yanshoof* are one and the same species, but they are placed together in one verse because they are alike in respect to crying out at night."—W. Order Accipitres, Cuv.

14. תינשמת (tinshemet) swan; v. 18, T. O. בורא (bavta) S. J. T. calamon (purple water hen) G. T. and M. fiedermaus (bat) B. mouedula. "Yitschaki understands it *vespertilionis*, like the mouse that flies at nights (bats), and Aben Ezra adds it is so called from the exclamation שם (shom) *there!* made on beholding it, and thus does

the Targumist render it *bavta* (and not *cavta* as in many readings). Nevertheless it appears to be a kind of marine bird, and so the Seventy render it *ibis*, porphurion sea fowl or swan, it is also the name of a four footed reptile, &c."—F. "Perhaps a species of owl so called from its breathing in a strong and audible manner, as if snoring. But as in both these passages, particularly in the former, it is mentioned among the water fowls, and as the LXX in the latter, appear to have rendered it by the Ibis (a species of bird not unlike the heron) and the Vulg., in the former by *cygnum* the swan; it should rather seem to denote some water fowl, and that (according to its derivation) remarkable for its manner of breathing. And therefore I think the conjecture of the learned Michaelis (whom see, Recueil de Questions p. 221) that it may mean the goose which every one knows is remarkable for its manner of breathing out, or hissing when provoked, deserves consideration."—P. [according to our opinion, but very little] "It is the French *chauve souris*, and like the mouse that flies at night; and the *tinshemet* which is mentioned among reptiles is similar, and has no eyes, it is called *talpa*"—R. "Swan, order Palmipedes, Ibis order Grallæ. The sacred Ibis. was adored by the Egyptians because it devoured serpents, &c."—Cuv.

15. קאט (kaat) pelican; T. O. קאטא (kata) S. J. T. cernicolo, Cass de R. cione (Falco Tinunculus Linn.) G. T. rohrdommel (bittern) M. pelican; B. platea, pelicanus. "A bird of the waters or desert which regurgitates what it swallows in its hunger (pelican). "R. Judah saith in the Talmud that the *kaat* is identical with the *keek*, and in the Jerusalem Talmud R. Ishmael teaches the same. In the Mishna there occurs the expression 'and not with the oil of *keek*.' (See Section Bamè Madlikin). And in the Gemara the question is put as to what is meant by the oil of *keek*? which Shemuel answers by saying it is a water bird of that name."—K. "Platea avis, pelecenus, a vomitu. Conchas enim calore ventris coctas, rursus evomit, ut testis rejectis esculenta seligat ut scribit Plin. Lib. 10, cap. 40, et Aristol. lib. 9, cap. 10, de Histor. Animal, &c."—Crit. Sac. "Root *ka* to vomit;—the pelican; the principal food of the pelican or onocrotabus is shell fish, which it is said to swallow, shells and all, and afterwards, when by the heat of its stomach, the shells begin to open, to vomit them up again and pick out the fish. See the continuation of Parkhurst's lengthy and interesting remarks under the cited root. This just quoted remark is verified, and we might say the very expressions found, perhaps unknown to him, in the Talmud Treat. Chol. p. 73, referred to by Aben Ezra and Wessely, in their comments. Order Palmipedes, Cuv.

16. רחם (racham) gier eagle; T. O. רַקְרַיָּקָא (rakrayka) S. J. T. pelicano (Polecanus onocrotalus Linn.) M. specht; B. merops (bee catcher). "A bird of the vulture kind, so called from its love to its young, [its root means to have compassion, like *chasidah*, a stork from *chesed* mercy] vultur perenopterus Linn. The word used by the Targum has reference to its green color."—F. The remarks of Kimchi are embraced in the foregoing quotation from Furst. "Bochart, vol. iii. has taken great pains to prove that it means a kind of vulture which the Arabs call by the same names. So Dr. Shaw's Travels, p. 449, takes it for the *Perenopteros* or *Oripelargos* called by the Turks *Ach Bobba*, which signifies *white father*, a name given it, partly out of the reverence they have for it, partly from the color of its plumage: though in the other (latter) respect it differs little from the stork, being black in several places. It is as big as a large capon, and exactly like the figure which Gesner, lib. iii. De. Avib. hath given us of it. These birds, like the ravens about London, feed upon the carrion and nastiness that is thrown without the city of Cairo, in Egypt. In Lev. *racham* is placed between *kaat* the pelican and

chasidah the stork, and in Deut. *rachama* between *kaat* the pelican and *shelach* the cataract, which positions would incline one to think it meant some kind of water fowl. But, however this be, this bird seems to be denominated from its remarkable tender affection to its young. Com. Ps. ciii. 13, Isa. lxiii. 15, 1 King's iii., 26."—P. Order Accipitres, Cuv.

17. חסידה (*chasidah*) stork v. 19; T. O. חוויטא (*chavarita*) S. J. T. ciguena (*Ardea ciconia* Linn.) G. T. and M. storch; B. ciconia. "A bird exhibiting special compassion towards its young, [*chesed* means mercy or compassion] ciconia."—F. "We learn from Scripture that it is a periodical bird, or bird of passage, (Jer. viii. 7) that it has large wings (Zech. v. 9) and that it rests in *berushim* fir or cedar trees (Ps. civ. 17). All these circumstances agree to the stork which appears to have had the name *chasidah* from its remarkable affection to its young, and from its kindness or piety in tending and feeding its parents when grown old [the same derivation is given, in nearly the same words, by Rashi. See his comment.] I am aware that by some, this latter fact is treated as a fable, but I must confess when I find it asserted by a whole cloud of Roman and Greek writers, who had abundant opportunity to ascertain the truth or falsehood of it, and especially by Aristotle and Pliny, and that among the Greeks in particular, it passed into a kind of proverb in their application of the V. *antipelargein* and of the names *antipelargia* and *antipelargesis* for requiting ones parents, and in their calling laws enforcing this duty *pelargikoi nomoi*—on these authorities, I say, I cannot help giving credit to the fact just mentioned. * * * *Chasidah* cannot mean the *heron* for the common heron is not a bird of passage. It has, however, so great a resemblance to the stork that it is ranged by naturalists under the same genus. * * * They will feed upon frogs, carefully selecting the toads, which they will not touch."—P. But for its extreme length we would produce the whole of Parkhurst's learned and interesting article—we recommend the attention of the critical reader to it. Aben Ezra says that it appears at regular periodical intervals, as it is written Jer. viii. 7. "Yea, the stork in the heavens knoweth her appointed times, &c." "So punctual are they in their comings and goings, that, from the most remote times they have been considered as gifted with reasoning powers. * * The coming of the storks was the period of another Persian festival, announcing their joy at the departure of winter. The expression 'the storks in the heavens' is more applicable than at first appears, for even when out of sight, its path may be traced by the loud and piercing cries peculiar to those of the new as well as of the old world. * * Besides the Jews, other nations held this bird in veneration."—Pict. Illus. Bib. "Their gizzard is slightly muscular and their two cæca so small as to be barely perceptible. Order Grallæ,"—Cuv.

18. אנפא (*anafah*) heron; T. O. אבו (*ebou*) S. J. T. ensanadera; Cass de R. and Serr. cuervo marino; G. T. and M. reiher; B. milvus (kite). "According to the Talmudic doctors, the angry dayah or vulture, the root being *anaf* to be angry."—F. "In Latin *Ardea* of *ardeo* to burn, chiefly because she is an angry creature." Crit. Sac. "Heron, so named from its angry disposition, as the stork is called *chasidah* from its kindness. Bochart, vol. iii. 337, takes *anafah* for a kind of eagle or hawk, but if this were the true meaning of the word, I think it would have been reckoned with one or the other of those species in the preceding verses."—P. "As in Cholin the angry Dayah, to me it appears to be the heron."—R. "*Anafah* because it becomes quickly incensed."—Ab. Ez. "Their stomach is a very large sac, but slightly muscular, and they have only one minute cæcum. Order Grallæ, Cuv.

19. דוכיפת (*doochifhat*) lapwing; T. O. נגר טורא (*nagar toora*) "cock of the moun-

tains." Elias in Methurgaman observes that it is called in German an *awrhane*. D. L.) S. J. T. gallo montes; Serr. and de R. aborilla; G. T. miedehopf; B. upupa picus "According to another opinion it is derived from *duch* (gallus) and *kefa* (mons)."—F. "Rab. Sherira the Gaon, explains it also, to mean *tarnegol habar* (wood cock). "The lapwing is so called of the double combe that it hath, *Gallus sylvestris* aut *Gallina sylvestris*."—Crit. Sac. "The upupa, hoopoe, or hoop a very beautiful, but most unclean and filthy species of bird which is, however, sometimes eaten. So the LXX, *Epoph*, and Vulgate *Upupa*. (See Boch. v. iii. Brookes Nat. Hist. v. ii. p. 123.) It may have its Hebrew name as it plainly has its Latin and English one, from the noise or cry it makes."—P. "Wood-cock, its comb is double in French *hupe*, called nagar toora, because of its acts, as our sages explain in Masechet Gittin (p. 63)."—R. "The Sadduces say this is the cock, but they are the fools of the world [most irrational,] for who told them? [since they reject traditional teachings.]"—Ab. Ez. Lapwing Order Grallœ, Cuv.

20. ערלף (ngatalef) bat; T. O. עטלפא (ngatalepha) S. J. T. morciegalo; G. T. schwalbe, B. vespertilio. "According to Aben Ezra, a small bird flying at night, derived according to Kinchi, from ngatal (darkness) and ngef (to fly). This, however, does not seem a proper explanation to me. I consider it to be a reptile which is like a mouse (bat) thus we find in Isaiah it is joined to *chelor perot* (ch. ii. v. 20). Ang. Vers. moles, its root *ngatalef*, as in Latin *talpa*; if so the *ngain* becomes paragogic, whence is derivable the bird's name which is like it."—F. "The winged mouse which flies at night."—K. "Vespertilio quæ in caligine volitat, et interdiu se velat."—Crit. Sac. "Perhaps from *ngat* to fly and *ngalaf* obscurity. A bat, which flies abroad only in the dusk of the evening and in the night, according to Ovid, Metam. lib. iv. fab. 10, lin. 415. Nocte volant, seroque trahunt a vespere nomen"—P. "R. David Kimchi writes that it means the winged mouse that flies at nights. If so, we find that the sacred book commences its enumeration with the king among birds, viz: the eagle, and finishes with that which is intermediate between a bird and a reptile"—W. Cuvier places the bats among the Carnaria, the third order of Mammalia.

Of flying reptiles (sherets hangof) we have mentioned 1. ארבה (arbeh) rendered by the Anglican version, locust; 2. סלעם (solngam) bald locust; 3. חרגל (chargole) beetle; 4. חגב (chagab) grasshopper. This first is translated *locust*, but the other three are left untranslated by the Spanish Jewish Translators, Casiodoro de Reyna, most of the German translators and Mendelssohn. They are rendered by Buxtorf, respectively, *locusta*, species *attelabum*; *cantharus*; and *locusta*; by Furst, *locusta*; species *locustæ voracitate nominatæ*; genus *locustæ*, a *saliendo*, &c.; *locusta gregaria*. According to Kimchi, 1. locust; 2, one of the species of locusts, the רשון (bald locust) of our sages [see Chol. fol. 65 a, and Vayikra Rabba, sec. 14] it has a bald forehead, no tail, but elongated head. 3. Species of locust; 4, the same. Parkhurst thus renders them, with the following remarks: 1, a locust; some place the word under this root, (arab) to lie in wait, because these insects suddenly and unexpectedly come forth upon countries as from *lurking* places, plundering and destroying, &c., 2. from *salang* to cut, &c., a kind of locust, probably so called from its rugged craggy form as represented in Scheuchzer's *Physica Sacra* tab. ccl. fig. 1 which see, &c., 3. a kind of locust; it appears to be derived from *charag*, to shake, and *regel*, the foot, and so to denote the nimbleness of its motions. Thus, in English we call an animal of the locust kind, a grasshopper, the French name of which is likewise *sauterelle* from the V. *sauter* to leap. 4. • • I should rather think that *chagab* denotes the cucullated species of locust, so denominated by

naturalists from the *cucullus*, cowl or hood with which they are naturally furnished, and which serves to distinguish them from the other birds, &c." P. The Arabas eat them in a fried state with salt and butter; and the writer of this has seen several Jews from Barbary eat the locust with much apparent gusto in the city of London, evidently considering it a great luxury, and themselves, much favored in being able to procure these native delicacies where the public taste has not yet called for them, though it requires, in abundance, creatures of most loathsome appearance and character, which it cannots in justice, be said the locust, present. The locusts are classed by Cuvier among the Insecta, 2nd family of the Orthoptera, viz: the Saltatoria.

With respect to *reptiles*, it will be recollected from an examination of the word שרץ (sherets) on page 52, to which the reader is referred, that in Hebrew this word has a much wider acceptation than in English, and includes things moving swiftly in the waters, as *swimming* fishes, or on the earth, as weazels, mice, &c. This premised, the scriptural classification will be better appreciated.

1. חולר (choled) weasel v. 29, T. O. חולדא (choolda,) S. J. T. comadreja, (*mustela vulgaris*, Linn.) G. T. and M. wiesel; B. *mustela*; F. *talpa*, called so in the Talmud, because of its digging or scooping; we find "the Eternal hollowed for them (machlid) the earth."—F. K. *mustela*, "The weasel is called in Hebrew *choled*, of *cheled* time, not because it liveth long as *oleaster*, but because it soon waxeth old and so giveth way to time."—Crit. Sac. "It seems to have its Hebrew name from its *insidious creeping* manner."—P. "Order Carnaria (being very sanguinary, and living almost entirely upon flesh.) The true weasels are the most sanguinary of any"—Cuv.

2. עכבר (ngachbar) mouse; T. O. עכברא (ngachbera) S. J. T. raton; G. T. and M. *maus*; B. and F. *mus*. "Harmer shows that in latter days mice have been sometimes most destructive, to Palestine in particular"—P. Order Rodentia, Cuv.

3. צב (tsab) tortoise; T. O. צבא (tsaba) S. J. T. sapo; G. T. *krote* (toad,) M. *schildkrote*; B. *testudo*; "Bufo, à tumescendo, *testudo*,"—Crit. Sac. "The toad, from his *swelling* (the root means to swell) or rather because there seems no occasion to forbid eating the toad, the *tortoise*, from the turgid form of his shell"—P. "R. Eliau Bachur translates it *schildfrote* identical with *schildkrote*"—W. "verdier, approaching the frog", R.—Reptilia—Order Chelonia, Cuv.

4. אקא (anakah) ferret, v. 30, T. O. ילא (yala) S. J. T. erizo (hedgehog) G. T. and M. *igel*; F. *stellio*, a sono. "so called perhaps from its continued cry"—K. "A kind of lizard or newt, so called from its moan or doleful cry"—P. *herisson* according to Rashi. Cuvier places the lizards among the Reptilia, second family of the Saurians. The lizards are distinguished by their forked tongue, &c. Those called the monitors frequent the vicinity of the haunts of crocodiles and alligators, it is said that they give warning, by a whistling sound, of the approach of these dangerous reptiles, and hence probably their names of *sauvegarde* and *monitor*"—Cuv. This is certainly intimated in the Hebrew name.

5. כח (koach) chameleon; T. O. כוחא (kocha) S. J. T. lagartija; G. T. *molch* (salamander) B. *lacerta*, "genus *lacertæ*, non a robore nominatum, sed ab humare vel sputo quod emittit"—F. "R. Yonah writes that it is called *hardon*, it is a species of the צב (tsab,) and R. Solomon writes that in the vernacular it is called lizard."—K. "A species of lizard well known in the east, and called by the Arabs *alwarlo*, or, corruptedly from them, *warral* or *guaril*, and so remarkable for its vigor in destroying serpents and *dhabs*, (another species of the lizards) that the Arabs have many proverbs taken from these its qualities, &c."—P. "Rashi, Onkelos and

Jonathan Ben Uziel and Mendelssohn do not translate this word at all; but it appears to me to be identical with the Arabic *guaril* known for its great strength.”—W. Cuvier places the chameleons among the Reptilia, 5th family of the Saurians.

6. לטאה (letaah) lizard, T. O. לטאה (letaah,) S. J. T. caracol (snail) G. Tei .der; B. stellio, lacertas, “lacertæ species, sic dicta quod terræ adhaereat (?)”—F. “A species of *poisonous lizard* called in Arabic *wachra*, and remarkable for adhering closely to the ground. Vulg, stellio, a *newt*, which may confirm the interpretation here given”—P. “The *lacerta gecko* is a species of lizard found in countries bordering on the Mediteranean, it is of a reddish grey, spotted with brown. It is thought at Cairo to poison the victuals over which it passes, and especially salt provisions, of which it is very fond. It has a voice resembling somewhat that of a frog, which is intimated by the Hebrew name, importing a sigh or a groan.” Pict. Illus. Bib.—R. lizard. Reptilia, 2nd family of Saurians, Cuv.

7. חומט (chomet) snail, T. O. חומטא (choomta) S. J. T. babosa (limax, Linn.) G. T. and M. blindschleich (slow worm or snail) B. limax; F. limax ut plurimi vertunt. “Lacerta, secundum divum Hieron. vel limax. Testudo, cochlea terrestris secundum R. David.”—Crit Sac. “A kind of lizard. In Chaldee the V. signifies to bow down, depress, prostrate; and the animal might be called by this name from its being (by reason of the shortness of its legs) always prostrate, as it were. In Josh. xv. 54, we have Chamta, the name of a town in Canaan, perhaps so called from the *emblematic reptile* there worshipped, Comp. Deut iv. 8”—P. “limace”—R. Mollusca, Gasteropoda Pulmonea, Cuv.

8. תינשמת (Tinshemet) mole; T. O. אשחוטא (ashota) S. J. T. topo, (talpa, Linn.) G.T. and M. maulwurf, B. and F. and K. talpa. “Root means to breathe, as a N., a species of animal enumerated among the lizards. The learned Bochart hath plainly proved that it was no other than the *chameleon*, an animal of the lizard kind, furnished with lungs remarkably large, and so observable for its manner of *breathing* or perpetually gasping as it were for breath, that the ancients feigned it to live only on the air. Thus Ovid, Met. lib. xv, fab. iv, lin. 411. ‘Id quoque quod *ventis* animal nutritur et *aura*.’ (The creature nourished by the wind and air)”—P. This applies equally to the mole, since “while employed throwing up those little domes which are called mole hills, he is said to pant and blow as if overcome with the exertion”—Pict. Illus. Bib. Yet the context would show that he is right in placing the *Tinshemet* among the lizard species. Cuvier places the mole among the Carnaria of Mammalia.

From the foregoing analysis, we may consider the following as legitimate deductions. First, as regards *beasts*, we find that even such of them as approximate so closely to those which ruminant and divide the hoof, that the most able of modern naturalists have been in doubt as to their classification (e. g. the camel, see p. 61) are pronounced, as of the prohibited species by the text, which rigidly and unqualifiedly demands the two requisites mentioned. We further find, that by this requirement the law selects as the proper food of the Hebrews, those beasts *which possess the most perfect digestive apparatus*, and whose flesh, therefore, would be, according to principles laid down by eminent scientific authorities, of the most healthy description. By this dictum, also, the law includes as permitted, that large and most valuable class of domestic

animals (the *Ruminantia*) which best minister to the dietary and other wants of men. As a further consequence we find that the remaining order of animals, which present, almost without exception, a catalogue of wild, carnivorous, rapacious, sanguinary and, but for their skins, chiefly useless, animals, whose digestive apparatus is of a plainer and less perfect character, and who possess, for the most part, a single stomach and claws to tear their prey,—that such form the prohibited class. And with respect to *birds* we find further that quite an identity exists in their character, both with the permitted and prohibited; for the examination we have made shows us, that although there be some difference of opinion among Hebrew authorities themselves, respecting the enumerated species,* yet do they all agree, as do Christian critics, in referring an overwhelming proportion of them to the *Accipitres* or *Raptores*, which are birds of prey. Now, while these, like the beasts of prey, possess a less perfect digestive apparatus than that of the permitted birds, which include chiefly, though not exclusively, that valuable class known as the domestic, theirs, as we have before shown, is of a more complicated and perfect character, establishing thus the referred to analogy in so far as concerns digestion, and, perhaps, the nature of their flesh. It is further established by the text objecting to those wild, carnivorous, rapacious and sanguinary birds possessing, like the prohibited beasts, a single stomach and claws to tear their prey. And it is further established in that there are instances of doubtful species among the enumerated birds, (e. g. the raven) just as there are among the enumerated beasts, which are, however, determined by the sacred text.† This premised, we may proceed to the consideration of the third point of inquiry, viz., the prohibition of the clean and unclean animals having reference to authority and reason.

As with the prohibition of blood, Hebrew authorities have assigned both religious or moral, and hygienic, reasons for the institution of such law; and as in the former case, we shall select the most valued of these authorities, and present them in an English dress to the reader, in conjunction with the illustrations afforded by other authors. We regard that most valuable and interesting,—we believe, now very scarce, Spanish Jewish work, *Las Excelencias de los Hebreos*, as containing the most comprehensive digest of Jewish opinion on the matter. From it, therefore, shall we prefer to translate, commencing at the third division, (*Tercera Excelencia; Separados de todas las naciones*) at the 39th page.

* The number of species of birds known to naturalists is about 5000.

† See commentary of Abarbanel quoted on p. 54.

“Three opinions are offered respecting this prohibition. The first is, that all the meats condemned by the law afford an objectionable and improper nourishment, deteriorating from the health and good temperament of the body, and embarrassing the devotion of the soul. In this way speaks the great R. Moses, of Egypt (Maimonides, Mor. Neb. c. 3) when discoursing concerning the reasons of the precepts, referring, among other matters, to the swine, which he says is of a very humid nature, and that the principal cause of its prohibition is its extreme filthiness,—that had it been permitted to become a staple article of food, [its evils would have predominated over its advantages] for the streets and habitations would become as filthy as so many dirt receptacles, (muladares) as we find is the case with those uncleanly cities where the injurious practice of permitting these animals to congregate in public places [to collect their noisome food] obtains. [Could our author have seen some of the poorer Irish neighbourhoods and cabins, as we have seen them, both in Britain and America, presenting so many revolting sties where man and hog assist each other to engender and diffuse fever and pestilence, he would have found powerful and fearful testimony to the truth of the idea of which he writes.] The fat of the swine is, in itself, sufficient to impede the circulation, [and, we take leave to add, is one of the chief reasons why such fearfully vast quantities of intoxicating liquors are consumed in those countries where it is chiefly eaten, as may be seen by a comparison between Great Britain, the United States, and Canada on the one hand, and Italy and other southern countries on the other. And the eating of such gross meat is an excuse for the abused drinking customs of society, of which excuse, so far as our limited inquiries have shown us, modern inquiry has failed to show the inefficacy,* and to which the attention of the so called Temperance Societies should be directed;—but to return to our author; the fat, he says, further] engenders cold, and, so to speak, greasy, blood; wherefore, the desirableness of prohibiting it, is established.”

We shall here subjoin in illustration what other authorities have advanced on this subject, commencing with a few extracts from a very interesting pamphlet by Mr. Begg, of Glasgow; † Dr. James observes, that the hog is the only animal subject to the leprosy, and also to something very like what we call the king's evil: for scrofula is evidently derived from *scrofa*, a sow. The measles is another contagious distem-

* But the contrary. See the various works, which running to an opposite extreme, advocate an exclusively vegetable diet.

† “The Purpose of God in the Separation of the Israelites as a People, &c.” A Lecture, &c., 1844.

per to which this animal was subject. 'We need not, therefore, be surprised to find, that in his Medical Dictionary he should express his conviction,' that God had particular respect to the health of the Jews in thus prohibiting certain creatures to be eaten, as being unclean; which according to this skilful and learned physician, is nearly synonymous with 'unwholesome.' Among other contagious diseases ascribed by Grotius to the flesh of the swine, is scurvy also.—See Hewlett's Commentaries on Scripture, on Lev. xi., 7, 47. Ulloa, in his voyage to South America, likewise states that the inhabitants of the whole extent of the government of Carthagená, in that country, were in his time, very subject to leprosy. He farther states that pork was there a very common food, and that some of their own physicians attributed the disease to this cause. So much afraid were they of its spreading, that the diseased, without distinction of age or rank, were forcibly confined in an hospital, and allowed to intermarry only among themselves.—Voyage, vol. 1, p. 45. M. Rollin, surgeon on board of La Pyrouse's ship, in his expedition, remarking on the general prevalence of leprosy at Mowee, one of the Sandwich Islands, says, 'the nature or quality of the food may concur with the heat of the climate to nourish and propagate this endemic disease of the adipous membrane; for the hogs even, the flesh of which forms the chief part of the food of the inhabitants of Mowee, are many of them extremely measly. I examined several, and their skins were scabby, full of pimples, and entirely destitute of hair. On opening these animals, I found the caul regularly sprinkled with tubercles, and the viscera so full of them, that, in the least delicate stomach, the sight could not but have produced a nausea.'—Peyrouse's Voyage, vol. iii., p. 169. Observe now the array of exceptions made to the use of this forbidden food by a medical authority of our own country, who would not wholly exclude it. Dr. Willich in his Lectures on Diet and Regimen, says, 'Persons who have impure fluids, and a tendency to eruptions, as well as those who have wounds and ulcers, should refrain from the use of pork; for this food will dispose them to inflammation and gangrene. It is equally improper in a catarrhal state of the chest, in weak stomachs, coughs and consumptions.' See Forsyth's Dictionary of Diet, art. "Pork." But we have surely some reason now to inquire whether, if pork be so improper for those that are so diseased, there be not in the fact itself the evidence that the use of it will also contribute to produce these diseases in those previously free from them? 'Of all the abominable feeding creature,' says Whitlaw, 'the swine may be said to be the chief: it is more liable to disease, and entails more misery on the human race than any other animal: when in the fields, it will root up and eagerly devour all kinds of poisonous roots, particularly

the ranunculus bulbosus; and I have frequently observed the effect to be, a severe attack of inflammation of the cuticle over their whole body, attended with swelling of the legs and sloughing from the skin in bran-like scales. When they continue the use of such fiery food, the skin becomes permanently diseased, the glands diseased, and frequently discharge matter: they are, in truth, affected with scrofula, and are certain to communicate the disorder to those who eat them.' White-law's Code of Health, p. 61. The author having ascertained, by the use of the lens, that the leprous condition of the swine, is produced by an insect engendered in the skin, and considering all leprosy to be of the same nature, he thus accounts for the obligation under the law (Lev. xiii, 52; xiv, 45,) to destroy the clothes and the houses in which the disease, after inspection, continued to manifest itself. From his own observation in the West Indies and Southern States of North America he declares that the clothes and houses were sometimes thus contaminated by this disease; and that during hot weather when leprous swine go into a pond to cool themselves, a lead-colored scum floats upon the water, beneath which these insects may, by the aid of a magnifying glass, be seen in myriads (Ib. p. 62.)

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

Principles of Human Physiology, with their chief applications to Psychology, Pathology, Therapeutics, Hygiene, and Forensic Medicine. By WILLIAM B. CARPENTER, M. D., F. R. S., F. G. S. Fifth American, from the fourth and enlarged London Edition. Edited by Francis Gurney Smith, M. D. Philadelphia, Blanchard and Lea, 1853. Montreal, B. Dawson, p. p. 1091.

This excellent work appears before us as a reprint of the fourth and last London edition, and no pains have been spared by either the Author or the Publishers to render it in every way, superior to its well received predecessors.

From the great number of laborers in this fruitful field of medical science, the discoveries that are being constantly made, require new editions of works, before the older ones are run out. The present edition has been entirely remodelled, and is in reality *a new treatise* on the subject.

The chapter in previous editions which treated "of the different branches of the Human Family and their Mutual Relations," has here been extended in all that relates to Man, and curtailed in that which relates to comparative Physiology; and has been transferred to nearly

the end of the volume, which the Author considers to be now the more appropriate place for it.

The second chapter of the present edition, comprising a general review "of the Chemical Components of the Human Body, and the changes which they undergo within it," is now introduced for the first time. This is one of the most important additions to the work, and of which we have often observed the want in former editions; Todd and Bowman's Physiology being the only one supplying this deficiency.

Several new views of the Author will be found in this chapter, especially in the respective relations of Fibrin and Albumen to the nutritive process, and of the former to the Gelatinous tissues. And in the general summary which forms the last section, in which are the discoveries of M. Cl. Bernard, in regard to the elaboration of sugar and fat in the Liver, his views are placed by our Author in a somewhat novel aspect. He considers that the sugar generated, by the agency of the liver, from the products of the waste or disintegration of the system that are contained in the blood, seems to be at once employed in supporting the combustive process by which the animal heat is maintained. The fat, also, he states, may be directly applied to the same purpose, or may be stored up in the cells of Adipose tissue for future use. This view of the combustive properties of sugar in the animal economy, we consider, supported by the experiments of Bernard, as sugar is found to be present in the blood going to the lungs, but not in that returning from them, and Magendie has already inferred from that circumstance alone, that it must have undergone destruction in the lungs, and the Carbon eliminated.

There is another fact which tends to support this view, and that is, the large amount of sugar found in the fatty livers of some of the Bird tribe, as shown in the experiments of Dr. Gibb, published in this Journal, and also in the livers of the Marine Mammalia, which abound with fat. Very probably there may be, as a result of the operation of Chemical Forces, a conversion of a portion of the fat into Sugar in the liver, which in its turn, become decomposed in the lungs, and thus forms one of the principle sources of animal heat.

"The Structural Elements of the Human Body, and the Vital Actions which they exhibit," form the subject of the third chapter. This includes the general doctrines of cell-formation and of Vital Force in their application to Human Physiology, and appears for the first time in this edition.

The chapter on the Blood has been greatly extended and re-written. It contains the correction of the ordinary Analysis of the Blood, and

an account of that state of the blood which gives a special predisposition to zymotic diseases. To the latter we would direct special attention, as worthy of much consideration, our limits prevent us, however, from dwelling upon it.

The chapter "on the Primary Tissues of the Living Body; their Structures, Composition, and Actions," has had a large amount of new matter added, in great part supplied by the elaborate Microscopic Anatomy, of Professor Kolliker, and many new illustrations have been introduced.

Of most of the succeeding chapters, such important alterations and additions have been made as were essential in the re-arrangement of the work. As for example:—the embodying the results obtained from the study of the Digestive Process by Frerichs, Bernard, and others. The causes of the Heart's Sounds, and a view of its rythmical contractions which the Author believes to be original. Results of Dr. Hutchinson's inquiries on the movements of Respiration. Researches of M. M. Regnault and Reiset, Prof. Scharling, M. Barral and others upon the amount of oxygen absorbed and carbonic acid exhaled. The chapter on the functions of the Nervous System, forms one-fifth of the entire volume, and has had a great many additions and alterations made to it. This subject, in its Psychological as well as in its Physiological relations, has occupied more of the Author's attention than any other department of Physiology, and we have here the more matured fruits of his inquiries and reflections. The peculiar states which are known under the designations of Somnambulism, Hypnotism, Mesmerism, Electro-Biology, &c., are all considered in their relations to Sleep, on the one hand, and to the ordinary condition of Mental Activity on the other; and the Author has not only succeeded in throwing considerable light upon the nature of these aberrant forms of psychical action, but has been enabled to deduce from their phenomena some inferences of great importance in Psychological science.

The additions and alterations which have been made in the chapter "on Generation," are both numerous and important, especially under the section on the "Developement of the Embryo," which has been almost entirely re-written, so as to bring the view of the process more into accordance with the existing state of our knowledge of it.

We have experienced great pleasure and very much additional information from perusing the work, which presents a faithful reflection of the present aspect of Physiological Science. The clear manner in which everything is expressed and described by our Author, affords an additional charm to all his works, and still more so to the present. A large number of references have been introduced, and also a special

index of Authors referred to, which have considerably augmented the bulk of the volume.

The present reprint, has one very great advantage over the English edition, from its containing upwards of one hundred additional wood engravings, introduced through the liberality of the publishers, and many additional observations, and notices of recent discoveries have been embodied by Dr. Smith.

We can conscientiously recommend the work to the Profession, and to the student as a text book of a superior class, containing a large amount of information on every individual subject throughout the great range of Physiology. It is got up by the Publishers in their usual elegant style, and all the illustrations are beautifully clear and distinct.

The Druggists General receipt Book—comprising a copious Veterinary Formulary, and table of Veterinary Materia Medica: numerous receipts in patent and proprietary medicines, druggists nostrums, perfumery and cosmetics: beverages, dietetic articles, and condiments, trade chemicals, &c., &c. By HENRY BEASLEY, second American, from the last London edition, corrected and enlarged. Philadelphia, Lindsay & Blakiston, 1853. Montreal, B. Dawson, p. p. 472.

This work is intended for the chemist and druggist, and for those who practise Veterinary Surgery, and we think will meet their wants. Its having reached its second edition speaks in its favor.

The Physician's Pocket Dose and Symptom Book—containing the doses and uses of all the principal articles of the Materia Medica, and chief officinal preparations, &c., &c., by JOSEPH H. WYTHES, M. D., author of "The Microscope," "Curiosities of the Microscope," &c., &c. Philadelphia, Lindsay & Blakiston, 1853. Montreal, B. Dawson, p. p. 246.

Books of this description are intended to meet the wants not only of the student, but of the practitioner. The author says in the preface "his aim has been to render it rather suggestive than complete," which it is far from being, for we notice several omissions among the ordinarily used medicines of modern date. *Atropine*, *Donovan's Solution*, *Glycerine*, *Matico*, *Ox Gall*, *Cyanuret of Potash*, and others are altogether omitted, as well as the "Incompatibles," with many of the articles mentioned. Of "Chloroform" the author only says "Anæsthetic from the accidents which have occurred from its use, pure sulphuric

æther is preferable for the purpose of procuring insensibility to the pain of surgical operations," in which we believe he will not find the majority of experienced surgeons to agree with him.

The work contains a table of poisons and their antidotes, and a chapter on dietetic preparations, and also an outline of general pathology and therapeutics and a table of symptomatology.

SCIENTIFIC INTELLIGENCE.

SURGERY.

Division of the Tendo Achillis in certain cases of Fracture of the leg.

THE great ease and complete safety with which the subcutaneous division of tendons is now performed, has led to the employment of that operation for the relief of several conditions distinct from those originally contemplated by its introducers. If, indeed, the great number of cases capable of benefit from it, and also the degree of benefit which, often results, be had in remembrance, tenotomy, as at present practised, may fairly take a high place among the achievements of modern surgery. While it was believed—as was the case until late years—that the division of the tendo Achillis could only be accomplished by a cut through skin and all, after the manner introduced by Thilenius, the operation was properly regarded as of a very serious character. It involved a healing process so tedious, and was attended with such great risk of permanent deformity, as to render it quite inapplicable to any except very extreme cases.

We noticed, a few weeks ago, a very important improvement in the ordinary operation for squinting, which consisted in the division of the offending muscle by a subconjunctival incision, thereby avoiding several of the sources of failure to which the method in common use is liable. We have to-day to report some cases illustrative of another use to which tenotomy has been occasionally put.

A woman of middle age, accustomed to the free use of stimulants, made necessary, as she supposed, by her laborious occupation of washing, was admitted into Guy's Hospital a few weeks ago, having sustained just previously a fracture of both bones of her leg. The accident had been occasioned by a fall down some stairs, and the parts were much bruised, the bone appearing on the point of protruding. Both arteries were found to be uninjured. She was put to bed, and the reduction having been accomplished, the limb was carefully sup-

ported by sand-bags. A condition of extreme spasmodic action of the muscles of the calf, however, came on, and the extremities of the bones were constantly suffering displacement by the jumpings of the limb. Great pain was occasioned by these actions, and considerable swelling resulted. After the limb had been repeatedly re-adjusted, and various expedients resorted to without success, and as there appeared reason to apprehend that the woman's irritable constitution would suffer if this severe local irritation was allowed longer to exist, Mr. Birkett, who, in Mr. Cooper's absence, had taken charge of the case, determined to try the effect of dividing the tendo Achillis. The success which resulted from this operation was most complete; no difficulty whatever was found in keeping the fractured portions in apposition afterwards. The leg was returned to the sand-bags for a few days, being placed so as to relax the gastrocnemius, and allow of the perfect approximation of the ends of the divided tendon. The incision united by the first intention; the leg, after a few days, was placed in splints, and its progress was in every way satisfactory. It should be mentioned, that, in consideration of the patient's previous habits, an allowance of spirits was made her throughout.

There is at present a nearly similar case in the Middlesex Hospital, under the care of Mr. Shaw, which we are the more desirous to mention as we believe that to Mr. Shaw belongs the credit of having been the first English surgeon who adopted the practice. The patient, an old man, met with a severe compound and comminuted fracture of the right leg six weeks ago. The wound was large, and the bone protruded considerably. Repeated attempts at keeping the fractured portions in apposition failed from the undue spasmodic contractions of the gastrocnemius muscle, which, as soon as they were placed in apposition, at once jerked them apart again. Mr. Shaw divided the tendon by a subcutaneous section, after which reduction was accomplished and maintained without difficulty. The man has since suffered much constitutional irritation from the effects of the fracture, around which severe inflammation took place; it is, however, now subsiding, and great hopes are entertained of his ultimate recovery with a natural limb.

The practice has, we believe, been repeatedly adopted, both by Mr. Cooper and Mr. Shaw, as well as other hospital surgeons, and usually with complete success. It must be borne in mind by those who adopt it, that it is necessary to avoid all pressure on the heel afterwards, otherwise a troublesome sore may result.

PATHOLOGY AND PRACTICE OF MEDICINE.

Polypoid Growth in the Heart.

CHRISTOPHER M——, aged forty-seven, an Irishman, and a discharged soldier on pension; formerly served in India; was admitted as a home-patient of the Rochdale General dispensary, May 5, 1852. I visited him the same day.

Symptoms.—Continuous vomiting of two days' duration, the egesta being streaked with blood; no pain, except during the act of emesis; tongue coated with a dense white fur; pulse rapid and very compressible; alvine functions normal. Ascertaining that a few days previously he had received his pension, and that on the strength of it he had been indulging very freely in beer, I judged the case to be one of gastric derangement occasioned by this just-named excess. I sent the following mixture:—Epsom salts, two drachms; hydrocyanic acid, a drachm; camphor mixture, six ounces; half an ounce every three hours. I sent also a small dose of calomel and opium, to be taken when the vomiting should have subsided, as I believed it would.

May 6th.—On visiting the man to-day, I was for the first time informed that on the 3rd instant, during his debauch, he became involved in a quarrel with another man, who, in the scuffle, kicked him over the region of the liver. On making pressure over this organ, there was some indication of tenderness, though not so considerable as to suggest serious lesion. There was no external evidence of injury. The vomiting still continued as incessant as before; the pulse was more labour-ed; some dyspnoea had come on. There was no cough, nor other pulmonic symptom beyond the dispnoea, to draw attention to the condition of the thoracic viscera. The face was much blanched, and the vital powers apparently fast waning, as if from internal hæmorrhage. All the phenomena, in fact, pointed to the probability of rupture of the liver. I ordered the most perfect quietude to be observed, and sent a mixture containing small doses of opium. I visited him again in the evening; the pulse was fluttering; the respiration more oppressed; the vomiting persistent; the system merging on collapse. There was also some disturbance of the intellectual powers. I ordered bottles of hot water to the feet, and to the epigastrium.

7th.—Nine, A.M.: Pulse a mere thread; extremities cold; breathing much oppressed. He died an hour afterwards.

In connexion with Mr. J. E. Wood, one of the staff of this institu-

tion, and with his kind and valuable assistance, I made the necropsy, seven hours after death :—

No special external appearances, except a slight contusion on the arch of the nose. The thorax and abdomen being opened, the heart was first examined. The pericardium contained several ounces of serum; the heart itself was somewhat hypertrophied. On being removed from its attachments, a dense fibrinous mass was seen to hang from the several pulmonary arteries; the right ventricle being opened, this body was found to terminate in a lash of fibrinous threads, whose delicate extremities were rather firmly connected to the parieties of this cavity, and to the circumference of the auriculo-ventricular valve. In structure it was firm and elastic, nearly resembling tendon; and to complete the likeness, it was enveloped in a sort of theca, which was jagged and torn in places, as if it had been lately separated from its adhesions to the endocardium. Its length was ten inches; its weight 189 grains. At its superior extremity it was expanded into a leaf like process. At about half its length, a process was sent off of some thickness. The walls of the ventricle were of more than moral thickness; the endocardium was hyperhæmatous; the valvular structures of the heart were natural; the pleuræ were almost throughout firmly adherent. The lungs were congested, but otherwise healthy. The liver was enlarged, but in structure healthy. *There was no solution of continuity whatever in any part of this viscus.* The stomach was to all appearance healthy, its mucous coat being, if anything, paler than usual; it contained several ounces of yellowish fluid, that had the odour of malt liquor. The rest of the abdominal organs were free from disease, with the exception of the kidneys, which were enlarged and mottled. The blood was remarkably fluid.

Remarks.—It is evident that the whole of the phenomena were dependant upon the adventitious formation within the heart. The peculiarity of the symptoms, however, and the fact of previous violence having been experienced, tended altogether to put diagnosis at fault. It cannot be doubted that the polypoid growth had occupied for some time the position in which it was found after death, but that its adhesions had prevented its exercising much influence on the circulating current. Its detachment may be accounted for in two ways—first, by the shock resulting from the blows and falls encountered during the fight—or second, (supposing the sickness to have been consequent on over-imbibition,) by the excessive retching accompanying the vomiting. Perhaps both contributed to this effect. I am less inclined to attribute the vomiting to sympathy with the condition of the heart, inasmuch as when

first I visited the patient, I do not remember observing any pulmonic symptoms whatever.

The post-mortem examination was made in obedience to a coroner's order, and the man who had given the kick before spoken of, had been placed in custody. I fully believed that the inspection would have disclosed a ruptured liver; and it seemed highly probable that the inquest would terminate in a verdict of manslaughter. The evidence given, however, being of course in accordance with the facts already detailed, the verdict was the usual one of "Died from natural causes."

A Consideration of some of the Relations of Climate to Tubercular Disease. By W. J. BURNET, M. D., Boston.

There are two prominent facts which have made the subject of the climatic relations of tubercular disease, one under active discussion among the medical men of this country and Europe during the last few years.

These are: first, the almost alarming increase of disease of this nature; and, second, the facilities of travel, so that climate can be easily and cheaply changed. The time has been when only a few thought about distant travel for health. But now, almost every one who at all values his life, can easily put himself in a more genial atmosphere and beneath an almost cloudless sky. With the attention thus directed, the questions are—*what* climate is to be sought; and what are the reasonable expectations as to its effect upon tubercular disease?

Of late there has been published quite a number of works upon the climate of those European and insular countries hitherto quite celebrated as resorts for invalids of this character; and, as the most dissimilar views have been advocated, there has arisen much confusion among medical men as to the correct answer of the questions above referred to. Some, in fact, have become thorough skeptics as to the benefit of any change of climate out of the latitude in which the invalid has been accustomed to live.

From among these works recently published may be mentioned two, viz., that of Dr. Pollock, appearing in the London Medical Gazette of last year; and that of Dr. Burgess, not long since separately published. Both are upon the climate of Italy, and are well calculated to lessen the enthusiasm of invalids for a land which has always been made more sunny by the pens of poets than the favor of nature. I have no doubt that the conclusions of these men, and especially those of Dr. Pollock, upon the climate of southern Europe, are correct in the main; and as

they were addressed to the English people, will no doubt lead many English physicians to hesitate before advising their usual migration.

But in this country, a misapplication and sometimes a misinterpretation of these and similar opinions, has led very many physicians to be quite skeptical as to the real benefit to be derived by northern invalids, from a change of residence into the southern and more sunny states. This skepticism seems to be yearly increasing—and there can be but little doubt that it is as mischievous as it is really unfounded. It is certainly quite desirable that clear and distinct opinions should be entertained by northern physicians upon a subject fast getting to be one of such paramount importance. I make this remark, because I think that the reason of their doubts of climatic influence, is plain; in other words, that the cause of their unfortunate experience is becoming well understood. It is, that the climate has not been thoroughly tried. To make a clear and full statement of the whole matter, I will say that I am convinced that the shifting migratory course, South in winter and spring, and North the rest of the year, usually advised and followed, is an erroneous and mischievous one; and that if a northern consumptive can reasonably expect any benefit from this change of climate, this benefit will be obtained only from a continued southern residence for several years.

There is a grave error in thinking that, if one goes South in late autumn, and remains there until late spring, and then returns North to pass the summer and early autumn, he keeps himself in the train of favorable climate influences. It is not so; and the error is concealed in the fact that a summer at the North does not make a southern climate. This leads me to some considerations upon the peculiarities and differences of the northern and southern climates of this country.

As to the New England climate, it seems quite clear, that, taken as a whole, there is something in it highly predisposing to the development of tubercular disease. Not only do we see this disease here constantly peering out from hereditary predispositions, but the cases are quite numerous in which it seems purely indigenous, being engrafted upon an untainted stock. It is true that this may be said of other countries having an intemperate climate, but very far from the extent of what I think is true of New England. Statistics can be produced to show, that, take the whole year through, pulmonary disease—inflammation of the mucous membrane of the air-passages—constitute a very large proportion of the disease here seems to be quite toward the pulmonary organs. Aside from the evidence of general observation, this statement has a very significant support in the fact, that in cases presenting some obscure aspects, the suspicion of the intelligent physician is quickly fastened upon the lungs, and an examination of the chest is made; thus show-

ing that where outstanding local or temporary causes are absent, one is almost unconsciously led to suspect insidious disease referable to ever-constant general agencies.

An unequal fluctuating climate, in any latitude, tends to produce these effects. But the climate of New England, besides having this inequality and diversity in a very marked degree, possesses other characteristics having a great influence. Its atmosphere is dry and stimulating, and during the greater part of the year of a low temperature considering the latitude. The effect of such an atmosphere upon a sound constitution is highly bracing, leading to a mental and corporeal activity quite inconsistent with endurance and longevity. It is probably not an incorrect opinion that many of the moral and physical peculiarities of New England people, included under the terms enterprise and action, may be traced to these agencies.

In such an atmosphere, the constant vicissitudes of the temperature render the functions of the skin imperfect, thus increasing the liability of congestions of the mucous membrane; and the mucous membrane, from the fact that it is ever in contact with an irritating medium, is generally that of the air-passages. On this account, mainly, the urgency of these conditions is considerably lessened by the use of flannel next to the skin; the importance of which worn in summer as well as winter, is now well recognized.

On the whole, New England climate has little in it that is sedative at any long season of the year. The winters are broken and unsteady, especially so on the sea-board, and it is only in the northern island portions that there is that constant cold which has a far more favourable influence. The character of New England spring weather is too well known to need comment. Nothing could be more uncertain and less reliable. The months of May and June frequently changes places, and one is not sure of warm weather until into July. As for the summer months, it is a great mistake, as I have before said, to suppose that they furnish a climate like that of the South. There is, to be sure, heat enough, but it is unsteady, and during July and August the thermometer not unfrequently falls 30° or 40° in a few hours. Intensely hot as it is frequently in midday, yet at midnight, if one is exposed, it is rare that over-clothes are not the more comfortable.

But a fact more significant than all the rest as to the influence of our summer weather, is that our consumptives do not generally improve in it, on the other hand, they lose ground. This is generally attributed to the depressing influence of the heat. No doubt there is much in this, for the heat is here often very intense; but more is probably due to the sudden and wide changes of temperature. That this is the correct ver-

sion of the matter, would seem to be indicated by the influence of our autumn weather, which is far the best and most genial we have. There is generally a season, commencing about the first of September, and continuing until the early frosts of October, when the weather of New England may be said to be truly fine. The atmosphere is warm and dry, presenting a hazy, quiet aspect, and the light wind is generally from the W. or S. W. It is then that we have those dreamy days that come and go so quietly as scarcely to leave a ripple-mark—reminding one of the sunny skies of the pine-lands of Georgia and South Carolina. Every one, and especially those out of cities, has felt the soothing, sedative influence of this weather.

It is well known that during this weather, our consumptive and other pulmonary invalids improve. The functions of their skin are more active, and the urgency of the cough and all the other pulmonary symptoms is decreased. The expectoration is less purulent, the appetite improved, and the spirits, strength and flesh increased. In many instances the improvement is as unexpected as it is remarkable—and there is often a melancholy pleasure in thus observing this temporary improvement, brightened as it always is by the patient with a thousand delusive hopes.

This short season is the only weather in New England with which I am acquainted, that is really favorable to consumptive invalids.* And in its favourable influence, and at the same time in its resemblance to that of the pine-lands of the South, there may be drawn something more than a hint as to the real agency of southern climate upon diseases of nature. But broad as this hint is, it is not usually taken; or if so, not in time. For many invalids in the second stage of consumption, improved as they have, do not perceive the wisdom in taking means to continue in this same climate, but delude themselves with the hope that they will be well enough to remain North during winter; or, if they conclude to go South, defer it until they are obliged to, having two or three "colds upon their lungs."

The peculiarities of a southern climate as bearing upon its benefit to consumptive invalids, are far from being referable alone to its elevated temperature. I refer here to the alluvial and pine-land portion of Georgia

* The fine weather of New England in June has always been insisted on and highly recommended. But of late years this does not appear to have been true—for it has been unsettled, and often colder and more uncomfortable than May. If one can trust the testimony of elderly people, it would seem that in this and other respects, the climate has changed very perceptibly in the last quarter of a century. Now, they affirm, the winters have not that steady severe cold as formerly, but are more open and broken, running into the spring; and this last, in its turn, usurping a portion of summer.

and South Carolina. It has other characteristics, which, though less well understood, are not the less important as to effects. The atmosphere has a decidedly sedative, soothing influence, which, due to whatever causes it may be, has a very desirable effect upon the mucous membrane of the air-passages—and this effect, once commenced, is not likely to be disturbed by sudden vicissitudes of temperature. There the general tendencies of disease seem to be changed; and that, too, *from* the thoracic to the cutaneous and abdominal organs; and it is through these changed relations that the cure is to be effected. But a fact more worthy of notice than all the rest, is the almost complete exemption from phthisis of the native inhabitants of this section of the country. It is true that consumption is there found; but a careful inquiry has shown that in almost every instance it had been immigrated either directly or indirectly. Other diseases, such as those of a miasmatic character, those of the intestinal canal and its appendages, seem to exist in the place of those of a tubercular nature; and were we better acquainted with that curious yet important subject—the *antagonism of diseases*—we might, perhaps, better understand how these relations are effected.

That these relations of disease are based upon climatic influences, might be here shown in many ways; but I will mention one fact, observed by myself, which is quite indicative. In northern and upland Georgia, the soil and aspect of the country quite resembles that of New England. There, as in New England, the primitive geologic rocks appear; and it has for a long time been remarked, that nowhere South is the climate so much like that of New England as in this section. The diseases follow in the same train, for they are pre-eminently those of the pulmonary organs. Consumption, lung fever, bronchitis, are common, and this, too, at the apparent exclusion of the diseases of the low and pine-land regions.

An additional fact of the same bearing, and which may here be mentioned, is, that, even in the pine-land country of upper South Carolina, a very severe winter (as the last, for instance) is quite productive of pneumonia or lung fever with those inhabitants living on creeks or in damp spots. The construction of their houses is little calculated to shield them from the adversities of cold and damp; and thus situated, it is rather a noticeable fact, that the disease assumes an acute form, exactly as is true of the Irish of New England, in whom tubercular tendencies are not common; whereas, among our native inhabitants, acute pneumonia is rather a rare disease, the pulmonary affections being generally of a more chronic and insidious nature.

If such are the influences of climate upon comparatively healthy con-

stitutions, we should naturally infer that its tendency would be toward arresting the development of tubercular disease, and favoring that condition of the general system leading to a permanent cure.

That this is so, I fully believe, and think it can be tolerably well shown, imperfect as the state of inquiry has hitherto been.

But if we sought proof in the results of migratory invalids, our case would truly be a poor one. If climate is to work a change, it is foolish to expect that that change will be effected unless the individual gets acclimated. It is, therefore, to the results of those cases of tubercular disease where the residence has been permanent, that we are to look for a correct version of the matter.

In my intercourse with many intelligent physicians at the South, many cases were described to me, in which individuals from the North, having phthisis in its first stage, had taken up their permanent residence there. Their pulmonary symptoms gradually disappeared, and now they are quite free from them, enjoying a very fair share of health. In the same manner, also, several cases were described to me, in which the disease had far advanced in the second stage—a cavity of small cavities having been produced in one of the lungs. These individuals remained there permanently, settling down into a quiet life. They recovered so as to enjoy tolerable health—the cure taking place, as indicated by physical signs, much in the way Laennec has described, by the partial cicatrization of the cavities, which yielded a blowing, dry, amphoric sound. In one of these instances the young man felt so much restored after a few years, that he hazarded a return to New England for a permanent residence. But in less than a year he was seized with a violent and unexpected hæmorrhage, and died soon after of ordinary phthisis.*

It is to be regretted that statistics upon this subject have not been made out; but as the matter now stands, the conviction left in the mind of the medical inquirer and observer is full and clear.

There is another fact, vouched for by an intelligent physician of Georgia, and which should be mentioned in this place. He affirmed to me that the negroes of Maryland and Northern Virginia, affected and broken down by pulmonary trouble, and perhaps scrofula, as shown in enlarged glands, &c., if sold to the Georgia and other far Southern planters, soon improve, losing their symptoms, quite often recovering, and growing strong and fat.

* In citing these facts, I trust I shall not be misunderstood. I am very far from advocating the doctrine that all who have consumption in the first and second stages, can get well by living permanently at the South; but I do advocate that if benefit in these cases can be reasonably hoped for by this change of climate, this change should be permanent.

I was also struck with the fact of the long duration of phthisis with those negroes of the South, who, from quite ill conditions of life, had contracted the disease. It seemed to run a light, lengthy form, although perhaps fatal in the end. I recall to my mind one instance, where I examined the chest of a negro having tuberculosis of the apices of both lungs, and a cavity in the left one. To the physician with me I declared that he would die in three months. But he affirmed that he would live two to three years, and that, as property, this probability of life would be admitted.

But I need discuss this matter no farther. It now remains for me, in conclusion, to make a few general remarks.

The view I advocate is, that if a consumptive can reasonably expect benefit from a southern climate, his residence there must be permanent and not migratory.

Besides the arguments already adduced in support of this view, it may be worth while to notice the testimony given me by those physicians residing in the winter resorts of northern consumptives. Generally, they say, they (the invalids) do not arrive there until actually driven by the cold weather of the North. As soon as the warm, delightful weather of April has come, and they are, if at all, in a fair way for permanent improvement, they are uneasy about their return North; and the occurrence of two or three quite warm days in succession, soon settles their determination. By early May they have left, looking much better than when they came. The ensuing winter they appear again, but it is evident they have lost ground during their absence; they return home again in early spring as before, and here often is the end of their migrations. Others, having the disease in a more chronic form, appear regularly for many years; but at last are not seen or heard of again.

I am aware that invalids, on going South, expect too much in the way of climate. They picture in their minds cloudless skies over a land of the cypress and myrtle, and which will immediately effect their restoration. I need scarcely say that in this they are doomed to disappointment; and so will it always be, until the opinion is fully recognized—that it is not sunny skies that will alone benefit them, but rather a continuation under the aggregate of the influences of the climate.

At the present day numerous objections are raised by northern physicians against the southern migration. One class disapprove of it on the ground, both of the incurability of the disease, and a disbelief in warm climate, based upon an ill-digested theory, partly chemical and partly medical. Another class, and much the more numerous, although avowing a belief in southern climate, nevertheless quite object to the migration on the ground of humanity. They cry out against what they call the

cruelty of sending people away from the comforts and attentions of home—and that too with a wide possibility to die among strangers. In its place they advise the patient to remain among the comforts of home—occupying a large chamber, which by various arrangements is to have a southern or summer atmosphere.

There is some force in a part of this objection, for sometimes there is great inconsiderateness in urging patients away. But, taken as a whole, it is not valid. Certainly no judicious person would advise the going away of a patient unable to bear the journey, or whose end is not far distant. But the conveniences of modern travel have taken away the former terrors of the transit. The journey now is easy and of short duration, and with mail and telegraph one can feel quite near home. With these conveniences there seems little necessity for the immurement of an invalid in a chamber—obliged all the while to take sedative medicines for cough—and however many and complete the home-comforts, yet in a fair way to depress the nervous system, and enervate the whole body.

In no disease is there so much danger of over-medication as in consumption. Experience has shown, that as a disease primitively of the nutrition, our object must be to strengthen the nutritive function, and to spare every unnecessary dose of medicine into the stomach, the tone and power of which, must be carefully nursed by proper food. I need scarcely say that these relations cannot be carried out by a winter's residence at the North, however favorable the circumstances.

In cases where the symptoms are not immediately threatening, and the patient has remaining considerable physical power, so as to be about in an easy way without fatigue, it will generally, I think, be judicious to advise, at least a winter's residence at the South, where one can be under the influence of pleasant days, and drink in balmy air instead of cough mixtures.

As to a summer's residence at the South, beside the objection of its being unnecessary, there is another generally urged—the enervating effect of its excessive heat. This objection is not well founded, and rests more upon ideas of a more southern latitude than any thing else. As to degree of heat, the mercury certainly rises higher in the New England than in the Southern States. For in these last it rarely exceeds 90°, even in the hottest season. It is true that the hot season is long, and, in the low sandy regions, its effect is quite depressing. But possessing such a variety of climates as does South Carolina and Georgia, the invalid need not thus be endangered, for there are resorts midway between the low and the mountainous parts of both of these States, where the summer

climate is indescribably fine, having, perhaps, no equal in this or any other country. *

But in advocating the necessity of a permanent southern residence for the consumptive, I should be willing to do so only with some exceptions. There is a class of patients, generally of so-called lymphatic and bilious temperaments, who bear heat badly ; and what they gain in a decrease of local symptoms, they lose in general strength. I need scarcely say that this class of cases everywhere is the most intractable, and least amenable to treatment. It belongs to the judicious physician to perceive the relations of such cases, and advise accordingly.† As to variety of climate and climatic advantages, the United States are certainly more highly favored than any country. If this fact is known generally, it is not appreciated. No invalid need cross the water ; for in our own borders, among our own people, who speak the same languages as ourselves, we can, by a journey of less than eighty hours, be in a clime certainly not surpassed by any of the old world. Dissatisfied as the English are fast getting with their “ sunny Italy,” or their “ beloved Madeira,” it may not be regarded improbable that, when the communication shall have become easier and more direct, they will exchange these for the sunnier spots of Carolina and Georgia.—*Boston Medical and Surgical Journal*, 13th September, 1852.

SUBSTITUTE FOR MERCURY IN SYPHILIS.

M. ROBIN lately brought before the Academy of Medicine of Paris ten cases treated by M. Vicenti which would prove the efficacy of bichromate of potash as an anti-syphilitic agent. From the facts, of which M. Robin gave a detailed account, he draws the following conclusions:—1. Bichromate of potash is now ascertained to be an anti-syphilitic agent. 2. The salt being very soluble, acts without loss in extremely small doses, the treatment being therefore shorter than when mercury is used. 3. Bichromate of potash does not in general produce salivation. 4. The only disadvantages hitherto noticed are nausea and vomiting when the salt is taken fasting ; but these unpleasant effects do

* Such is the character of climate of Greenville and its neighborhood in South Carolina, and of Stone-Mountain, in Georgia. In fact, there can be little doubt that the climate of both of these States is far better in summer for invalids than in winter.

† In this connection I may make a remark having an unrestricted application. It is, that in a disease so precarious as consumption, if an individual residing at the South is doing well, the wisdom of letting well alone and remaining there, should be recognised, however late in spring the time may be. They should not act up to the dictates of a common theory, before they have tested its value in their cases, by individual experience.

not take place when the medicine is administered a little time after the digestion of a meal, and especially when it is associated with opium. 5. It is of much use in neuralgia, and though it may produce asthenic effects, it is by no means deleterious. 6. Its exciting properties may render it useful in indolent ulcers, in more or less strong solutions; as also in syphilitic sore throat, in the form of gargle. 7. As the ten patients who have taken the bichromate have not experienced the least unpleasant symptom, even by using very large doses for a protracted period, the new anti-syphilitic agent is now proved to be of greater value than the salts of mercury, which latter may become reduced in the economy, whilst the bichromate is irreducible under the same circumstances, and is so soluble as to be easily eliminated. Two of the above mentioned cases were treated in 1850 and 1851, and no kind of relapse has been noticed.—*Lancet*.

Hémiplégie traitée avec succès par le sulfate de strychnine par le Dr. CHS. DELÉRY.—

Je fus appelé dans les premiers jours de Janvier, pour donner mes soins à Mme... âgée d'environ 45 ans. Je la trouvai étendue sur son lit avec une paralysie de tout le côté droit, paralysie survenue presque subitement. La peau était chaude, le pouls fréquent et dur, la figure fortement colorée. La malade se plaignait de céphalalgie et de *bouffées* de sang qui l'incommodaient fort. La langue était déviée, la parole embarrassée, mal articulée, et l'intelligence lente et comme endormie. Il n'existait, du reste, qu'une paralysie de mouvement, la sensibilité étant parfaitement conservée.

Je recommandai, le soir même, une application de douze sang sues aux pieds et un purgatif salin pour le lendemain de bonne heure. Le lendemain, dans la matinée, Mme*** n'avait pas de fièvre et se sentait soulagée. Mais le soir, le mouvement fébrile reparut avec violence, accompagné des mêmes symptômes que la veille. Il y avait une intermittence bien marquée. Je me contentai de prescrire un bain de pieds sinapisé, ainsi que l'application de sinapismes promenés sur les membres inférieurs. Le troisième jour, je fis prendre à la malade, dans la matinée, 25 grains de sulfate de quinine qui prévinrent le retour de la fièvre; le quatrième jour elle en prit encore 15 grains. La fièvre était dissipée, mais il n'était survenu aucun amendement dans les membres paralysés. Dès lors je commençai l'usage du sulfate de strychnine à la dose d'un huitième de grain, soir et matin, sans effet apparent le premier

jour. Le lendemain, la malade en prit trois doses et ressentit, dans les membres, quelques légers mouvements convulsifs.

Pressé d'obtenir un effet plus marqué, j'arrivai rapidement à un quart de grain deux fois dans le jour, sans obtenir, toutefois, le résultat que j'espérais. Mais il arriva que sa fille, qui remplissait auprès d'elle l'office de garde-malade, lui donna, par un malentendu, deux paquets à la fois. Quelques temps après elle fut prise de convulsions violentes dans tous les membres et dans les muscles de la face, avec renversement du cou en arrière. Ces convulsions durèrent environ une heure et se calmèrent. La malade fut remise à un quart de grain et, à notre grande satisfaction, nous ne tardâmes pas à voir les mouvements revenir, d'abord au bras, puis à la jambe paralysée. Je dois noter une particularité qui s'est offerte, et qui tient, sans doute, à l'effet du médicament. La malade, pendant plusieurs jours, ne put régler les mouvements de la main dont la *force de retour* semblait être décuple de la force normale. Quand elle saisissait un objet, elle le serrait involontairement, et ne s'arrêtait qu'aux limites de l'impossible. Cette contraction convulsive des muscles était douloureuse au point d'arracher des cris à la malade. Ce phénomène bizarre se manifesta pendant trois ou quatre jours seulement.

Une autre circonstance importante à signaler, c'est qu'il survint à la fesse, du côté paralysé, une gangrène large et profonde qui fut suivie de la chute d'une escare proportionnée à l'étendue de la partie sphacelée. L'énorme plaie qui en résulta m'inspirait des inquiétudes d'autant plus vives, quo c'était pendant les grands froids de Janvier qui rendaient tout pansement difficile et dangereux. Je fis tenir sur la plaie un matelas de charpie saupoudré d'une poudre composée de camphre et de quinquina. Au bout de deux semaines, environ, la malade put marcher avec des béquilles. Depuis lors, sa santé s'est complètement rétablie, et elle n'éprouve aucune faiblesse dans les membres qui ont été frappés de paralysie.—*L'Union Médicale*.

MATERIA MEDICA.

HOSPITAL SULPHATE OF QUININE.

MR. EDWARD HERRING has introduced a preparation under this name, consisting of disulphate of quinine only partially purified. In its medicinal properties it is said to differ but little from the ordinary disulphate. It has a brownish colour, and is of course not admissable as a substitute for disulphate of quinine in general dispensing, but it has been tried in hospitals and dispensaries, and by some medical men who dispense their

own medicine. The preparation is recommended on account of its economy. The final purification and discolorization of the salt being attended with some expense, the manufacturer is enabled to offer it in a partially purified state at a considerable reduction from the price at which it can be sold when purified in the usual way. The amount of its impurity must be ascertained before its real value can be estimated. It may be a question whether the recognition of a preparation so imperfectly purified might not open the door to some abuse.

London Pharmaceutical Journal.

MISCELLANEOUS.

ON THE BOUQUET OF WINE.

BY DR. F. L. WINCKLER.

In his recent experiments on the vegetation of plants, Winckler has arrived at very satisfactory results explanatory of the specific odour peculiar to the various sorts of wine produced in different districts, which is known by the expression of "*flume*" or "*bouquet*."

If about half-a-pint of any sort of grape wine be evaporated in a porcelain vessel by means of steam, until not only all the spirits of wine, but also the ænanthic ether, and in general all parts volatile at this temperature (80° R.) are evaporated, a thickish liquid of more or less dark colour, and of a peculiar, pleasant, acidulo-vinous odour remains behind, from which, after it becomes cold, a greater or lesser quantity of tartar separates. By diluting this liquid with water, so that the weight of the solution is about a quarter of a pound, and subjecting the solution with an equal weight of fresh burnt lime to distillation, there is obtained even during the slacking or hydrating of the lime a very agreeable and intensely smelling distillate, which like ammonia, is a strong base, and forms with acids neutral salts, possessing in a high degree the odour corresponding to the so-called "*bouquet*" of the employed wine.

This fact suggested the idea that this compound may be in a similar manner contained in the wine itself, and the supposition was fully corroborated by experiments.

If the residuary line of the evaporated wine be treated with water after the conclusion of the distillation, the solution filtered, and the filtrate distilled with a small quantity of moderately strong sulphuric acid, a new volatile acid of a highly specific, almost balsamic odour is obtained, which being neutralized by the necessary quantity of the first

obtained nitrogenous base, yields a neutral volatile salt, which possesses the peculiar odour ("bouquet") of the employed wine in the highest degree. There is, therefore, no doubt that this compound is not only contained as such in the wine, and constitutes the "bouquet," but that it is this nitrogenous compound which determines the chemical constitution, the durability, and all those changes to which it is subject by keeping.

Although for the present only six different sorts of red and white grape-wine from various districts of the Grand Duchy have been examined, yet the results are so uniform and decisive, that there exists no doubt of their correctness. The contrast was very striking on comparing the "bouquets" of a fine red Oberingelheim wine of 1846 with a very excellent sort of white Bergstraszer of 1846, and with one of the worst qualities of 1851 from the latter district. The two first sorts yielded quite a different bouquet of a very pleasant odour, whilst the latter betrayed but too distinctly the year and quality by its unpleasant earthy smell.

Beer also contains a considerable proportion of nitrogen, which can be obtained from it in the same way as from the wine. It is this component from which beer obtains its importance as a nutrient.

The author has, moreover, found, that the colouring matter of wine, and chiefly that of red wine, is closely connected with this nitrogenous compound; that most, and perhaps all, fresh vegetable juices contain nitrogen, and undergo during the process of vegetation changes which are analogous to the fermentation of wine; that the fragranciness of the vine flowers, and very likely also the odours of most flowers and leaves are dependant on similar compounds, which are characteristic, and of a peculiar chemical composition in each genus of plants—*Jahrbuch f. pract. Pharmacie*. Bd. xxv., Hft. 1. p. 7.

London Pharmaceutical Journal.

Canada Medical Journal.

MONTREAL: FEBRUARY, 1853.

Our readers may recollect that in a late number of this Journal we announced our intention of discontinuing it, unless our readers came forward with their subscriptions before the end of the year. We have now to announce that as the subscribers have not paid up, in the manner that we anticipated, we shall not issue the first number of the second volume until April, when it will appear at the same time with the number for that month. We have been induced to adopt this measure, from the difficulty we have experienced in convincing our readers that to support a Medical Journal, money is *really* necessary, and many of them may think that because the monthly visit of the Journal brings them no greater trouble than to send to the Post Office for it, or expense, than to pay the postage, that the publication entails very little expense or trouble upon its managers. We beg to disabuse their minds on this point—Journalism is both expensive and troublesome—and though we cheerfully undergo the latter, we have no idea of encountering the former. In such matters, plain speaking is always best, and we give our proposal to the profession as follows:—We will go on with the “Canada Medical Journal” if you pay your subscriptions before the 1st of next April—if you do not, the Journal must cease. Our subscription list shows that the revenue of the Journal, if paid up regularly, would amply cover all expenses, and even admit of the editors illustrating some of the articles with wood cuts, &c. Is it not then discreditable to the profession of this country, to allow a periodical of such a nature to languish for want of support? We were told, and indeed we ourselves were of the same opinion, that our Journal should be opened to our French Canadian brethren. We complied with the request, and yet we have had few papers from them. They cannot complain that they were excluded, nor can our British readers complain that we gave them too many French articles. We have received from numerous correspondents, the expressions of their approbation

with the manner in which the periodical was conducted and our exchanges give abundant evidence that even in Canada, articles upon different departments of medicine are written, worthy of being copied into the best of the British and American Journals. We were also anxious that our Journal should serve as a medium of communication between our brethern situated distantly apart from one another, and also as a means for uniting in one common effort for the diffusion of knowledge amongst us, the practitioners of British and French origin. How far we have succeeded we leave our readers to decide. Whilst, avoiding personalities we did not shrink from our duty in exposing quackery, and however disagreeable to our feelings, we have felt called upon to admonish some of our brethern, who, we believed, were forgetting their allegiance to the Profession, and had commenced to coquette with downright quackery.

In conclusion, we beg to thank very sincerely, our friends, who in compliance with our request have come forward with their subscriptions, and we hope that those who have not yet done so, will now exhibit some professional zeal and enable us to conduct the "CANADA MEDICAL JOURNAL."

Physiological Action of the fifth pair of Nerves. Plagiarism.—It is fresh in our own memory, as we are certain, it must be also in that of most of our readers, that, in the slashing review of Mr. Howard's work on the Eye, in the pages of the British and Foreign Quarterly, the idea was ridiculed of issuing an independent treatise, in this city, which was designated as on "the confines of civilization," while the Author's views, original as they were on many points, particularly as regards the Physiological endowments of the fifth pair of nerves, were treated with most consummate disdain. It was truly unfortunate for Mr. Howard, as we could not help thinking at the time, that he had no association with the clique, of the brains of one of which that production appeared to be the effusion, saturated with concentrated venom. Elated with a metropolitan position the reviewer considered, that *here*, we ought to be content with calmly looking on, and that a periodical contribution, is the utmost to which we ought to aspire. We said little at the time, although we thought much.—Few as have been the original publications of this colony, we can remember none of which we have reason to be ashamed, much less can we perceive any just reason why an attempt at their publication should be frowned down, or the publication itself despised, because Co-

lonial. Our geographical position may be somewhat nearer the Esquimaux, than that of London or Dublin, yet we have still to learn, that originality of thought, like temperature, is influenced by latitude, or that the misty murkiness of those cities is congenial to it in any especial way. Like a celebrated city of old, our own with its productions may be equally contemned, and become proverbially so; still good may occasionally emanate from it, as the following may witness.

On the 7th October last, Mr. Pritchard, of Bristol, read a paper at a meeting of the Bath and Bristol branch of the Provincial Medical and Surgical Association, "on extraneous substances in the eye," in which the following passage occurs.*

There is another point of resemblance, which is one of particular physiological interest. It is commonly taught and believed that the optic nerve is the only afferent nerve to the third or motor nerve of the iris—*i.e.*, that the pupil contracts only when the optic nerve feels the impression of the light, and takes it back to the brain, sending the message to contract along the third nerve through the ciliary ganglion to the iris. Persons with an extraneous substance adherent to the cornea of one eye, almost invariably have that pupil more contracted than the other, notwithstanding the fact that the eye is kept more closed. The explanation of this is, that the fifth nerve distributed on the lids, feels the irritation, and acts as an afferent nerve to the iris, which immediately contracts. I some time ago brought forward a proof of this fact, or of one exactly similar in nature, from the Blind Asylum Report. Two other instances, have come under my notice recently. A girl completely blind from amaurosis after fever, and unable to distinguish the least light, was exposed to the rays of the sun. I saw the pupils of her eyes instantly contract, as in a seeing eye, and she said that she knew she was in the light from the sensation. With another blind person, whose eyes were completely sunk, and where there was no perception of the light, I performed the same experiment. She had no iris to contract, but she began to wink her eyelids, and the tears began to flow from the weakness produced by a bright light, exactly as would happen in a seeing person exposed to the same influence. These facts prove beyond question that the fifth nerve *feels* the light and acts as an afferent nerve to the iris and eyelids as well as to the optic nerve.

In this quotation, it will be perfectly evident that Mr. Pritchard is propounding a "novel" theory in his own language, for which he ostensibly claims the originality, in as much as he most carefully eschews all mention of others who may have preceded him in the same walk. But how stand the facts of the case.

In Mr. Howard's work, published in 1850. On pages 48 and 49, the following remarks are made on this very subject:—

Among the many offices of the ophthalmic branch of the fifth, I believe it to be the protector nerve of the eye; and here I conceive the following very important question arises, viz. :—

Does it protect the eye in any other way, than by discovering bodies when in con-

tact with that organ, and thus exciting its involuntary motions, for the purpose of rejecting the foreign body?

I hold that it does, and my views will be explained presently. There is an involuntary motion of the eye for its protection, independent of the fifth nerve, which is the action produced by sight; danger is seen to approach the eye before it touches it, and as soon as received, by the sensorium, it issues its mandate through the portio dura (which is the motor nerve of all the muscles of the face) to the orbicularis palpebrarum, which immediately closes the lids to ward off the approaching danger. But when notice of danger is conveyed by contact upon the eye or lashes, the muscle will contract in precisely the same way, the impression having been borne to the sensorium by the fifth, and the reflex action accomplished through the portio dura.

I shall now endeavour to explain in what manner I believe the fifth to be a further protection to the eye, in addition to the modes just detailed. I hold that the ophthalmic branch of the fifth pair of nerves preserves the retina from more light than it is able to receive without injury; and this is caused by this branch being sensitive to the stimulus of light, independently of the retina. This is a novel statement, but I think I can sustain it by facts. If such be not the case, how, I would ask, can we account for contraction and dilatation of the pupil in persons who are totally blind, whether owing to paralysis of the optic nerve or retina? If the iris were dependant for its action upon the reflex stimulus from the retina, this could not be the case; for the amaurotic retina, it must be remembered, is incapable of discerning even the very strongest light.

An objection that may be started against this theory is, that in the majority of cases of amaurosis, the iris is motionless and the pupil fixed. Such, truly, is the case, but we must call to mind the many different causes which produce amaurosis. The cause may be injury or derangement of the fifth nerve itself, or even of the third. How often do we see this caused by wounds on the eye-brow, eye-lid, or forehead. Supposing the cause to be paralysis of the optic nerve or retina, what is there more likely, than that the same disease should also frequently cause derangement of the lenticular ganglion, or of either the third or fifth nerve, or both? Again why does light give pain in conjunctivitis, or such excruciating agony in strumous ophthalmia? The retina surely can have nothing to do with it. But it has been said, the contraction of the pupil gives the pain, because, that when the application of belladonna dilates the pupil, the patient is relieved. I certainly cannot understand how contraction of the pupil can give pain; I am rather inclined to think that it is the pain which causes the contraction of the pupil; and that in the use of the belladonna its application removes the morbid irritability of the fifth pair of nerves, and the pain being relieved the pupil dilates. This can be proved as follows: In strumous ophthalmia, instead of using belladonna, let the irritability of the fifth be removed by the application of nitrate of silver to its external branches, in the integuments of the superior palpebræ; after which it will be found that when the pain has been assuaged, the pupil will be dilated: now, certainly the nitrate of silver has no specific power over the iris; it can therefore only dilate the pupil indirectly, that is, by relieving the pain of the fifth nerve.

That pain causes the pupil to contract is evident from the fact. That in couching for cataract, the pupil having been previously well dilated with belladonna, no sooner does the operator commence to pierce the coats of the eye, than the pupil begins to close, and before the operation is completed, he finds it much more contracted than he desires. But how is the pupil contracted by the stimulus of light?

The answer is, that the iris receives sensation from the ophthalmic branch of the fifth, and motion from the involuntary branch of the third; branches of those two nerves, form the lenticular ganglion, which in turn supplies the iris with nervous power in addition to that furnished by the two branches given off from the nasal branch of the fifth. Hence it is clear, that the iris is supplied with both a sensitive and an involuntary motor nerve, that the stimulus of light on the iris is borne to the sensorium through the fifth nerve, and that the sensorium issues its commands through the third, which causes the involuntary action of the pupil, thus it is that the iris is found to possess all the properties of an involuntary motor nerve.

The views entertained by Mr. Howard, and which we have thus fully quoted from his publication, had been promulgated nearly three years previously, to the issue of his work from the press and they will be found in a paper in the *Physiology of the Ophthalmic branch of the fifth pair of nerves*, published in the third volume of the *British American Journal*, page 197 and seq., so that they can now scarcely be deemed recent, how "novel" so ever they may appear.

We trust that the foregoing remarks will secure attention of the theory in proper quarters. We desire nothing but justice to all parties. The similarity is too striking to permit us to conceive that the idea is a purely original one on the part of Mr. Pritchard. We desire to act fairly by that gentleman, yet there is a something in his proceeding which demands explanation, and a something, which we shall not yet characterize, but which should be severely denounced.

Syphilitic Diseases, their Pathology Diagnosis, and Treatment, &c. By JOHN EGAN, M.D., formerly Surgeon to the Westmoreland Lock Hospital, Dublin.

We have just received by mail this excellent treatise. We have only had time to read a few of its chapters, but from what we know *personally* of the talented author, his industry, and the extensive opportunity he has enjoyed for cultivating this branch of Medical Science, we feel that we shall not compromise ourselves in strongly recommending it to our readers, as the best and plainest treatise with which we are acquainted upon this difficult and but little understood branch of practice.

FRENCH MEASURES AND WEIGHTS.

As it is our intention to publish, from time to time, interesting articles selected from the French Medical Journals, we have great pleasure in acceding to the request of one of our esteemed confrères, in inserting the following Tables, extracted from the last edition of *Malgaigne's Surgery*. From it, the Practitioner in this Country will be enabled to appreciate the quantities of the different remedies mentioned in the French Prescriptions.

MEASURES OF LENGTH.*

New Measures.	Approximate Value.	Exact Value.		
		Feet.	Inches.	Lines.
1 Millimètre.	1 Half-Line.	0	0	0.443
1 Centimètre.	4½ Lines.	0	0	4.433
1 Décimètre.	3 Inches 8 Lines.	0	3	8.330
1 Mètre.	3 Feet 1 Inch.	3	0	11.296
Id Measures.	Approximate Value.	Exact value.		
1 Line.	2 Millimètres.	2 Millim.	256	
1 Inch.	3 Centimètres.	27	072	
1 Foot.	32 Centimètres.	324	864	
1 Ell (<i>aune</i>).	1 Mètre 18 Centimètres.	1188		
The English Inch.	2½ Centimètres.	25 Millim.	399	
The English Foot.	30 Centimètres.	304	794	
The Yard. (3 Feet.)	91 Centimètres.	914	383	

MEASURES OF WEIGHT.

New Measures.	Approximate Value.	Exact Value.			
		lbs.	oz.	gros.	grs.
1 Centigramme.	½ Grain.	0	0	0	0.19
1 Décigramme.	2 Grains.	0	0	0	1.88
1 Gramme.	20 Grains.	0	0	0	18.82
10 Grammes.	2½ Gros.	0	0	2	44.28
100 Grammes.	3 Ounces 2 Gros.	0	3	2	10.80
1 Kilogramme.	2 Pounds.	2	0	5	35.15
Id Measures.	Approximate Value.	Exact Value.			
1 Grain.	5 Centigrammes.	0 Grammes		033	
1 Gros.	4 Grammes.	3		82	
1 Ounce.	30 Grammes.	30		59	
1 Pound.	500 Grammes.	489		50	

* The following table shows the exact relation between the new French and the English Measures of Length and Weight.

Measures of Length.	
Mètre, the 1-10,000,000th part of the arc of the Meridian from the pole to the equator.	{ 39.870788 inches. 3 280899 feet. 1.093633 yard.
Décimètre, 1-10th of a mètre	{ 3.937079 inches.
Centimètre, 1-100th of a mètre.	{ 0.393708 inch.
Millimètre, of a 1000th mètre.	{ 0.03937 inch.
Measures of Weight.	
Kilogramme, weight of one cubic decimètre of water of the temperature of 39° 12' Fahr.	{ 2.6803 lb. troy. 2.2055 lb. avoirdupois 1.5438 grains troy.
Gramme, 1-1000th part of a kilogramme.	{ 0.9719 scruples. 0.032 ounce troy.
Décigramme, 1-10,000th of a kilogramme	{ 1.5438 grain troy.
Centigramme, 1-100,000th	{ 0.1543 grain troy.

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A CARD.

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Hamilton, 4th October, 1852.

S. HEWSON.

COLLEGE OF PHYSICIANS AND SURGEONS OF THE UNIVERSITY OF THE STATE OF NEW YORK.

The Forty-Sixth Session of the College will be commenced on Monday, 11th of October, 1852, and continued until March 10, 1853, (commencement day.)

ALEXANDER H. STEVENS, M.D., L.L.D., President of the College and Emeritus Professor of Clinical Surgery.

JOSEPH M. SMITH, M.D., Professor of the Theory and Practice of Medicine and Clinical Medicine.

JOHN TORREY, M.D., L.L.D., Professor of Botany and Chemistry.

ROBERT WATTS, M.D., Professor of Anatomy.

WILLARD PARKER, M.D., Professor of the Principles and Practice of Surgery.

CHANDLER R. GILMAN, M.D., Professor of Obstetrics and the Diseases of Women and Children.

ALONZO CLARK, M.D., Professor of Physiology and Pathology (including Microscopy.)

ELISHA BARTLET, M.D., Professor of Materia Medica and Medical Jurisprudence.

CHARLES E. ISAACS, M.D., Demonstrator of Anatomy.

FEES.—Matriculation Fee, \$5; Fees for the full Course of Lectures, \$405; Demonstrator's Ticket, \$5; Graduation Fee, \$25; Board, average \$3 per week.

Clinical Instruction is given at the New York Hospital daily, by the Medical Officers, (Professor Smith being one of them,) fee \$8 per annum; at the Bellevue Hospital twice a week, without fee, (Professor Parker and Clark belonging to the Medical Staff;) at the Eye Infirmary, without fee; and upwards of 1000 patients are annually exhibited to the class in the College Clinique. Obstetrical cases and subjects for dissection are abundantly furnished through the respective department.

The Annual Commencement is held at the close of the Session; there is also a Semi-annual Examination on the second Tuesday of September. The pre-requisites for Graduation are—21 years of age, three years of Study, including two full Courses of Lectures, the last of which must have been attended in this College, and the presentation of a Thesis on some subject connected with Medical Science.

In addition to the regular Course, and not interfering with it, a Course of Lectures will be commenced on Monday, 27th September, and continued until the 10th October.

This Course will be free.

R. WATTS, M.D., Secretary to the Faculty.

College of Physicians and Surgeons, }
67 Crosby street, New York. }

PAGE

MISSING