Part Second.

REVIEWS.

On Rupture, Inguinal, Crural, and Umbilical; the Anatomy, Pathology, Diagnosis, Cause, and Prevention; with new Methods of Effecting a Radical and Permanent Cure. By John Wood, F.R.C.S. Eng., etc., etc. John W. Davies: London: 1863.

Hernia or rupture, in all its forms, has always been specially interesting to surgeons, both from the extreme frequency of its occurrence, especially among the labouring-classes, and from the grave inconveniences and still graver risks to life which its presence involves. Till within the last quarter of a century all attempts to cure rupture had been so dangerous, unscientific, and painful, and so frequently fatal, that rupture-curing had in great measure passed out of the hands of the profession into the possession of impudent itinerant quacks, who frequented fairs and assemblages of all sorts, and by various plans of castration with ligature of the sac and cord, actual cautery, or concentrated acids, gave the unfortunate patients the benefit of an operation, proportionate in its severity to the enormous fees which they extorted; the operator, in the meanwhile, escaping to a new harvest of dupes before the success or failure of the operation could be tested. The profession, with the exception of various trials of the punctum aureum, devoted their attention chiefly to the prevention of the occurrence of rupture, its alleviation by trusses, and the medical relief of strangulations. The principle involved in the punctum aureum showed a thorough appreciation of the non-irritating properties of metallic sutures, even in the days of Ambrose Paré.

Of late years, however, the subject of the radical cure of reducible hernia has been most thoroughly worked at, and great advances have been made, both in a proper appreciation of the very great difficulties to be surmounted, and in the invention of various methods of overcoming these difficulties.

The question at issue is briefly this. We have, in a hernia, the following condition:—The walls of a great cavity are at one or more points specially weak, the contained viscera have protruded, either by extension and stretching of a natural opening or by the formation of a new breach in the walls, and in protruding, they have brought with them as a covering a serous membrane, extremely extensible, highly sensitive to injury, and, when injured, certain to resent it by severe spreading and dangerous inflammation.

Do we desire to remedy this protrusion, we may act,—

1. On the intestines themselves; but, for all surgical purposes, they are out of our reach: we cannot do more than, by diminishing their contents, diminish their volume, and by position and rest
reduce to the utmost their tendency to protrude. This includes the medical and prophylactic treatment of hernia, or rather of the tendency to hernia.

2. We may try what can be done with the sac which the intestines have pushed down before them,—Can it be obliterated? If it can, perhaps the intestines may be retained in their cavity. Very many plans of dealing with the sac have been tried.

To cause obliteration of its cavity very many methods have been proposed;—by ligature of it along with the spermatic cord, involving loss of the testicle, either by gradual separation, by sloughing, or by immediate removal;—by cutting into it, and then stitching it up;—by constricting it with wire, as in the punctum aureum;—by pinching sac and coverings up, by passing needles under them as they emerge from the external ring, as Bonnet of Lyons did;—by constricting sac alone with a double wire, by subcutaneous puncture, as Dr Morton of Glasgow has done;—by severe pressure from the outside with a strong tight truss and a pad of wood, as proposed by Richter;—by setons of thread or candle-wicks, as proposed by Schluh of Vienna;—by injection of tincture of iodine or cantharides, as by Velpeau and Pancoast;—by the introduction into the sac of thin bladders of goldbeaters’ skin, which were then filled with air, and were intended to excite inflammation, as in the radical cure of hydrocele;—or by the still more severe method of Langenbeck, consisting in exposing the sac by a free incision at the superficial ring, separating it from the cord, and passing a ligature round the sac alone, leaving the ligatured portion in the scrotum either to become obliterated or to slough out. Schmucker of Berlin varied this, by cutting away the constricted portion below the ligature.

The objections to these methods are various: the more gentle are uncertain and inefficient; of the more severe, some involve mutilation, by the loss or removal of the testicle; others, as those of Langenbeck and Schmucker, are very dangerous and fatal, by the inflammation spreading to the peritoneal cavity (20 to 30 per cent. died); while all of these methods produce at best only temporary relief. And this is only what might have been expected, for the sac was only a result of the protrusion, not a cause; and so long as the weakness and insufficiency of the parietes of the abdomen remain, so long will the extensible loosely-attached peritoneum continue to furnish new sacs for visceral protrusions.

3. We have now only the canal left to act upon; and the operations on the canal may be divided into two great classes:—

(a.) Those in which the operator attempts to plug up the dilated canal. (b.) Those in which he tries to constrict it, by reuniting its separated sides.

(a.) Attempts to plug the canal have, in most cases, been made by invagination of the skin of the scrotum and its fascia. These have been very numerous and various in their adaptation of mechanical
appliances, but have all been designed with the same object. Dzondi of Halle, and Jameson of Baltimore, incised lancet-shaped flaps of skin, and endeavoured to fix them by displacement over the ring. Gerdy invaginated a portion of scrotum and fascia into the enlarged canal, by the fore-finger pushed it up, and secured it in its place by a thread passed from the point of his finger, first through the invaginated skin, then through the abdominal walls, endeavouring to include the walls of the inguinal canal, causing the point of the needle to project some lines above the inguinal ring; the same process being effected with the other end of the thread on the other side of the finger, and the two ends which have been brought out near each other on the abdominal wall being tied tightly over a cylinder of plaster. The ensheathed sac was then painted with caustic ammonia, to excite inflammation, and a pad put on over all.

Signoroni modified this by fixing the invaginated skin by a piece of female catheter, retained in its place by transfixion by three harelip needles, tied by twisted sutures.

Wützer of Bonn, again, modified this, by substituting a complicated instrument, consisting of a stout plug in the inguinal canal, held in position by needles, which are passed through the anterior wall of the canal in the groin. Compression between plug and compress, with the intention of causing adhesion between skin, fascia, and sac, is then managed by means of a screw. The plug is retained for about seven days.

Modifications of this method have been tried by Wells, Rothmund, and Redfern Davies, all aiming in the direction of simplicity; but by far the most simple and efficacious method on the Wützer principle yet devised is that of Professor Syme, which he described in the pages of this Journal for May 1861, in which the invagination of integument is both simply and securely managed by strong threads, as in Gerdy's method, while a piece of bougie or gutta-percha, to which the threads are fixed, replaces Wützer's expensive and complicated apparatus.

Mr Pritchard of Bristol has proposed an additional step in operations on the invagination principle, consisting in the stripping of a thin slip of integuments from the orifice of the cutaneous canal, and then putting a pin through the parts to get them to unite, and thus close the aperture completely.

Now, what results follow these operations? At first they are almost invariably successful, but the complaint is that sooner or later the rupture, in most cases, recurs. The principle is to plug up the passage by the mechanical presence of the invaginated skin, the plug being retained in position by adhesive inflammation between it and the edges of the dilated ring. But the ring is left dilated, or, indeed, generally its dilatation is increased; and as, on continued pressure from within, the new adhesions give way, or, as often happens, a new protrusion takes place in the circular cul-de-sac necessarily left all round the apex of the invagination, the still
lax ring and canal offer no resistance to the protrusion. Such is
the reasoning, and so far it is a sound one, on which Mr Wood
goes in his advocacy of another plan of treatment of the canal in
reducible hernia:

(b.) The principle of constriction of the canal by reuniting its
separated sides. It is this principle of treatment variously modified
for the cure of inguinal, crural, and umbilical hernia which forms
the original and valuable contents of the book now under review;
the portion relating to the radical cure of inguinal hernia having, in
the form of an essay, obtained the Jacksonian prize for 1861, of the
Royal College of Surgeons of London.
The first section contains a short and accurate account of the
anatomy of the parts of inguinal hernia, as clear as words can make
it, yet for all didactic purposes perfectly useless, unless as a mere
adjunct to the scalpel and the finger. On the causation of hernia,
Mr Wood disposes of the idea that mesenteric deviations have any-
thing to do with it, but justly lays the whole blame on the ineffi-
ciency of the tendinous or muscular containing walls.
In an excellent account of the varieties of inguinal hernia, there
is a specially valuable notice of the anatomy of the absurdly named
bubonocele, and also of the important practical differences in the
shape and position of the external ring in oblique and direct hernia
respectively. In a series of diagrams, Mr Wood shows the different
shapes of the sac usually met with, with special reference to the
point of strangulation, by injecting plaster-of-Paris from within on
the dead subject.
The author gives a very interesting description of the bodily
conformation and muscular development of the different classes of
patients who are the subjects of inguinal hernia, with the bearing
of such conformation, both on their liability to hernia, and their
suitableness for the radical cure. He makes three varieties, the
muscular, the wiry, and sinewy, whose tendons and fascia are
specially developed; and those with a special tendency to the
development of fat, with ill-developed pelvis, and retention of foetal
peculiarities in groin and spermatic apparatus. After an account
of the diagnosis, he gives a brief outline of some of the methods of
radical cure, specially those of Wützer (whose name Mr Wood
invariably spells Würzter, for which change in orthography we
can find no authority) and Gerdy, with his objections to them.
We then have an account of his own operations, the one by
ligature, thread, and compress, described in the forty-third volume
of the Medico-Chirurgical Transactions of London in 1860, and
then the improved one by wire, which is intelligibly described,
though the description is too long for quotation here.
The principle of it is "to effect compression and closure of the
tendinous sides of the hernial canal in its entire length," by sub-
cutaneous stitches of wire, thus exciting only adhesive inflam-
mation without injury to the cord, and, if possible, which it
generally is in small recent cases, without interference with the hernial sac.

The wire is to be untwisted about the eighth or tenth day, and removed on the fourteenth.

The next sections are devoted to variations on the wire operation for special cases, and to an account of the operation by rectangular pins, which the author considers suitable in the congenital herniae of children, and other kinds in children and young boys.

The chapter on Results is very interesting. Of 60 cases recorded in the appendix, only one died, and eleven were unsuccessful. The death was the result of pyaemia on the third week after the operation; the veins of the vesical plexus were dilated and hypertrophied; the tissues were indurated and contained thick pus.

"Of the 42 cases put down as successful, ten have not been heard of since they left the hospital cured. The rest have either been seen (and many exhibited in public from time to time), or have been heard of by the author. All the patients were earnestly enjoined, and promised to communicate directly with the author in case of any change in the condition of the parts operated on. Some of the cases present a slight degree of bulging opposite the internal ring, which results from the tenuity of the abdominal wall at that part. These might possibly have been improved by a higher position given to the outer point of suture. Such a weakness of the groin is, however, commonly met with in persons not actually affected by rupture, as we have before seen.

The total result of the cases given in the appendix yields, without reckoning the doubtful and imperfect cases, and with a fair allowance for future casualties and imperfect records, the encouraging proportion of 65 to 70 per cent. of successful cases. And this, it must be borne in mind, is drawn from cases that have been taken entirely without selection, and as presented, good and bad, direct and oblique. Many of them of a very aggravated kind, some of enormous size, and treated by operative measures, some of which were more or less tentative."

This is certainly a most satisfactory result, for some of the cases have been operated on for so long a time as to prove the permanence of the improvement. The patient first operated on, who was one of those exhibited to the Medico-Chirurgical Society in February 1860, has been doing very heavy lifting work, without a truss, up to a recent period, nearly five years after the operation.

The sections on crural and umbilical hernia include both anatomy, pathology, and treatment for radical cure. From the comparative rarity of suitable cases, Mr Wood has had no experience of the radical cure of crural hernia on the living subject, though he has devised and practised on the dead subject an operation similar in principle to that for inguinal hernia. He has had a limited number of cases of umbilical rupture, treated by needle and wires on the same principle, though for such protrusions in the
adult, the method successfully employed by Dr P. H. Watson, as described in this Journal for September 1862, seems to be superior in some of its details.

The chapters on trusses, attached to the description of each variety of hernia, are admirably sensible, and suggest important practical improvements.

The numerous illustrations, especially those illustrative of the position of the stitches, and the fastening of the wires, greatly assist in the right understanding of the various processes.

The whole work is a most valuable addition to surgical literature; and the author's forthcoming work on the Surgical Anatomy of the Pelvis and Perineum will be looked for with interest.

The publisher has done his part of the work thoroughly well, both as regards typography and material.

Chemistry. By Wm. Thomas Brande, D.C.L., F.R.S.L. and E., of Her Majesty's Mint, etc., etc.; and Alfred Swaine Taylor, M.D., F.R.S., Professor of Chemistry and Medical Jurisprudence in Guy's Hospital. London: John W. Davies: 1863.

In consequence of the ever-increasing necessity for an acquaintance with the principles and practice of chemistry experienced by those engaged in arts, manufactures, and medicine, and of the rapid advances made by chemistry itself, no subject is provided with a more copious literature. We have "introductions," "elements," and "treatises" of all sizes, from the modest "First Step" of ninety pages, to the formidable "Handbook" of Gmelin, which, though still unfinished, already extends to fourteen volumes and eight thousand pages. Nevertheless, there is abundance of room for the volume before us, which will supply a want which has been often felt. The more trustworthy treatises on chemistry have generally gone too deeply into the principles of the science for the ordinary student, and have embarrassed him with the difficulties of notation before he was in a position to grapple with them. It has been the object of the authors of the present volume "not to furnish a treatise on the science, but to provide the student and general reader with a plain introduction to the subject . . . a selection of the more important facts and doctrines of modern chemistry."

The names of the authors, both well known as scientific chemists,—the one devoted more especially to the industrial applications, the other to the medico-legal bearings of chemistry,—would be of themselves a sufficient guarantee of the mode in which this intention has been carried out; but, after a careful examination of their performance, we are bound to say that our expectations have been more than realized. We know of no work in which the facts of chemistry are more clearly expressed; where there is throughout a better-marked practical tendency, which adapts it particularly to
the student; where attention is less distracted by doubtful or controversial matter.

The first seventy pages deal, so far as space permits, with the principles of chemistry, under the heads of the properties of matter, crystallization, chemical affinity, and equivalent weights and volumes. The second section treats of the metalloids, the third of the metals, while the fourth gives an excellent statement of the present position and the best ascertained facts of organic chemistry. Finally, there is an appendix, which contains some very useful matter, tables for the conversion of various scales of weights and measures, and degrees of temperature into one another, and for the determination of specific gravities.

As a specimen of the style of the authors, we subjoin an extract from their account of Prismatic or Spectrum Analysis:—

"Chemists have for many years relied upon the colours given by the salts of various metals, to the colourless flames of alcohol, or coal-gas, as a useful aid to qualitative analysis. MM. Kirchoff and Bunsen, by their recent researches on the coloured flames of metals, have arrived at an entirely new method, which, they assert, not only enlarges the scope of chemical reactions, but points to the solution of problems hitherto considered unapproachable by science. This method consists in not merely relying upon the colour imparted to the flame, but in decomposing the coloured light by a prism; in other words, in submitting the coloured flame to a minute prismatic analysis. Their observations have been hitherto chiefly directed to the detection of the metals of the alkalies and alkaline earths. They have employed pure salts of these metals, as well as various mixtures of them, and they have found that the more volatile the metallic compound on which they operated, the brighter was the spectrum which they obtained. A high temperature was generally required: a coal-gas flame of a Bunsen's burner, of which the heat was estimated at 2350° C., was found to be sufficient for the alkaline metals, and the colourless nature of this flame rendered it otherwise well adapted for the spectrallyt observations. The alkaline salt in minute quantity was placed on the end of a fine platinum wire (bent into a hook and flattened, if for a solution), and this was introduced into the lower part of the colourless coal-gas flame. The light of the coloured flame was then made to traverse a prism of sulphide of carbon, having a refracting angle of 60°; and as it issued from the prism it was examined by a small telescope.

"The reader will find a description of this apparatus, and of the method of employing it, in the Philosophical Magazine for August 1860, page 91; but it has been since superseded by more convenient instruments. The coloured flame of each metal, even in the minutest quantities, was found to give a well-marked and characteristic spectrum. Compared with the spectrum of solar light, the actual amount of coloured light was very small, and this was distributed without any kind of order, in a series of bands or stripes of different widths and intensities, the bands of colour taking up the situation of the corresponding spectral colours. Sodium was observed to give a single or a double line of yellow light, only in a position corresponding to the orange rays of the solar spectrum. Potassium, besides a more diffused spectrum, gave a red line in the extreme red rays, and a violet line in the extreme violet rays. Lithium gave a dark spectrum, with only two bright lines, one a pale yellow corresponding to the yellow rays, and the other a bright red corresponding to the red rays. Strontium, barium, and calcium, the only three alkaline earthy metals which give spectra (magnesium not being volatile in this flame), are remarkable for the number and variety of the coloured bands which they present. Strontium presents eight characteristic lines,—six red in the part corresponding to the red rays, one broad orange band parallel to the orange rays,
and at some distance from these a blue line, in the situation of the blue rays. The spectra of barium and calcium are distinguished from the others by the number of green bands which they present. Two of these in the situation of the green rays characterize barium. There are, besides these, three other green bands, and several yellow, orange, and red lines. Calcium presents one broad green band in the situation of the yellow-green rays; and a bright orange band near the red rays, besides several smaller orange lines. The new alkaline metal *Cesium* (*cesium*, sky colour), discovered by Bunsen in the waters of Durkheim and Baden, as well as in most spring-waters containing chloride of sodium, presents two distinct greyish-blue lines in the parallel of the blue rays, and no other coloured bands or lines. The other new metal, *Rubidium*, found by Bunsen in the waters of Hallein and Gastein, derives its name from the two splendid red lines in its spectrum: these are of a low degree of refrangibility. The optical characters of the spectra are constant for each metal, and are equally well marked in size and position under all varieties of flame, even of that given by the electric discharge.

"Bunsen estimated that the amount of sodium which admitted of detection by prismatic analysis was the 195,000,000th part of a grain; of lithium the 70,000,000th; of potassium the 60,000th; of barium the same; of strontium the 1,000,000th; and of calcium the 100,000,000th of a grain!"

"The delicacy of the sodium reaction accounts for the fact that all bodies, after a lengthened exposure to atmospheric air, show, when heated, the sodium line. Even ignited air and all kinds of dust show the yellow tinge of sodium. Fine platinum wire or foil, however clean, if exposed to air for a short time, has been observed to give a yellow colour to flame, owing, as it is supposed, to the deposit upon its surface of sodium derived from the atmosphere. Three-fourths of the earth's surface are covered with sea-water, and the minutely diffused chloride of sodium may, it is supposed, be thus spread through the whole of the atmosphere. Lithium, which was supposed to be a rare metal, also appears by this mode of analysis to be very widely distributed. Bunsen found it in about an ounce and a half of the waters of the Atlantic Ocean; in the ashes of kelp from Scotland; the ashes of tobacco, of vine-leaves, and of plants growing on various soils. It was found in the milk of animals fed upon these crops, and it was detected by Dr Folwarczny in the ash of human blood and muscular tissue. It has also been discovered in Thames-water. It is a curious fact that the intermixture of these alkaline metallic compounds does not materially interfere with the optical as it does with the common steps of a chemical analysis. Thus, a drop of sea-water shows at first a sodium-spectrum; after the volatilization of the chloride of sodium,—a calcium-spectrum appears, which is made more distinct by moistening the platinum wire with hydrochloric acid. By treating the evaporated residue of sea-water with sulphuric acid and alcohol, potassium and lithium spectra are obtained. The strontium reaction is best procured by digesting the boiler-crust of sea-going steamers in hydrochloric acid, and employing alcohol as a solvent. By this process of analysis most mineral waters are found to contain all the alkalies and alkaline earths excepting the compounds of barium."—P. 50-53.

In conclusion, we can cordially recommend this work as one of the clearest and most practical which can be put into the hands of the student.

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**On the Cure of Clubfoot without Cutting Tendons.** By Richard Barwell, F.R.C.S., Assistant-Surgeon, Charing-Cross Hospital, etc. London: Churchill and Sons: 1863.

*Nec quid nimis* is a good rule, and applicable to surgical theories as well as to other things. Mr Barwell would do well to attend to
it a little, and not to stretch either his theory or practice beyond what is right and fitting.

The principles of treatment laid down in this little work are, to a certain extent, novel, and the mechanical means adopted are original and ingenious, and in certain cases of deformity have proved, in the author’s hands, apparently of extreme value, and may prove, in the hands of others, valuable additions to the surgical armamentarium, in certain cases; but the great fault of this book is the one—not at all uncommon in inventors and enthusiasts—of supposing that a theory which will explain certain exceptional cases, and the treatment which has cured them, must be the theory and treatment for all, or for most similar lesions.

First, for the theory, “There can be no doubt that paralysis is very much more frequently the cause of clubfoot than the opposite condition; indeed, my opinion, deduced from careful study of many cases, is, that spasm very rarely produced talipes,” that “Paralysis affecting one set of muscles produces deformity in the opposite direction.” Thus, healthy muscles are always in a certain state of tonic contraction, and one set being paralyzed, the opposite ones shorten, determine changes of form, and produce deformity. Such paralyses occurring before puberty are, as a rule, curable, unless organic disease exists; but such is the mischief the tonic contraction of the unparalyzed set has done, that the paralyzed muscles are even after being cured unable by themselves to recover their proper shape, and require assistance.

The practice founded on this is to assist the paralyzed sets by indiarubber springs of various strengths, the insertions of these extra muscles being represented by pieces of strapping.

Now this theory requires us to grant the existence of intra-uterine paralysis of some standing in the infinitely numerous cases of congenital double clubfoot, and of this disease we rarely see any local evidence in the well-nourished, chubby, little red legs so often seen in clubfoot; and after we have granted this, the practice requires to believe that the paralysis is cured—not by exercise, not by stimulating the affected groups of muscles, but by relieving them of labour by artificial aids, the very means which would tend to reduce previously healthy muscles to weakness and paralysis.

Mr Barwell’s principle of treatment, which is carefully and elaborately described in the book, seems, however, well adapted for cases of paralysis of childhood, in which the limbs are dragged, a tendency to inversion exists, and there is a laxity and flattening of the whole foot. In such cases, the indiarubber springs correct the displacement, while they do not, like the rigid devices composed of wood, iron, and leather, prevent the muscles from acting during walking, which exercise Mr Barwell wisely allows and encourages. And that in reality it is to cases of this nature that Mr Barwell has applied his treatment is evident from his recorded cases, for out of eleven cases of clubfoot (Cases 3–13, inclusive), seven are non-con-
genital, several of them the results of convulsions, and some depending on overwork in weak constitutions; while another, though congenital, was in a lad of ten years of age, in whom "the toes turned sometimes a little out when the foot was set down; but as a rule, they are turned much inwards, altogether the gait is most uncertain, and the foot swings very loose at the end of the leg."

In this case, perhaps, unfortunately for the poor lad, the son of a medical man, the "nimia diligentia" had cut his tendons, placed his limbs in irons, and confined him to bed; and the indiarubber springs and sticking-plaster, allowing as they do of exercise in the open air, effected a certain improvement.

Another case, aged fourteen months, had a congenital varus of the highest degree, and in this Mr Barwell gave chloroform and overcame the resistance offered by what he rather vaguely calls the resistent power, not by cutting tendons, but "by a quick, firm, though by no means violent movement of the right hand, which overcame this resistance with a slight sound, and he then put up the foot and limb in a gutta-percha splint." Not unlike the ordinary treatment in the northern metropolis, where also we use gutta-percha splints, and overcome resistance by cutting the tendons.

The methods of applying the springs and plasters are exceedingly ingenious, and do great credit to Mr Barwell's mechanical skill; but we cannot understand the rationale of the very numerous and severe, almost contemptuous, allusions to orthopaedism, orthopedists, etc. (see pp. 25, 27, 143, etc.). Etymologically, tenotomy and gutta-percha applied to the treatment of deformities of the lower extremities, are no more orthopaedism than sticking-plaster and indiarubber. The term may be an absurd one,—it is not necessarily a term of reproach.

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**Part Third.**

**MEDICAL NEWS.**

**GENERAL COUNCIL OF MEDICAL EDUCATION AND REGISTRATION.**

**Minutes of Meeting, Monday, 25th May 1863.**

Mr Green, President, took the chair at two o'clock.

Present—Dr Burrows, Mr Arnott, Mr Cooper, Dr Acland, Dr Bond, Dr Embleton, Dr Storrar, Dr Alexander Wood, Dr Andrew Wood, Mr Syme, Dr Thomson, Dr A. Smith, Mr Hargrave, Dr Leet, Dr Ajohn, Dr Corrigan, Sir Charles Hastings, Dr Sharpey, Mr Teale, Dr Christison, Dr Stokes. Dr Francis Hawkins, Registrar.

Mr Watt, in consequence of long-continued indisposition, has resigned his position as a member of the Council for the Faculty of Physicians and Surgeons of Glasgow. Dr John Gibson Fleming, having been elected in his stead, was introduced to the Council by Dr Thomson.