THE

CHIRURGICAL WORKS

OF

PERCIVALL POTT, F.R.S.

SURGEON TO ST. BARTHOLOMEW'S HOSPITAL.

WITH HIS LAST CORRECTIONS.

TO WHICH ARE ADDED,

A SHORT ACCOUNT OF THE LIFE OF THE AUTHOR,

A METHOD OF

CURING THE HYDROCELE BY INJECTION,

AND OCCASIONAL

NOTES AND OBSERVATIONS.

BY

SIR JAMES EARLE, F. R. S.

SURGEON EXTRAORDINARY TO THE KING, &c.

A certis potius et exploratis petendum esse præsidium; id est, his quæ Experientia in ipsis curationibus docuerit; sicut in cæteris omnibus artibus: nam ne agricolam quidem aut gubernatorem disputatione, sed usu fieri.
A. CORN. CELSUS.

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A TREATISE

ON

THE HYDROCELE,

OR

WATERY RUPTURE,

AND

OTHER DISEASES

OF THE

TESTICLE, ITS COATS, AND VESSELS.

ILLUSTRATED WITH CASES.

PREFACE

TO THE

SECOND EDITION.

THE following tract, as the title expresses, is designed as a supplement to one published a few years ago; one of the objections to which was, that it was defective in matter, and ought to have comprehended the false herniæ; they being as real diseases, and requiring chirurgical assistance as much as the true.

This deficiency I have now endeavoured to supply in the best manner I am able.

When I began to put these papers in order, I did not think they would have run to such a length; and, when they were finished, I did not know how to shorten them without rendering them less explicit.

I am perfectly sensible that some parts of them will appear prolix and diffuse, and that such manner of writing is in general very justly objected to; but yet cannot help thinking that sometimes it may be excusable, or even necessary.

When application is made to the judgment merely, and information is intended to be conveyed to many people of different capacities, it may become necessary to set the same object in several different lights; and to repeat the same thoughts many times in different words:

to those who have not been much conversant with the thing treated of, a studied brevity would become a perplexing obscurity. However satisfied such readers might be with the style of the writer, they would not be made sufficiently acquainted with the subject: they might be pleased, but they would not be informed.

I should indeed be very sorry to have conveyed my meaning in such manner as to disgust the judicious; but, as my principal intention was to instruct the unknowing, my chief aim has been perspicuity. If the learned and critical are not displeased, I shall be glad; if the ignorant gain any knowledge, I shall be much more so. The character of an elegant writer I make no pretension to; that of a skilful surgeon, and of a man who has done some good in the way of his profession, I should be extremely glad to deserve.

With regard to this second edition, all I have to say is, that it has cost me some time and trouble; that it contains many additions to the former; and, that I hope the reader will find it, not only a more correct, but a more instructive book.

A

TREATISE

ON THE

HYDROCELE, &c.

SECT. I.

THE various diseases comprehended under the general term HERNIA, have, by surgeons, been divided into two classes; one of which they have distinguished by the epithet *true*, the other they have called *false*, or *spurious*.

Under the first, they have ranged all those tumors which are produced, either by the *descent*, or *protrusion*, of some of those parts which should naturally be contained within the cavity of the abdomen; but which, by being displaced from their proper situation, form swellings in the navel, groin, belly, scrotum, and thigh.

By the second, they mean all such diseases of the testicles, their coats, and vessels, as proceed from, or are accompanied by, the induration, enlargement, or other morbid affection of such parts; or occasion the lodgement, or accumulation, of extravasated fluid within them.

So that what are generally called *true herniæ* are tumors, occasioned by the removal of certain parts from their proper and natural situation, such parts still remaining, in general, sound, and free from disease; while those termed *false* are original disorders of

the parts themselves in which they are seated: a distinction which is invariably true, and very necessary to be attended to, by all who would understand the real nature of each. A part of the intestinal canal, or of the omentum, the stomach, uterus, or bladder, are what most frequently make the contents of the former; a varicous distention of the spermatic vessels, extravasated blood or water within the membranes either of the testicle or of the spermatic vessels, an inflammatory enlargement, and a scirrhous or cancerous state of the testis itself, constitutes the latter.

The *true herniæ* receive their distinguishing appellations, either from the particular part of the body in which the swelling makes its appearance, or from what is contained within such tumor; and are therefore called *inguinal*, *scrotal*, *umbilical*, and *ventral;* or intestinal and omental ruptures. The spurious derive their names either from their supposed contents, as the *pneumatocele*, *hæmatocele*, and *hydrocele;* or from the alteration made by the disease in the natural structure of the parts concerned, as the *varicocele*, *cirsocele*, and *sarcocele:* to which some have added that inflammatory defluxion on the testicle, commonly called *hernia humoralis.*

The *pneumatocele* is a mistake; there is no tumor of this kind, and in this situation, in a living animal. It is indeed particularly described by many writers, both ancient and modern, and said to be a disorder to which infants are particularly liable: but the complaint so described, and which nurses and ignorant people do still call a *wind-rupture*, is not what they take it for; neither is it produced by wind: it is either a true *intestinal hernia*, or a species of hydrocele; which will be taken notice of hereafter. The *varicocele* (which is an enlargement and distention of the blood-vessels of the scrotum) is very seldom an original disease, independent of any other; and when it is, is hardly an object of surgery.

The *circocele*, or varicous state of the spermatic vein, though it be really a disease, and sometimes very troublesome to those who are afflicted with it, yet is seldom capable of much relief, beyond that of a suspensory bandage.

SECT. II.

OF THE HYDROCELE IN GENERAL.

The term *hydrocele*, if used in a literal sense, means any tumor produced by water; but surgeons have always confined it to those which possess either the membranes of the scrotum, or the coats of the testicle, and its vessels.

The first of these, *viz.* that which has its seat in the membranes of the scrotum, is common to the whole bag, and to all the cellular substance which loosely envelopes both the testes. It is, strictly speaking, only a symptom of a disease, in which the whole habit is most frequently more or less concerned, and very seldom affects this part only.[a] The latter, or those which occupy the coats immediately investing the testicle and its vessels, are absolutely local, very seldom affect the common membrane of the scrotum, generally attack one side only, and are frequently found in persons who are perfectly free from all other complaints.

Notwithstanding the obvious and material difference between the two kinds of disease, they have by the majority of writers been confounded together; have been considered as springing from the same immediate source; and as requiring the same kind of treatment; although the one is plainly and evidently a mere symptom or attendant on a general disorder; and the others are strictly and absolutely local complaints. This one fundamental error has been the occasion of many others. The supposition that all collections found in the membranes and coats of the scrotum and testicles are of the same general kind, has produced an infinite variety of wild conjectures concerning the particular and immediate nature and origin of them. By some they have been attributed to a particular indisposition of the liver, kidneys, or spleen; by others, to a natural and necessary connexion between the sper-

[a] I have seen a true anasarcous watery distention of the cells of the dartos confined to one side of the scrotum only.

matic vessels and those of the kidney; by many, the fluid has been thought to be of the urinary kind, or at least that it ought to have passed through the kidney, but that mistaking its right way, it gets into the membranes of the scrotum and testicles;[b] while others have affirmed, that all complaints of this kind are really symptoms of a dropsical habit; that the fluid comes from the cavity of the belly, and either passes through the peritoneum, or extends that membrane down into the scrotum.[c] Many cautions have been laid down against attempting the cure of one species of this disease hastily, or without a previous course of medicine, upon a supposition that the defluxion is of a noxious nature; and that, by falling on this part, it frees the constitution from several

[b] "Supervenit quandoque ex causa aliqua externa et manifesta, ut ictu, "casu, &c. Crebro vero, ex latente, et non manifesta. Quæ ab externa "causa accessit, aut dextrum, aut sinistrum renem indifferenter affligit; a la-"tente vero, et non manifesta causa originem ducens, nunquam alium quam "sinistrum."

SCHENKIUS, OBS.

"Rene, hec malo affecto, nec officio suo probe fungente, urinæ pars quam "emulgens hæc ad se pertraxit, cum ad vesicam per male affectum renem "non potest descendere, per seminalum in erythroideam delabitur; hoc mo-"do hydrocelem ingenerens.

"Hinc apparet et abunde manifestum est, quamobrem hydrocele haud ab "externa, sed a latente originem ducens, non nisi in sinistram membranam "incidat; et hujus testem affligat."

SCHENKIUS.

"Hernia aquosa, si a causa interna et latente originem ducit, ut plurimum "sinistram partem scroti occupat; serosusque ille humer, in membrana tes-"tem involvente, erythroiden dicta, colligitur: idque fit præcipue, rene si-"nistro male affecto; quapropter serosus humores non attrahens, et ad vesi-"cam non mittens, per venam seminariam, quæ in isto latere, ex emulgente "procedit, in membranam erythroiden delabitur."

GUL. FAB. HILDANUS.

"Ne serosus humor qui a rene attrahi non potest in abdomine retineatur."

HILDANUS.

"Si hernia fiat ex humoribus venientibus a renibus ad testiculum, cognos-"citur tactu."

LANFRANC.

[c] "Colligitur liquor in hypochondriis, qui facile descendit."

FAB. AB AQUAPEND.

"Aliquando descendit aqua illuc sicut descendit in hydropicis."

LANFRANC.

other distempers.[d] It has been described, as frequently producing a corrupted or otherwise diseased testicle;[e] as being nearly allied in nature to those tumors which are called encysted, whose tunics are formed out of the common membrane by mere pressure, and as being generally accompanied with a true hernia, or descent of the intestine or omentum; which last (supposed) circumstance has been gravely urged as a reason for not attempting a radical cure.[f] The same wanton liberty has been taken, in assign-

[d] "Sæpe ego vidi multos per hernias liberatos esse a gravibus affectibus; "ab empyemate, hydrope pulmonis, &c. unde si penitus sanetur, poterit "multos morbos postea inferre."

FALLOPIUS.

[e] "Testis autem substantia, ab acrimonia humoris, successa temporis cor- "rumpitur."

SCHENKIUS.

"Sciendum est, quod in hernia illa, in qua continetur aqua in vagina testis, "et quæ aliquantisper sit diuturna, corruptus est testis."

FALLOPIUS.

"Ubi paulo diutius humor iste intus relinquitur, metuendum est ne testi- "culus sensim, cum eolem corrumpatur, vel occalescat, atque ita scirrhum, "vel farcocelen, vel cancrum tandem sentiat."

HEISTER.

"Ne scilicet collectum in scroto serum per acredinem paulatim contractam "partes, internas, et cum primis testiculum, corrumpat; et noxam magis "periculosam efficiet."

HEISTER.

"Notandum vero aquam in scroto non esse diu relinquendam ne a mora "testis corrumpatur; vel una cum aqua adveniat hernia carnoso et caro con- "crescat."

FAB. AB AQUAPENDENTE.

[f] The opinion of the late Mr. Cheselden on this subject is so singular, and so little consonant to truth or nature, that I shall take the liberty to repeat his words, lest his great character should mislead the unwary. In the last edition of his Anatomy, p. 264, he says, "The true hernia aquosa is from the "abdomen, which either extends the peritoneum into the scrotum, or breaks "it; and then forms a new membrane, which thickens as it extends, as in "aneurisms and the atheromatous tumors: the dropsy in the cyst (for such "it properly is) rarely admits of more than a palliative cure by puncture, or "tapping, like the dropsy of the abdomen; and this with some difficulty, be- "cause the omentum generally, and sometimes the gut, descends with it." Which is so far from being the case, that unless in the particular and very singular instance of a combination of an hydrocele with a congenial hernia it never can happen; the bags or sacs of an hydrocele, and of a hernia, being in all other instances totally different; and the former never having any communication with the belly.

ing different seats to these disorders, as in accounting for their origin: every part which invests, or accompanies, the spermatic vessels, or the testicles, not only the tunica communis of the process, and the cavity of the tunica vaginalis, (the true and real seats of one or other of these disorders,) have been enumerated, but several imaginary ones have been added; firm, compact membranes have been split into lamellæ; and cysts and coats have been devised, which never had a real existence.

If all this was matter of mere speculation, and produced no mischief in practice, it would be of no importance; but, in matters of physic and surgery, this seldom or never happens: erroneous ideas of the nature, origin, and seats of diseases, most commonly are followed by improper methods of treating them. In the present case, the absurdity of the conjectures concerning these circumstances in the disorder, is fully equalled by the methods of cure which have been proposed and practised.

Upon a supposition that the extravasation of fluid was the consequence of a dropsical habit, strong purges and powerfully diuretic medicines have been prescribed; actual cauteries have been used; and ligatures and incisions made, both on the spermatic vessels and in the groin, to hinder the descent of the water from the cavity of the belly;[g] astringent liquors and ardent spirits have

g "Et cum totam evacuaveris aquam, cauteriza locum quem aperuisti; et "fac duo cauteria punctualia in inguina, ex utraque parte unum, supra didy-"mum; quod si non cauterizes, aqua iterum redit. Sed cauteria redire "materiam iterum non permittunt."

LANFRANC.

"Et iterum redit nisi cauterizetur post perforationem."

BRUNUS.

"In apertione duplex est intentio, scilicet aperire et prohibere ne rursus "aqua descendat."

FAB. AB AQUAPEND.

"Avicennas utitur ferramentis candentibus in regione inguinis ut cor-"rugatur pars, ne aqua posset descendere."

FAB. AB AQUAPEND.

"Sin autem in rene vitium non fuerit, et defluxum plane impedire volueris, "incisionem, superiore parte scroti prope inguina, fieri expedit; quando-"quidem duplex chirurgo est scopus; prior evacuare serosum humorem, pos-"terior prohibere ne de novo aqua in scrotum defluat."

"Et quia tota aqua in tunica illa (nempe vaginali) continebatur, ita ut

been injected, with a view to closing or soldering broken lymphatics; tedious and painful operations have been practised, for the eradication of imaginary cysts; directions have been given to evacuate the water at different times, lest the patient's strength should fail, or his health suffer, by its being done too suddenly; and the testicles being supposed to be frequently spoiled, by long laying in the water, castration has often been performed in the simple hydrocele.

Dr. Monro (the father) who is professor of anatomy at Edinburgh, and Mr. Samuel Sharp, late surgeon to Guy's hospital, are almost the only writers who have sensibly and rationally explained the true nature and theory of these diseases: to them the profession is greatly obliged for having thrown much light on the subject, and for having furnished their readers with more just ideas than any others.

SECT. III.

THE spermatic vessels, like most of the contents of the abdomen, lie behind the peritoneum, enveloped in the common tela cellulosa, or what used to be called the cellular appendix of the peritoneum. The arteries, which are two, arise from the trunk of the aorta, in the midway between the emulgent and lower mesenteric. At their origin they are very small, and, contrary to all the other arteries of the body, they seem rather to increase in diameter as they descend. In their passage downward, they impart several branches to the cellular membrane which invests them; and before they arrive at the testicles, they are divided into four or five principal ones; one of these goes to the epididymis, the others to the testis; the latter having passed the tunica albuginea,

"testiculus ei innataret, ne in posterum denuo descenderet aqua acu incur-
"vato ac filo reduplicato universam hanc tunicam (præter vasa seminalia) ap-
"prehendi et mediocriter constrinxi, atque ligavi."

FAB. HILDANUS.

and being convoluted in a most wonderful manner, composes the greatest part of the body of that gland: from these convolutions of the spermatic artery, the semen is secreted: which fluid is, after such secretion, immediately received by those particular vessels, which late anatomists have agreed to call the vasa efferentia. These vary in their number, in different subjects, being from ten to fifteen, more or less: when collected together they form the globus major, or larger extremity of that body, which, from its situation, is called epididymis: after this, they unite into one single tube, which being convoluted and contorted, in the most miraculous manner, constitutes the rest of that same body: so that the whole of the epididymis, except that immediate point which is formed by the concurrence of the vasa efferentia, does really consist of one single tube, whose diameter is said, in no part, to exceed the eightieth of an inch, but which is contorted some thousands of times; and if unravelled, and drawn out, is some yards in length. From the lesser extremity of the epididymis proceeds the vas deferens, or that tube through which the semen is conveyed from the testis toward the penis; or, in other words, when this wonderful tube ceases to be convoluted, and puts on the appearance of one single, smooth vessel, it is then called vas deferens. This arises from the lesser end of the epididymis, enveloped in the same common tela cellulosa, in which the spermatic artery and vein are invested; and when it has got just above the edge of the os pubis, it separates from the said vessels, and passing down behind the peritoneum, proceeds to the inferior part of the neck of the bladder, where it deposits the semen, in the receptacles appointed for that purpose, called the vesiculæ seminales.

The blood, after the seminal secretion is performed, returns back into the general mass, by the spermatic vein: which on the right side empties itself into the vena cava, and on the left into the emulgent.

While the spermatic vessels are within the cavity of the belly, the cellular membrane, in which they are enveloped, is much more lax and tender, and is endued with larger cells, than it is on the outside of the same cavity. As they go *under* the transversalis, and obliquus internus muscle, and *through* the obliquus externus,

they receive a considerable addition of cellular membrane from the adjacent parts; and, when they have passed through the tendinous aperture of the last named muscle, they, together with their cellular tunic,[h] are covered by, and enveloped in, that expansion of muscular fibres, called the cremaster.

The membrane surrounding all that part of the spermatic vessels, which is on the outside of the abdomen, is called the tunica communis, or tunica vaginalis of the chord; and is (as has already been said) merely cellular; totally void of all other cavity than its cells; firmly adherent to the surface of the said vessels, in every part; and plentifully furnished with lymphatics.

It is of very great importance to have a just idea of the structure of this part of the funiculus spermaticus. The old term, tunica vaginalis, conveyed a very false one: it implied, that the vessels were contained within it, as in a sheath, and that, if the said vessels were not there, this coat would form an empty bag, consisting of one cavity only; than which nothing can be more untrue.[i]

[h] The passage of the spermatic vessels *under* two of the muscles, and *through* the third, is a circumstance of much importance, and what every practitioner ought to be well acquainted with.

The common doctrine is, that in each of the oblique muscles and in the transversalis is a tendinous aperture, for the transit of the spermatic chord; and these supposed openings are called the *rings*. This is a mistake, which even some very modern writers in anatomy have fallen into: and lest their words should not convey an idea sufficiently erroneous, some of them have given us drawings of all these openings in regular gradations, above and behind each other. Nothing can be more false than such representation: the spermatic vessels do never pass *through*, but always *under* the transversalis and obliquus internus, at such distance as never to be affected by their action, or to suffer any stricture or strangulation from them. On the contrary, the spermatic chord always passes through an opening made for that purpose in the tendon of the obliquus externus; the action of which it is liable to be affected by: and when it is accompanied by a portion of intestine, (as in the case of an hernia,) it is this tendinous aperture which produces the stricture, the symptoms, and the hazard—a circumstance of great consequence for every man to know, who may ever be called upon to operate on a strangulated hernia.

[i] Even M. de la Faye, whose notes on Dionis have rendered the works of the latter more useful, has fallen into the common mistake with regard to this tunic, by supposing both it and the vaginalis to be formed out of the same membrane, and allotting a cavity or bag to the former. "Il faut remarquer,

This is one great source, from whence many of the errors, which have been committed in the description of such diseases, as have (or are supposed to have) their seat in this part, have sprung; and therefore I take the liberty of repeating, that this tunic has no one particular cavity, but is a mere cellular membrane throughout its whole extent; and that it terminates, in a great measure, just above the epididymis, though a continuation of it may be traced on the surface of the tunica vaginalis testis.

The coats of the testicle are two only; *viz.* the tunica vaginalis, or that bag which loosely invests it, without any adhesion to it, except in one particular part; and the tunica albuginea, or that membrane, which is the immediate and proper covering of its vascular structure. A true and clear idea of these is absolutely necessary to the right understanding the diseases to which this gland is subject. In order to obtain such idea, the testicles must be examined, not only in an adult state, but in the infantine, and in that before birth also; each of these states having its peculiarities, and all tending to explain the true nature of such maladies, as it is frequently subject to.

The testicles of the human species are always formed within the cavity of the belly, and remain there until or very near unto the time of birth. While they are within the abdomen, they are covered by one coat only; which coat firmly adheres to the vascular structure of them, and is evidently derived from the peritoneum, in the same manner as the outer coat of each of the viscera of the said cavity is. Their situation, during the first months, is higher than in the latter; and as the fœtus increases in size, they slip gradually lower. Within the cavity of the abdomen, on each side, a little below the testes, is a small opening, or orifice, which leads immediately into a small but firm membranous bag, or cyst, whose upper part, or neck, passes through the opening in the tendons in the obliqui externi muscles; while its lower part, or sac-

" que la tunique vaginale et la gaine du cordon spermatique sont une con-
" tinuation du tissue celluleux du peritoine, qui s'allonge pour enveloper le
" testicule ; à l'endroit, où cette continuation s'elargit, la nature a formé une
" cloison qui empeche la communication qui se trouveroit entre l'interieur de
" la gaine du cordon spermatique, et celui de la tunique vaginale."

De la Faye.

culus, lies on the outside of said muscles in the groin, enveloped in the common tela cellulosa. These orifices are always open until birth; and, most frequently, for some while after; during all which space of time, the said sacculi have free and open communication with the cavity of the belly.

By means of these orifices the testicles pass from the cavity of the abdomen, through the tendinous apertures, into the sacculi in the groins; but, the time in which they make this transit is by no means certain: sometimes it is just before birth, sometimes just after; sometimes they drop immediately into the scrotum, and sometimes they remain a considerable time in the groins; and, it now and then happens, that they never pass through the muscle at all, but remain for ever within the belly. These are a kind of lusus naturæ; but, in the ordinary course, they soon pass from the groins into the scrotal bags, the communication between the said bags and the belly continuing open some little time longer.

When the testicles are got fairly down into the sacculi, if the said sacculi be laid open, it will appear that the testicles are loosely enveloped by them, in such a manner as to be perfectly free from all cohesion, except in one part, where this bag and the proper coat of the testicle (the albuginea) are so firmly united, as to be plainly and demonstrably a continuation of one and the same membrane. And, while the communication with the belly continues free and open, if the sacculi be divided from the bottom upward, it will as evidently appear that the membrane of which they are composed is a continuation, or process of that part of the peritoneum which lines the muscles of the abdomen.

Some time after birth, the necks of these sacculi become close and impervious; and, from that time, all communication between their cavities and that of the belly ceases. The time when this happens is various and uncertain; I have seen them perfectly closed within a week, and open at the end of two months; nor do they both necessarily become close at the same time, in the same subject.

It sometimes happens, that while these passages are open, a piece of intestine insinuates itself into one of them, and, preventing its closing, produces what Haller calls a congenial hernia; a disease which, though a modern discovery, has always been very

frequent. It also sometimes happens, that the spermatic vessels not being sufficiently closed, one of the testicles rests in the groin, just without the opening in the abdominal muscle, and, by not becoming pendulous in the scrotum, the orifice of the neck of the sacculus is not closed at all; even though no portion of gut or caul has got into it.

When these orifices have been once perfectly closed, there never is any future communication between the cavities of the sacculi and that of the belly; nor can any thing solid or fluid (however small in size or quantity) ever, after this period, pass from the one to the other. The upper part, or neck, now loses all appearance of a distinct canal; and the lower part, or sac, loosely invests the testicle, and its epididymis, without any adhesion, except in the hinder part. The inside or cavity of this sac is constantly kept moist by the exudation of a fine fluid; which fluid is as constantly absorbed: so that, while these parts enjoy a sound healthy state, the fluid is no more in quantity, than what just serves to lubricate and keep moist the surfaces of both membranes, and thereby prevent any unnatural cohesion of them with each other.

From these premises, the following inferences, serving to point out and explain the true nature and seat of some of the diseases in question, may, I think, be deduced.

1. That the sacculi, or bags, found in the groins, are originally formed parts.

2. That they are placed there for the future reception of the testicles; and that when the upper part, or neck, of one of them becomes close and impervious, the lower part, or sacculus, constitutes and forms what is properly called the tunica vaginalis testis; which is therefore a true and original process of the peritoneum.

3. That of all the parts contained within the scrotum, these sacculi are the only ones which ever naturally communicate with the cavity of the belly.

4. That, after a certain space of time, that communication ceases.

5. That whatever fluid may be shed from the spermatic vessels, or collected, or extravasated, in the cells of the tunica communis, or in those of the dartos; yet no part of such fluid can be derived from, or received into, the cavity of the tunica vaginalis testis.

6. That a total failure of the secretion of that fine fluid, which should moisten the inside of the vaginal tunic, and the outside of the albuginea, must be followed by an unnatural cohesion of these membranes with each other; and either a partial or total abolition of the cavity of the former.

7. That if more of this fluid be deposited than the absorbent vessels can take up, or if the absorbent vessels do not execute their office, such fluid must be accumulated within the cavity of the said tunic; from which, there being no natural outlet, the consequence must be a gradual distention and enlargement of it.

8. That the natural communication between the cavity of the tunica vaginalis and the belly, not being shut until some space of time after birth, it may become close at its upper part, while there is a quantity of fluid in the lower, too large for the absorbent vessels to take up immediately; and, consequently, that such infant will, until that office be executed, labour under a true hydrocele of the tunica vaginalis testis; a case which is very frequent, though generally mistaken for a wind rupture.

And, 9. That the fluid of that kind of hydrocele, which is formed by the sac of a congenial hernia, must be lodged within the cavity of the vaginal coat; while all collections of serum, in the sacs of all other kinds of herniæ, must necessarily be perfectly distinct from the said tunic.

I should now proceed to the examination of each distinct species of hydrocele, but will intrude upon my reader's patience while I mention a circumstance or two, relative to the passage of the testicle from the belly into the scrotum; and which, as a practitioner, he may possibly think worth his attention.

I have said, that the time in or at which the testicles pass from the belly, through the groin, into the scrotum, is by no means certain; that it varies in different people; that even in the same person, the two testes do not always pass down at the same time;

that sometimes both of them, sometimes one, remains within the belly, or in the groin, for a considerable space of time after birth; and that it now and then happens, that one or both of them never get into the scrotum at all.

I do not know any particular inconvenience arising from the detention of a testicle within the cavity of the belly; but the lodgement of it in the groin not only renders it liable to be hurt by accidental pressure, &c. but when it is so hurt, may be the cause of its being mistaken for a different disease, and thereby occasion its being very improperly treated. To which considerations, this may be added, that there is no kind of disease, to which the testicle is liable in its natural situation, but what may also affect it, in any or all its unnatural ones.

CASE I.

I WAS sent to, in a great hurry, from the neighbourhood of Limehouse, and desired to bring with me whatever I might want for the operation of a bubonocele. I found a young, healthy, seafaring man, lying across his bed, and complaining of most acute pain in his groin and back. He told me, that, "In the forenoon of the day before, being at work on board his own vessel, he fell, and struck his groin against a piece of timber with great violence; that it gave him such exquisite pain, that he fainted away; that his groin became immediately swollen to a very considerable degree; that as soon as he could get home, he applied to his apothecary, who bled him, put him to bed, and poulticed the tumor; that he passed the night without sleep, and in great agony; that when his apothecary came to him the next morning, he (the patient) informed him of a circumstance, which, in his confusion, he had forgot the night before, *viz.* that he had long had a rupture on that side, which had never been perfectly returned; that, upon receipt of this information, the apothecary had bled him again, and had taken some pains to return the rupture: but finding that he made no progress, and that his attempts produced great increase of pain, he had desisted, and had given him two clysters and a purge; neither of which occasioning such discharge as he

expected, and a kind of blackness now beginning to appear on the part, he desired immediate assistance." By the time this account was finished, the apothecary came in, and confirmed it.

The pain was exquisite; and while I was asking the patient a few questions, he became very sick, and vomited. The groin and scrotum were much swelled, and very hard; but the general figure and appearance of the tumor did not appear to me like that of a bubonocele: instead of pointing obliquely from the ileum toward the pubes, it lay, as it were, across the groin: the scrotum was full and large; but I thought it felt much harder than I had ever found a piece of intestine do; and with regard to the alteration of colour, I cannot say it gave me much uneasiness; for it was not at all like the effect of mortification, but had all the appearance of an extravasation, or ecchymosis. On the other hand, the man had not had a fair stool for three days; he had been very sick, and had vomited; his belly was tight, hard, and painful; and his pulse much too quick. From examination of the tumor, I could get very little information; for the pain was so exquisite, that he could not bear the slightest touch: however, from what examination I could make, it appeared to me, that if this was an intestinal hernia, it was such an one as I had never yet met with; and nothing but the circumstance of his having worn a truss formerly, by the direction of a surgeon of character, could have induced me to have entertained such suspicion. I inquired again concerning this rupture, and was told, that he had worn a truss for it the first four years of his infancy, but that it never kept the gut totally or perfectly up; and that, as he grew bigger, and ran about, he was obliged to leave it off, on account of the pain it gave him: that since he had left it off, he had not observed any, or very little alteration in the tumor; (none in its situation, though a little in its size;) and that it had never given him any trouble or uneasiness, if he did not handle it, or kept the waistband of his breeches and his watch from pressing it. All this was far from being satisfactory: and as the present state of the parts was such, as was by no means favourable for an operation, I determined, previous to any other attempt, to try what a brisk cathartic would produce. A stimulating clyster was immediately thrown up, and a solution of an ounce and a half of Glauber's salts in two ounces

of inf. senæ swallowed, which, in little more than an hour, produced so plentiful a discharge, that the belly became soft and easy, and we were perfectly free from all apprehensions of a stricture. Fomentation, poultice, &c. were frequently applied to the tumor, which in three or four days began to subside; and in about seven or eight the scrotum was so unloaded as to permit easy and accurate examination; by which means we were satisfied, that it contained no testicle. Upon mentioning this circumstance to the patient, he said that he never had one on that side. This declaration was a solution of all difficulties, and of all the appearances. When all the effects of the blow were removed, there appeared in the groin, just on this side of the opening in the abdominal tendon, a testicle of natural size and figure; which testicle, by being much bruised, had caused all the mischief.

CASE II.

A POOR man came to St. Bartholomew's hospital, and desired assistance for a swelling in his groin; for which he had, for a month before, been taking Jesuits' drops and other quack medicines, till he had not a farthing left. Upon removing an adhesive plaster, I found a tumor which was large and painful; but at the same time so moveable, as to be very unlike any affection of the inguinal glands. The account which the man gave was, that "He had always had a lump in that groin, and never any testicle on that side; that when young, he had worn a truss for it, upon a supposition of its being a rupture; that when he came to work for his living, he could no longer bear the uneasiness which the truss gave him, and therefore had left it off for years: that since that time he had never perceived any material alteration in the tumor, nor had it ever given him any trouble, till he had got a clap about two months before; upon the sudden disappearance of which, the lump in his groin became large and painful."

In short, the man had got a hernia humoralis of the testicle in his groin; which, by means of proper treatment, bleeding, cataplasm, and rest, he soon got well of.

CASE III.

A MIDDLE-AGED man came to St. Bartholomew's, for advice for a tumor in his groin.

He was apparently in good health; the tumor was of an oval or egg-like form, indolent when not pressed, perfectly moveable, lay just in the groin, and had by more than one person been mistaken both for bubo and bubonocele. When handled or pressed rudely in consequence of the latter opinion, it was painful for some hours after; and the pains (to use his own words) always shot up into his back. It was on the left side; on which side there was no testicle in the scrotum, nor had there ever been one; but on the right side every thing was as it should be. He said that within two years it had been considerably enlarged; and that it now was become very troublesome to him.

It appeared very plainly to me that the tumor was caused by the left testicle; which testicle was in a diseased state, but very fit for and very capable of extirpation. I advised the man to submit to the operation, and he had complied; but the late Mr. Griffiths (one of our then assistants) coming into the ward, I desired him to look at the case. Whether he did not attend to all the circumstances, or for what other reason, I know not; but he took it into his head, that it was a tumor of another kind, that might be removed by internal medicine; and dissuaded the man from undergoing what I had proposed: upon which I did not take him into the hospital.

Some months after, the swelling becoming larger and more troublesome, he applied to St. George's hospital. The gentlemen there gave him the same opinion, and the same advice which I had given him; he submitted, and got a cure, by the removal of a testicle which had never been lower than his groin, and which was now become scirrhous.

CASE IV.

The late Mr. Hollingworth desired me to go with him to see a patient in the neighbourhood of Clerkenwell. It was a man about fifty-five years old, who had a large ulcerated cancerous tumor in his right groin, with high callous edges: it always discharged a large quantity of a most offensive gleet; at times it bled profusely, and was always extremely painful.

The patient said, that when first it became troublesome, he had showed it to two eminent rupture-curers; one of whom said, that it was a piece of caul, and offered, for twenty guineas, to cure him by cutting it out: the other (more modest, or less hardy,) only sold him two bandages for it; neither of which he could ever wear.

When Mr. Hollingworth carried me to see it, it had just been left by a cancer-curer, who had applied to it an escharotic; and which, by the patient's account, as well as by the appearance of the sore, had made terrible havoc.

During all this time, no one who had seen him (and what is still more remarkable, not even the patient himself) had remarked, that in that side of the scrotum he had no testicle.

The state, both of the man and of the sore, forbad any chirurgical process; and my advice to him was to dress the sore lightly, and have recourse to tinct. thebaic. for ease: which advice he followed, during the short remainder of his life.

When dead we examined him, and found that the disease consisted in a cancerous testicle lying in the groin; the spermatic vessels of which were varicose, and knotty all the way up to the kidney, having here and there a bladder of yellow serum in the cellular membrane: the lymphatic glands about the vertebræ of the loins were diseased, as was the liver; and on the surface of the right kidney was a collection of offensive sanies.

SECT IV.

THE ANASARCOUS TUMOR OF THE SCROTUM.

THE scrotum is the common receptacle of both the testicles, and consists of the cuticula, cutis, and what all the anatomists have now agreed to call the dartos; which is a loose cellular membrane, perfectly void of fat, and whose cells or cavities communicate with each other, with the utmost freedom, through every part.

As this membrane has no immediate communication with the cavity of the abdomen within the peritoneum, it is plain, that whatever kind or quantity of fluid may be deposited in it, it cannot be derived from the said cavity, even though the patient should labour under a true ascites; but as its cells have a free intercourse with those of the general cellular membrane all over the body, they will be liable to be affected by all those disorders which have their seat in that membrane; that is, by all disorders proceeding from a low impoverished state of blood, from a deficiency of the urinary secretion, or from non-execution of the office of the absorbent vessels; and consequently, in anasarcous and leucophlegmatic habits, will become the seat of a watery extravasation.

This watery swelling of the scrotum, although it be most frequently a symptom of a dropsical habit, and very often accompanies both the general anasarca, and the particular collection within the abdomen, called the ascites, yet, even in the latter case, neither is, nor can be, derived from the cavity of the belly, but is confined to the tela cellulosa, which lies on the outside of the peritoneum: the water derived from hence distends the scrotum, in the same manner, and for the same reasons, that it often does the legs and feet. The cells of the dartos being larger and absolutely void of fat, and the skin which covers them being extremely dilatable, and giving way for a larger influx into this part than into most others, has indeed occasioned its being taken notice of as a particular disease, though it is most properly a symptom only.

This being the case, and the true method of cure consisting in

an internal medical process, it has been, I think, improperly ranked among the species of hydrocele; though the nature of the contents will certainly admit the use of the word.

It is indeed a disease, which properly belongs to the physicians; but as it is of some consequence to be able to distinguish it from other disorders affecting the same, or the neighbouring parts, and as surgeons are often called upon to assist in alleviating some of the inconveniences which this defluxion produces, it cannot be amiss in this place to give a short account of it, and of the most proper chirurgical method of attempting its relief.

It is an equal, soft tumor, possessing every part of the cellular membrane, in which both the testicles are enveloped, and consequently is generally as large on one side as on the other; it leaves the skin of its natural colour; or, to speak more properly, it does not redden or inflame it. If the quantity of water be not large, nor the distention great, the skin preserves some degree of rugosity; the tumor has a doughy kind of feel; easily receives, and for a while retains, the impression of the fingers; the raphe or seam of the scrotum divides the swelling nearly equally; the spermatic process is perfectly free, and of its natural size; and the testicles seem to be in the middle of the loaded membrane. This is the appearance when the disease is in a moderate degree. But if the quantity of extravasated serum be large, or the disease farther advanced, the skin, instead of being wrinkled, is smooth, tense, and plainly shows the limpid state of the fluid underneath: it is cold to the touch, does not so long retain the impression of the finger, and is always accompanied with a similar distention of the skin of the penis; the preputium of which is sometimes so enlarged, and so twisted, and distorted, as to make a very disagreeable appearance. These are the local symptoms: to which it may be added, that a yellow countenance, a loss of appetite, a deficiency of urinary secretion, swelled legs, a hard belly, and mucous stools, are its very frequent companions.

The cure of the original disease comes, as I have already said, within the province of the physician, and requires a course of internal medicine: but sometimes the loaded scrotum and penis are so troublesome to the patient, and in such danger of mortification, that a reduction of their size becomes absolutely necessary; and at

other times a derivation, or discharge, of the redundant extravasated serum from this part is ordered as an assistant to the internal regimen.

The chirurgical means in use for this end is called in general scarification; a term, whose precise sense has by no means been settled; by which it has now and then happened, that a general order being given, and the particular method of executing it being left to the choice of those who have not been sufficiently acquainted with this kind of business, much hazard has been incurred, and considerable mischief done, which might have been avoided.

The means of making this discharge are two, *viz.* puncture and incision: the former is made with the point of a lancet; the latter with the same instrument, or with a knife.

The generality of writers on this subject have spoken on the two methods in such a manner, that a practitioner, who had seen but little of either, would be inclined to think that it was a matter of great indifference which we should make use of, and that the safety and utility of each were equal, which is by no means the case.

The intention of the use of either is, by a discharge of extravasated serum, to alleviate the present uneasiness; and, by reducing the size of the scrotum, to render it less troublesome, and less likely to mortify. In some few instances it has indeed happened, that this drain has proved a radical cure of the original disease; but that has been accidental, and is not in general to be expected. The intention is generally palliative; and, if the patient lives, is most likely to require repetition: therefore, if there be any difference between the two methods, with regard either to ease or safety, there can be no doubt which ought to be preferred.

All wounds of membranous parts, in anasarcous or dropsical habits, are necessarily both painful and hazardous: they are apt to inflame, are very difficultly brought to suppuration, and will often prove gangrenous in spite of all endeavours to the contrary. But, the larger and deeper the wounds are, the more probable are these bad consequences. Simple punctures with the point of a lancet, are much less liable to be attended by them, than any other kind of wound; they generally leave the skin easy, soft, cool, unin-

flamed, and in a state to admit a repetition of the same operation, if necessary. Incisions create a painful, crude, hazardous sore, requiring constant care. Punctures seldom produce any uneasiness at all; and stand in need of only a superficial pledget, for dressing.

Now, although there is so very material a difference in the symptoms and trouble attending the two methods, yet there is none in their effect: the communication of the cells of the dartos with each other is so free, through every part of it, that punctures made with the fine point of a bleeding lancet, into the most superficial of them, will, as certainly and as freely, drain off all the water, as a large incision, without any of its inconveniences or its hazard. Neither the one nor the other will cure the original disease, unless by mere accident: they are both made with a design to cure only the local one. The same habit and constitution remaining, the same effect will in general follow, and the same relief be again necessary. The ease, the freedom from bad symptoms, or from danger, and the state in which the parts are left, render one method practicable at all times, and capable of being repeated as often as may be thought necessary: the fatigue, pain, confinement, and hazard, which most frequently attend the other, make one experiment in general as much as most people choose to submit to, or indeed an opportunity of complying with.

CASE V.

A MAN, about fifty-five years old, who had lived freely, was afflicted wtth an anasarcous tumor of the belly, legs, thighs, scrotum, and penis, accompanied with the general symptoms which most frequently attend such complaints, *viz.* prostration of appetite; little urine, and that high coloured; a hard belly; and a bloated face.

He had taken many medicines by the direction of a physician in the country, and more than one quack remedy since he had been in London, but to no purpose: the watery load increased daily, and the swelling of the penis and scrotum became so troublesome, as to prevent his wearing breeches.

In these circumstances, a person who attended him in the capacities of apothecary and surgeon, proposed to draw off the water by an incision on each side of the scrotum; to which the patient consented. The incisions were made, and in a few hours the scrotum was empty and flaccid.

At the distance of five days from this operation, his surgeon died, and I was desired to visit him.

I found him in bed, with a painful, foul, undigested sore, on each side of the scrotum; which, though it had at first been emptied by the incision, was now again considerably loaded with serum, but at the same time hard and inflamed: the edges of the wounds were livid, the discharge from them was a discoloured gleet; and the pain was so great, that the man could get no rest; his pulse was frequent, hard, and small; his breathing not perfectly free; his urine little, and high coloured; his thirst very troublesome; his belly hard and tight; and, having taken an opiate every night from the time of the operation, he had not had a stool for three days past.

I dressed the incisions with a soft digestive; and, covering the whole scrotum with a warm poultice, tied it up in a bag truss; directed a clyster to be thrown up immediately, and a purge to be taken the next morning: from which in the following day he had four or five stools, and by which his respiration was relieved, and his belly rendered softer.

Next day the inflammatory hardness of the scrotum seemed to be going off, but to be succeeded by an emphysematous kind of tumefaction; and, in four days from that of my first visit to him, the whole bag was in a state of mortification, notwithstanding the constant use of fomentation, cataplasm, &c.

Having already taken a large quantity of medicine of different kinds, it was with much difficulty that I could prevail on him to hear of any more: but, upon making a true representation to him of the state of his case, and of his imminent hazard, he consented to take the bark, with some confect. cardiac. and tinct. rad. serpent. every three or four hours.

By putting a tea-spoonful of brandy into each dose, it kept upon his stomach. At the end of three days, the pain and soreness were considerably lessened; and on the sixth he got a little quiet

sleep without any opiate: on the ninth, the mortified parts seemed inclined to suppurate, and the gleet was small, in comparison of what it had been; on the twelfth, there was an appearance of tolerable good matter from the edges; on the fifteenth, a laudable suppuration was established, and the mortified parts were every where loose and falling off. Instead of a small quantity of high coloured urine, he now made what was nearly equal to his drink, and that very well conditioned; and the watery extravasation in his legs and thighs was considerably diminished.

He now began to nauseate the bark, in the form in which he had hitherto taken it; it was therefore changed for another, which he took at larger intervals; and, to assist his urinary discharge, his apothecary gave him an infusion of the cineres genistæ and horseradish, which answered the purpose very well.

The whole scrotum and dartos cast off in a large slough, and left the tunica vaginalis of both testicles as bare and clean as if they had been dissected: these were soon covered by an incarnation, which supplied the place of the scrotum tolerably well; and, by persisting in the use of the same remedies for a few weeks longer, he was restored to perfect health.

CASE VI.

A MAN, not exceeding forty, who had drunk freely of spirituous liquors, was thereby brought into the same circumstances as the patient in the preceding case; that is, his countenance was yellow and bloated; his legs, thighs, scrotum, and penis, loaded with a watery tumor; he had little or no appetite; and made a very small quantity of high coloured urine.

Internal remedies having been ineffectually tried for some time, he was advised to have an incision made on each side of the scrotum; by means of which, all the swelling, both of it and of the penis, was immediately removed, and the patient much pleased.

On the fourth day from the operation all discharge of serum ceased, and the wounded part swelled, inflamed, and became very painful. Fomentation, cataplasm, and proper digestive dressings

were used, but without any relief from the pain, or any beneficial alteration in the appearance of the sores. On the sixth day from that of the incision, I was desired to meet the gentleman that had the care of him. I found that the hard inflammatory swelling, which a day or two before had occupied the whole scrotum, was now gone off, and that it was become flabby and livid, especially about the incisions.

I proposed his taking the cortex, but it was not complied with; nor do I know what the medicines were which he did take, neither myself nor his attendant surgeon being consulted on that head. Warm spirituous fomentations, with proper poultice and dressings, were continued, but to no purpose. I saw the patient each morning for four days; during which, he got little or no rest, and complained of great pain and burning heat within his belly; the watery extravasation in his thighs and legs increased daily; the whole scrotum and skin of the penis became black, and mortified, as did also the part of the pubes; and on the eleventh day from that on which the incision was made, he died.

CASE VII.

A MAN, about forty-five years old, by name Corby, who was a patient in St. Bartholomew's hospital on another account, showed me a swelling on the left side of his scrotum. It was large, full, tight, and had all the symptoms and appearances of an hydrocele of the tunica vaginalis; *viz.* the fluctuation of the fluid, the freedom of the upper part of the process, and the concealment of the testicle. I thought myself so clear in the true nature of the disease, that, without any scruple, I pierced it with a small trocar in the lower and anterior part, and thereby let out about two ounces of limpid water; but could by no means draw off any more, though I pressed a probe up through the cannula, and used every other means proper to obtain it.

I withdrew the cannula, and examined the swelling again, which was but little diminished by what had been done: but, though it was not much decreased in size, it was considerably altered in appearance. I could now very plainly distinguish the

testicle, and was convinced, that the whole disease was confined to the cells of the dartos. In short, it was (what I had never seen before) an anasarca of that membrane, on one side only; having a certain quantity of the water in one cyst or bag, and the rest diffused through the cells in the usual manner: the latter made all the tumefaction which remained after tapping; and the former had concealed the testicle.

Being now truly satisfied of the nature of the case, I made an incision, about an inch long, through the scrotum into the loaded dartos; intending thereby to drain off the water, and, by procuring a suppuration, to cure the disease. Into the incision I put a little dry lint, and tied the scrotum up in a bag-truss.

To my great astonishment, the next day my dresser told me, that Corby's scrotum was swelled to a great size, and that the incision was already livid. I went to the hospital and found it so: I ordered the part to be fomented, and wrapped up in a warm poultice; and that the man should take the cortex freely, till the physician should see him.

In three days time, the whole scrotum and the skin of the penis were completely mortified; and a considerable part of the pubes altered and vesicated: his pulse was quick and small; he complained of a burning heat in his belly and bladder; his thirst was intense; and his extremities cold.

For several days I was convinced that each would be his last: his fomentation, cataplasm, and dressings, were continued. The doctor ordered him a dram of the bark, as often as his stomach would bear or keep it, in a julep, well impregnated with volatile salt; and the poor man earnestly begged to be allowed a pint of porter a day; which he had. At last, in about three weeks time, the whole scrotum, the integuments of the penis, and some part of the pubes cast off, leaving the corpora cavernosa and the tunica vaginalis as clean as if they had been dissected. The man got well.

More of the same kind of cases might be produced, in which the trouble and hazard attending large incisions of the scrotum, in dropsical cases, have been great; but the similarity of them renders it unnecessary. I shall therefore only add, that from the simple puncture I have seldom met with either; and that I have

as seldom known them fail to answer the purpose for which they were intended, *viz.* a temporary discharge of serum from the cellular membrane.

SECT. V.

If we consider the preceding complaint as merely symptomatic, and do not rank it among the different kinds of hydrocele, there will then remain only three; *viz.*

1. That which consists of a collection of water in the cells of the tunica communis, or cellular emembrane, enveloping and connecting the spermatic vessels.

2. That which is formed by the extravasation of a fluid, in the same coat as the former, but which, instead of being diffused through the general cellular structure of it, is confined to one cavity or cyst, in which all the water constituting this species of disease is contained; the rest of the membrane being in its natural state.

3. That which is produced by the accumulation of a quantity of water, in the cavity of the tunica vaginalis testis.

These three are distinct, local, and truly within the province of surgery. They may accidentally be combined or connected with other disorders, but not necessarily; and are frequently found in persons whose general habit is good, and who are perfectly free from all other complaints.

THE HYDROCELE OF THE CELLS OF THE TUNICA COMMUNIS.

In the anatomical account of the parts, which make the seats of the different kinds of hydrocele, it has been observed that the spermatic vessels, from their origin quite down to the insertion into the testicle, are enveloped in, and connected together by, a membrane, called formerly tunica vaginalis vasorum spermaticorum, but now (more properly) tunica communis. That this mem-

brane so enveloping the spermatic vessels has no one particular cavity (as its old name would seem to imply); but is merely cellular, as either the inflation of air, or the extravasation of a fluid, will always prove. That while it is within the cavity of the belly, its cells are lax and large; and when it has passed out from thence, and has formed a part of the spermatic process, by enveloping its vessels, its cells are rather smaller, and the membrane composing them firmer. That it is included within that thin expansion of muscular fibres, called the cremaster. And that a great number of lymphatics, passing from the testicle to the receptaculum chyli, are always to be found in it.

An attentive consideration of these circumstances in the structure of this part will show us, why either obstruction or breach in the lymphatic vessels, considerable pressure by means of diseased indurations within the abdomen, or a morbid state of the parts which should receive the lymph from the vessels of the spermatic chord, may induce the disease in question; and also, when it is produced, that its appearance, and nature of the extravasation, must make the term *cellular* a very proper one, as expressive of its true state.[k]

When the disease is simple, it is perfectly local; that is, it is confined entirely to the membrane forming the tunica communis; and does not at all affect, either the dartos, the tunica vaginalis testis, or any other part.

It is a complaint which does not give a great deal of trouble unless it arrives to a considerable size; and being by no means so frequent as either of the other two kinds of hydrocele, it is in general but little known or attended to. With some, it passes for a varix of the spermatic chord; with others, for the descent of a

[k] "J'ai souvent vû des tumeurs aqueuses, grosses comme des grains de "rasin, placées d'espace en espace le long du cordon spermatique, accompa-"gner une veritable hydrocele placée sur le corps du testicle."

LE DRAN.

The first part of this paragraph is a just and true description of the hydrocele of the cells of the tunica communis, when not much distended: but if by "une veritable hydrocele," Mr. Le Dran means that of the tunica vaginalis, his description of it, as "une tumeur aqueuse, placée sur le corps du testicule," is very inexpressive, inadequate, and likely to convey an erroneous idea.

portion of omentum, which having contracted an adhesion cannot be returned. Thus its true nature not being in general rightly understood, and it giving but little trouble or uneasiness while it is within moderate bounds, and neither hindering any necessary action or faculty, they who have it are most frequently advised to be contented with a suspensory bandage, and find very little inconvenience from it.

Sometimes it arises to so large a size, and gets into such a state, as to become an object of surgery, and to require our very serious attention.

In general, while it is of moderate size, the state of it is as follows. The scrotal bag is free from all appearance of disease; except that, when the skin is not corrugated, it seems rather fuller, and hangs rather lower on that side than on the other, and if suspended lightly on the palm of the hand, feels heavier: the testicle, with its epididymis, is to be felt perfectly distinct below this fulness, neither enlarged nor in any manner altered from its natural state: the spermatic process is considerably larger than it ought to be, and feels like a varix, or like an omental hernia, according to the different size of the tumor: it has a pyramidal kind of form, broader at the bottom than at the top: by gentle and continued pressure it seems gradually to recede or go up, but drops down again immediately upon removing the pressure; and that as freely in a supine as in an erect posture: it is attended with a very small degree of pain or uneasiness; which uneasiness is not felt in the scrotum, where the tumefaction is, but in the loins.

If the extravasation be confined to what is called the spermatic process, the opening in the tendon of the abdominal muscle is not at all dilated, and the process passing through it may be very distinctly felt; but if the cellular membrane which invests the spermatic vessels within the abdomen be affected, the tendinous aperture is enlarged; and the increased size of the distended membrane passing through it, produces to the touch a sensation not very unlike that of an omental rupture.

While it is small it is hardly an object of surgery; the pain or inconvenience which it produces being so little, that few people would choose to submit to an operation to get rid of it; and it is very seldom radically curable without one: but when it is large,

or affects the membrane within the cavity as well as without, it becomes an apparent deformity, is very inconvenient both from its size and weight, and the only method of cure which it admits is far from being void of hazard; as must appear to every one who will consider, or who is at all acquainted either with the nature of lymphatic extravasation or absorption, or with the frequent consequences of wounds inflicted on parts merely membranous.

CASE VIII.

A MAN about fifty-five desired me to look at a rupture, under which he said he had laboured for several years. For the greatest part of that time he had worn a steel truss, which had given him little or no uneasiness, but had never kept his rupture up. During all this time he never had any symptoms of obstruction in the intestinal canal; nor had the tumor ever increased in size, or altered its appearance, until within the last three or four months, when he had been persuaded to change his truss for a bandage without iron, and to make use of an external application, which was said to be infallible.

What the application was I know not; but its effect was an excoriation of the groin and parts about: the bandage was made of dimity, had a large hard bolster, with three or four buckles, and was buckled on very tight.

He said, that the pain it had caused had been great; but that he had cheerfully submitted to it, having been assured that the medicines, assisted by the pressure, would soon shrink up a piece of caul which was in the scrotum, and thereby free him from all possibility of a return of his disease; and that, after that was done, he might leave off all kind of bandage, and do as he pleased.

He had now made the experiment, till the pain was so great, and the parts so swelled, that he could endure it no longer. The scrotum was much inflamed, and swelled; the groin excoriated; the testicle enlarged, but not hard; the spermatic process quite up to the belly, full, tight, and so exquisitely painful, that he

could not bear the most gentle handling; he had no obstruction on his going to stool; nor any symptom of the confinement of any part of the intestinal canal. The principal information which I could get was from his own account; for he could not bear the slightest touch. From this it appeared to me, that whatever might be the true state of the case, it was very clear, that the first thing to be done was to obtain ease. I therefore put him to bed, bled him freely, ordered him to have a clyster thrown up immediately, and to take two spoonfuls of a purging mixture every two or three hours, until he should have a free discharge per anum; and then to take a grain of extract. thebaic. I wrapped up the scrotum, and covered the groin and pubes with a warm soft poultice, and put on a bag truss.

He passed the day in a very uneasy restless state; and in the evening, finding his pulse not at all lower, nor his pain less, (his purging mixture having done its duty,) I took away fourteen ounces more of blood, and ordered his opiate to be taken again, and repeated at the distance of every six hours. Forty-eight hours passed over, during which time he took seven grains of opium, before he could get sleep or ease; and when he obtained the former, it did not last more than three or four hours (an effect I have several times seen, in the exhibition of large and frequently repeated doses of opium, given either to appease pain, or to quiet a phrenzy).

When he awoke, he was easier, and seemed to be much refreshed; his pulse was softer, his perspiration free, and the parts less inflamed, and less painful; his poultice was renewed after fomentation; and he was directed to take a draught of the common emulsion every six hours, with some manna and nitre in it; by which means he had, in the course of the next day, two plentiful discharges by stool.

By these means, within the space of six or seven days, all his inflammatory symptoms were removed; and the parts reduced to nearly the same state in which they were when he put on his dimity bandage: that is, the testicle was of its natural size, but the spermatic process large and full, though soft and indolent, and feeling very like to a small omental rupture.

For greater certainty, I kept him in bed a day or two more; and confined him to the same low regimen, with an open body.

The spermatic process continued in the same state. I attempted to reduce the apparent rupture, but without success; though there was no reason to think that there was the least stricture made on it by the tendon of the abdominal muscle. I could indeed make a small part of it recede, but even that did not pass the opening at all like a piece of omentum; it did not give any of that sensation to my fingers, nor produce that kind of noise, which the return of a rupture into the abdomen generally does; and the moment I removed my fingers, it fell down again, although the patient was in a supine posture. In short, I made attempts for reduction so long, and so often, that I was perfectly satisfied that the prolapsed part was not reducible (at least by me).

It now gave him no pain, nor uneasiness of any kind: but he had suffered so much from the pressure of his bandage, and was so satisfied (from the successless attempts which I had made) that his rupture was not capable of being reduced, that he contented himself with a common suspensory bag, and found not the least alteration in it for the space of three years. At the end of this time he was attacked with a peripneumony, and died.

I obtained leave to examine his body, and found, that what I had taken for a portion of omentum was a collection of water in the cells of the tunica communis of the spermatic vessels, on the outside of the cavity of the abdomen; that nothing else had passed through the tendon of the oblique muscle; and that the testicle and tunica vaginalis were perfectly unaffected.

Notwithstanding the account which this patient had given of himself, and of his having frequently reduced his rupture, I am satisfied he never had one; and that his disease had, from the first, been what it at last appeared to be. There was no sign of a hernial sac; and though the return of such sac back again into the belly, after it had been in the groin or scrotum, is a thing much talked of by late writers, I do not believe that it ever happened.

The steel truss did not press hard enough to produce any mischief, and was thought not to have kept his rupture up; and the symptoms, under which I found him labouring, were occasioned merely by the dimity bandage, substituted in the place of his

truss; which having large hard bolsters, and being buckled on very tight, pressed violently on the spermatic vessels and loaded membrane.

CASE IX.

A HEALTHY middle aged man, applied to me one day, while I was dressing the hospital, and showed me a considerable swelling in his scrotum. I examined it, and told him I believed it to consist of water. He replied, he knew it; for that Mr. Baker, then one of the surgeons of the Westminster infirmary, had a few days before drawn some from it by puncture with a lancet. Upon hearing this, I examined it again; imagining that I might possibly find it to be blood (a circumstance which now and then happens, after tapping a common hydrocele): but still it appeared to me to have all the marks of a tumor from water, and to be principally in the spermatic chord. The dartos was indeed a little thickened by the insinuation of a small quantity of a fluid into some of its cells, but the testicle was much too plainly distinguishable for the case to be taken for a hydrocele of the tunica vaginalis; nor was the upper part of the process in that free state in which it is most frequently found in that disease. I took him into the hospital, and ordered him to keep his bed, till I saw him the next day; at which time I passed a small trocar into the anterior part of the tumor a little higher than usual. At first a limpid serum flowed freely; but that soon stopped, and I was necessitated to pass a probe frequently up the cannula, to get away the remainder; neither could I, either by that means, or by pressure, reduce the scrotum to a proper size, or remove the fulness of the process above. I ordered the part to be fomented night and morning, and the whole scrotum and groin to be covered with a soft poultice; and that the man should take a solution of manna and Glauber's salt the next morning. The applications were continued, and the purge repeated every second or third day, for a fortnight; at the end of which time, the swelling was as large as when I first saw it.

During this interval of time, I frequently examined the parts; and always found the testicle much more free, and independent,

than I had ever felt it in a hydrocele of the tunica vaginalis. It appeared to me, from the kind of fluid which had already been twice let out, and from the present appearance of the part, that no cure would be obtained without laying the whole open; but as I was by no means certain, what was the precise nature of the disease, or in what state the parts might be found, I informed the man that it might possibly become necessary to remove that testicle. To this he consented; and I made an incision, through the skin, from the groin down as low as the testicle; intending, if I had found the process diseased, to have castrated.

The incision was followed by a large discharge of water, not only from the lower part, where there seemed to have been a considerable collection in one cavity, but from the surface of the whole cellular membrane enclosing the spermatic vessels. Finding this membrane no other way diseased than by the watery distention of its cells, I went no farther with my operation, but filled the incision lightly with soft lint. For three or four days the discharge of serum was large; but, that ceasing, a plentiful suppuration succeeded; which was followed by a perfect subsidence of the whole tumor; and in due time the wound healed, and the man obtained a cure.

CASE X.

A GENTLEMAN, about thirty-five years of age, came out of the North, to London, for the assistance of Mr. William Sharpe, in the case of a large tumor of the scrotum; which, he said, had been coming five or six years.

The account which he gave of it was, that at first it was small, easily (as he thought) put up, but came down again immediately; which he attributed to his not having been accommodated with a proper bandage; that, at the end of about nine months, or rather more, he found that he could not reduce it at all, whatever pains he took, or whatever posture he put himself into; and that, from this time, its increase had been daily more apparent. The case was singular, and Mr. Sharpe desired me to see it with him.

The scrotum was of a most prodigious size; it hung more than half way down to the patient's knee; it was very ill supported, by an awkward bag of his own making; and, toward the lower part, was much ulcerated, by neglected excoriations. Different parts of the tumor felt very differently; in some places, it was hard; in some, soft; and, in others, a thin fluid was palpably discoverable. The spermatic process was large and full, quite up to the groin; the aperture in the abdominal muscle was considerably dilated by it; and, when the patient coughed, the whole tumor was manifestly distended: his stools were regular, his appetite good, his urine proper in quality, but very deficient in quantity; his sole complaints were, a pain in his back, (proceeding, as we supposed, from the weight of the scrotum,) and a languor and dispiritedness, which he had not not been accustomed to, and could not account for.

The feel of some part of the tumor was like that of an intestinal hernia, in which there is no stricture, and the gut does its office in scroto; but, other parts of it were so unlike to this, and the upper part of it toward the groin was so large, and so hard, that we remained in great doubt concerning the true nature of the contents.

When we had sufficiently examined the tumor in an erect posture, we put the patient into a supine one, which produced a considerable alteration in the appearances; the tumor became manifestly less, and softer; and seemed, by retiring, to occasion a large swelling on that side of the belly, just above the os ilion, tending backward toward the region of the kidney. Upon continued pressure, the contents of the scrotum seemed to recede still more; and still as they receded, the swelling on the side of the belly increased.

When we had got up to a certain point, we could get up no more; but, during our endeavours to return as much as we could, we clearly discovered that the tumor in the scrotum, and that within the belly, were produced by the same body; that there was a palpable and free fluctuation, from the one to the other; and that the harder parts were mere indurations, and thickenings of the integuments and common membrane.

The burden was so great, that the patient was desirous of being eased, at any rate. We communicated to him our opinions, our

suspicions, fears, and uncertainty; and told him what hazard might possibly be incurred by acting according to the former, if we should be mistaken; but, he being determined to endeavour to obtain relief, at all events, and we being prepared, as well as we could, for whatever might happen, made a small incision into the lower and anterior part of the tumid scrotum.

As soon as we had divided the skin, a quantity of clear limpid water burst forth, of which we caught above a quart; and then the opening was stopped, by something which thrust itself out, and looked like a piece of cellular membrane loaded with water. We cut a part of it off, and gently pushed back the rest with a probe; while, by moderate and continued pressure, we drained off eleven Winchester pints of water.

When we could get no more away, we would have enlarged the opening; but, our patient found himself so lightened, and so easy, that he would not permit it.

The scrotum, it is true, was considerably lessened; but in no proportion to the quantity of water which had been drawn off: the whole spermatic process, from the testicle quite up to the belly, was still large and full; and the abdominal opening still dilated by a large body passing through it; but, as the swelling in the belly could not now be felt in any posture, and as the scrotum was reduced to such a size as to be easily supportable by a bag truss, he determined to wait the effect of what had already been done. In little more than a month we saw him again. The tumor in the side of the belly was as apparent, the fluctuation as palpable, and the burden as great, as when we first saw him. His health was still good in general; but his face appeared to me to be more pale and wan, and he complained still more of thirst and languor.

As we were now sure of the nature of the contents, we divided the whole scrotum from the bottom upward. The lower part was formed into a cyst, or bag, made by the pressure of the water, which was discharged upon the first introduction of the knife; but all the rest of the tumor was formed by the diffusion of serum through all the structure of the tunica communis, the cells of which were all much enlarged with it, quite up to the groin; the testicle being very distinct, and free from disease. The serum

oozed freely from all parts of this membrane by gentle pressure; and as it seemed to subside considerably thereby, we meddled no farther, but contented ourselves with filling the incision lightly with dry lint, and suspending the scrotum in a bag truss.

During the first two or three days, the discharge of water was constant and plentiful; and the sore was (as might be expected) crude and undigested; but without any of that inflammatory hardness and swelling, which wounds made in such parts, in healthy sanguine people, generally have; on the contrary, the lips were flaccid, and soft: is is true, he was perfectly free from fever or pain, and, except the circumstances just mentioned of thirst and languor, he had no apparent disorder; but they were great and troublesome. The discharge of water continued large, and his wound neither digested nor inflamed; nor did it wear any the least appearance of gangrene or mortification: his languor and anxiety increased daily; and on the fourteenth day from that of the operation, he died; the sore still wearing the same face.

Upon opening his body, we found all the cellular membrane which invested the spermatic vessels within the abdomen loaded with water, and distended in a very irregular manner, from the origin of the said vessels quite down to the opening of the oblique muscle. At this place it was contracted into a round, or rather a flattish body, of less size, but still so large, as to dilate the opening in the tendon considerably. Below this it was again expanded and distended with water, through all its cells; but the testicle, and its tunica vaginalis, were in a sound state, and perfectly unaffected by the disease.

Was it the large discharge of serum, or the free division of membranous parts which occasioned this gentleman's death? For my own part, I am inclined to attribute it to the former; for though an incision, made in parts of such structure, and so diseased, does sometimes prove fatal, yet the parts themselves in such case generally show, by a gangrenous or mortified appearance, what share such operation has in the patient's destruction.

In this case, there was indeed no digestion, nor any of that inflammation, which always precedes suppuration; nor, on the other

hand, was there any appearance like gangrene or sphacelus; but his manner of dying was very much like that of those who are destroyed by large hæmorrhages.

SECT. VI.

THE ENCYSTED HYDROCELE OF THE TUNICA COMMUNIS.

This species of hydrocele has its seat in the same part as the preceding; *viz.* the tunica communis, or cellular membrane, which invests the spermatic vessels; with this difference, that, in the former, the water is diffused in general through all the cells of the membrane; whereas in this, it is contained in one cavity only. If any of the three kinds of hydrocele deserves the name of encysted, it is this. The water which constitutes it being all contained in a bag, formed in the same manner as all the coats of all encysted tumors are; *viz.* by mere pressure, and condensation of the common membrane.

It is a complaint by no means infrequent, especially in children. It was very well known to many of the ancients, and has been very accurately described by some of them;[1] but later writers have

[1] By Albucasis, by Celsus, Paulus Ægineta, and others. The last has particularly distinguished this kind of hydrocele from that of the tunica vaginalis, by a very just description of both: "Si humor in membrana supernata coierit, "tumor alterius testiculi imaginem exhibet. Quibus in Erythroide tunica "humor comprehensus est tumor rotundus paululum, et ovi modo longius-"culus: his testiculus in conspectum non venit, ut qui undiquaque sit im-"plicitus."

The former of these descriptions, our countryman Peter Lowe has most probably copied, when he says, "It is sometimes inclosed in a membrane, "and appeareth like a third testicle."

Heister speaks of this species of hydrocele as very rare, only quotes the authority of others to prove its existence, and seems in some measure to confound it with a collection of fluid in a congenial hernial sac.

Page 842, he says, "Quandoque tamen etiam, ut nonnulli autores referunt, "in peritonæi processu, supra testiculum, liquor præter naturam colligitur:

often mistaken it for, and represented it as, a species of wind-rupture, or pneumatocele; a disease existing in their imaginations only. It most frequently possesses the middle part of the process, between the testicle and groin, and is generally of an oblong figure; whence it has by some people been compared to an egg, by others to a fish's bladder. Whether it be large or small, it is generally pretty tense, and consequently the fluctuation of the water within it not always immediately or easily perceptible; for which reason it has been supposed to contain air only. It gives no pain, nor (unless it be very large indeed) does it hinder any necessary action. It is perfectly circumscribed; and has no communication, either with the cavity of the belly above, or that of the vaginal coat of the testicle below it. The testis and its epididymis, are perfectly and distinctly to be felt below the tumor, and are absolutely independent of it. The upper part of the spermatic process in the groin is most frequently very distinguishable. The swelling does not retain the impression of the fingers; and when lightly struck upon, sounds as if it contained wind only. It undergoes no alteration from change of the patient's posture; nor is affected by his coughing, sneezing, &c.; and has no effect on the discharge per anum.

These marks (while the disease is simple and uncombined with any other) are sufficient to distinguish it by, from all others which may affect the same part: but it sometimes happens, that the present complaint is found connected either with a true hernia, or with a hydrocele of the tunica vaginalis; by which the case is rendered complex, and less easy to be understood.

"imo etiam in productione peritonæi, ab intestinorum hernia orta, copiosum "liquorem in cadavere, sectione aliquando deprehendi." And in a note on this passage he adds, "Wiedemannus, nec non Boerhavius, itemque Garen-"geotus et Dranius memorant istiusmodi hydroceles casus quandoque ob-"servari; ubi digito contingi testiculus queat; atque tunc supra testiculum in "peritonæi processu tumorem et humorem consistere. In enterocele autem "contrarium quandoque usu venire, propterea quod intestina interdum, ut "supra monui, usque in tunicam vaginalem, per septum illud naturale, quod "testiculum a parte superiori processus peritonæi distinguit penetraverunt."

"Sed rari admodum sint necesse est, ad quos modo laudati autores pro-"vocant casus. Ego sane quanquam plurimos homines enterocele, non "minus quam hydrocele laborantes sanaverim, nunquam tamen adhuc ita "rem inveni," &c.

In this, as in every other case where, from a complication of symptoms and appearances, a combination of diseases may be suspected, there is but one method of investigating the truth; which is, to consider carefully what disorders the part aggrieved is naturally liable to; what the distinct symptoms and appearances of each of those are; and what are the effects of the present complaint. The two diseases with which this kind of hydrocele is most likely to be combined, are, as I said before, an hydrocele of the tunica vaginalis testis, and a true hernia; the parts within the groin, the spermatic process, and the scrotum, being the seat of all three.

One mark, or characteristic of an hydrocele of the tunica vaginalis testis is, that it possesses and distends the inferior part of the scrotum; and that the testicle being nearly (though not absolutely) surrounded by the water, it very seldom happens that the former can be clearly and plainly distinguished by the fingers of an examiner; whereas, in the encysted collection, in the membranes of the chord, the tumor is always above the testicle, which is obvious and plain to be felt below it.

Another circumstance worth attending to is, that although the fluid in a hydrocele of the vaginal coat does so nearly surround the testis as to render it often not very easy to be distinguished, yet the different parts of the tumor have always a very different feel: for instance, in all those points where the vaginal tunic is loose, and unconnected with the tunica albuginea, the tumor is soft and compressible, and gives a clear idea of the contained fluid; but when these two coats are continuous, or make one and the same membrane, and have no cavity between them, (which is the case on the middle and posterior part,) there will always be found a hardness and firmness, very unlike to what is to be found in all those places, where the distance[m] between the two tunics leaves room for the collection of a fluid: now, the hydrocele of the chord being formed in the mere cellular membrane of it, is the

[m] "Tunica Erythroides naturæ nervosæ, in gibba quidem et anteriore e tes-
"ticulo libera est, in concava et posteriori ipsi adherescit ex peritonæo ori-
"ginem trahens."

PAULUS ÆGINETA.

same to the touch in all the parts of the tumor, and feels like a distended bladder through every point of it.

The free state of the upper part of the spermatic process, while the tumor is forming below; the gradual accumulation of the fluid, and consequently the gradual growth of the swelling; the indolent and unaltering state of it; its being incapable of reduction, or return into the belly from the first; its being always unaffected by the patient's coughing or sneezing; and the uninterrupted freedom of the fæcal discharge per anum, will always distinguish it from an intestinal hernia: and he who mistakes it for an omental one, must be very ignorant, or very heedless.

Now, although there may not always be such external marks as may, to the eye, explain the combination of these diseases with each other; yet the particular seat and symptom of each being known, and the sensations which they produce to the fingers of an intelligent examiner being well understood, when such mixed characteristics are found in the same subject, we may reasonably conclude the case to be complex, and act accordingly.

I have indeed seen an encysted hydrocele, situated so high toward the groin, as to render the perception of the spermatic vessels very obscure, or even impracticable; but then, the state and appearance of the testicle, and the absence of every symptom proceeding from confinement of the intestinal canal, were sufficient marks of the true nature of the complaint.

Infants are much more subject to this disease than adults; though it often affects the latter.

In young children, it frequently dissipates in a short time, especially if assisted by warm fomentation and an open belly.

If it does not disperse, that is, if it be not absorbed, the point of a lancet will give discharge to the water; and, in young children, will most frequently produce a cure: but in adults, the cyst formed by the pressure of the fluid does sometimes become so thick, as to require division through its whole length; which operation may in general be performed with great ease and perfect safety: I say in general, because it is most frequently so; though I have seen even this, slight as it may seem, prove troublesome, hazardous, and fatal. Of such consequence are wounds in membranous parts in some particular habits.

CASE XI.

A LAD about sixteen years old was taken into St. Bartholomew's hospital, with a complaint which he had been told was a rupture.

The tumor was large, of an oblong figure, began just below the exit of the spermatic vessels from the belly, and extended to the bottom of the scrotum; but in the middle of it was a depression, or stricture, which seemed to divide it nearly into two equal parts. The upper part was so high, that I could not feel the spermatic process at all satisfactorily; and although there was palpably a fluid in the whole of the swelling, yet the upper and lower parts of it did not seem to communicate with each other; at least the fluctuation through them was not discernible. As he had never had any symptom of a true hernia, and as the account he gave of the gradual formation of the tumor joined to the fluctuation, &c. convinced me that it was principally if not totally water, I pierced the lower part carefully, and drew off nearly half a pint of yellowish serum; by which means the scrotum became immediately empty and rugous, and the testicle clearly distinguishable; but the upper part of the swelling remained as large and as tense as before, nor could I by any means obtain a drop of fluid more from below.

The next day I ordered him a brisk purge, which operated well; and two or three days after, being satisfied that the intestinal canal could have no share in the complaint, I thrust a lancet into the anterior part of the upper tumor; by which means a quantity of limpid serum was discharged; and the whole swelling immediately disappeared, leaving the spermatic vessels free, and easily distinguishable.

In a few days he left the hospital; and at the end of a year, or a little more, he came to me again, with the lower part of the scrotum full, but without any appearance of the tumor above. In short, his former state consisted of a complication of the encysted hydrocele of the spermatic chord with that of the tunica vaginalis

testis: the former was cured by the first puncture, the latter was now as full as ever.

Considering the lad's age and temperament, I advised him to submit to the operation for the radical cure by incision; which operation was performed, and he got well in about seven weeks, nor has had any return of either complaint since.

CASE XII.

A MAN about thirty-five, who had for some years been troubled with a hydrocele of the tunica vaginalis, which had often been emptied by puncture, came to me for advice.

The swelling in the scrotum, he said, was now about one-third of the size it used to be of, when he had been accustomed to have it tapped; it was not tense, was of an irregular figure, and plainly contained a fluid. But it was not on account of this tumor that he applied to me.

Within two months past he had discovered another small swelling, higher up towards his groin, perfectly distinct from the lower one: it was about the size of the largest French walnut, of an oblong figure; absolutely indolent, very tense, and left the spermatic process, at its exit from the abdomen, perfectly free.

From the appearance which these tumors made, and from the patient's account, I made no doubt of the nature of the case; *viz.* that the upper one was made by a collection of water, in a cyst, formed in the cellular membrane which makes the tunica communis of the spermatic vessels; and that the lower one was a true hydrocele of the tunica vaginalis testis.

Upon this presumption, I pierced the upper one with a lancet; and let out a small wine-glass full of clear limpid serum. The tumor immediately subsided, and left the whole spermatic process free; but the lower swelling was not at all affected by what had been done above. The puncture was well in a day or two; and the hydrocele of the vaginal coat not being full enough to be at all troublesome, he would not permit me to meddle with that. At the end of about nine months he sent for me; his hydrocele was full and large, but he had not the smallest appearance of the

tumor in the process. The water was let out by puncture, as usual; as it has been several times since; but he has never suffered any return of the collection in the process.

CASE XIII.

A LAD about fourteen years old was brought into St. Bartholomew's hospital for a rupture; which a surgeon (who had seen him at home) had told his friends was not in a situation to admit delay: and it being my week for accidents, I was sent for immediately. I found a large tumor, full and tight, possessing the whole spermatic process and scrotum, from the groin quite down to the testicle; which was independent of it, and perfectly distinguishable. As he lay on his back, it was perfectly indolent; but in an erect posture, or in the action of stooping, he complained of pain: it was not tender to the touch, unless pressed hard; and it was nearly of equal size from the top to the bottom: it bore so hard against the opening in the abdominal muscle, that I could, by no means, feel the spermatic process: he said, that it had appeared within a week, and that he had had no stool for five days past.

Some of these were circumstances of importance, and might be occasioned by a stricture on the intestinal canal: but on the other hand, his pulse was soft, calm, and quiet, and his skin cool: he had neither tight belly, nausea, hiccough, nor vomiting; nor any other symptom (general or particular) deducible from such cause.

From the mere appearance and feel of the tumor, I should have supposed it to have been caused by water; but the difficulty of distinguishing the spermatic process above, the freedom of the testicle below, and the want of stools, made me hesitate.

But though I was in some doubt concerning the precise nature of the case, yet I was very clear there was no immediate necessity for an operation. Therefore, having found that I could not return any part of the contents of the tumor into the belly, I took away sixteen ounces of blood from his arm, ordered a clyster to be thrown up immediately, and two spoonfuls of a purging mixture to be taken every two hours, until a plentiful discharge per anum should be procured.

He took his mixture only twice, and had six large stools that afternoon; and when I saw him the next morning, he was perfectly well in health, but the tumor exactly the same. I examined it again and again, and was still more positive that it contained a fluid; but whether that fluid was in the tunica communis, or in a hernial sac, I could by no means be clear. However, as there was no possible method of getting rid of it but by an opening, I determined to make one, with such caution as to be prepared for whatever might happen.

I made a small incision into the anterior and lower part: when I had divided the skin and cellular membrane, I found a firm hard membrane, which I took for the sac of an hernia: this I divided with the same caution, and gave discharge to a considerable quantity of serum; upon which the whole swelling immediately subsided, the spermatic process appeared in a natural state, and the opening in the tendon undilated.

The incision was dressed superficially, and healed in a few days.

Within less than half a year he came to me again, with the swelling as large, and under the same apparent circumstances, as before. His habit was so good, and I so well remembered the toughness of the cyst, at the first operation, that I made no scruple of advising him to have it laid open through its whole length. To this he submitted, and obtained a perfect cure.

CASE XIV.

A MAN, about forty, servant to one of the governors of St. Bartholomew's hospital, came thither for advice concerning a rupture; which, he said, the surgeons in the country had often endeavoured to put up, but had never succeeded.

The groin and all the upper part of the scrotum were large and full; but the testicle below very fair, and distinct from the tumor. The account which he gave was, that he first perceived the beginning of the swelling, in the evening of a day in which he had ridden a very hard fox chase, and had been a good deal hurt by a fall over his horse's head. That at first it was small; and that it had

gradually increased ever since. That it had never been up since it first appeared. That he constantly felt a dull kind of uneasiness in it; and that it was very troublesome to him when on horseback, which he was frequently obliged to be, as his business was that of an huntsman. I examined the case carefully, and was satisfied that it was water, and not in the vaginal coat of the testicle. He had for some time worn a truss, which had rendered the part uneasy; had lived freely with regard to liquor; had a yellowness in his countenance, which had an unhealthy appearance; his legs were rather too full; and he had, for a little while past, been under the direction of a physician in the country.

I did not like his appearance, considering him as the subject of an operation, and therefore advised him to return into the country, and continue to follow his doctor's direction.

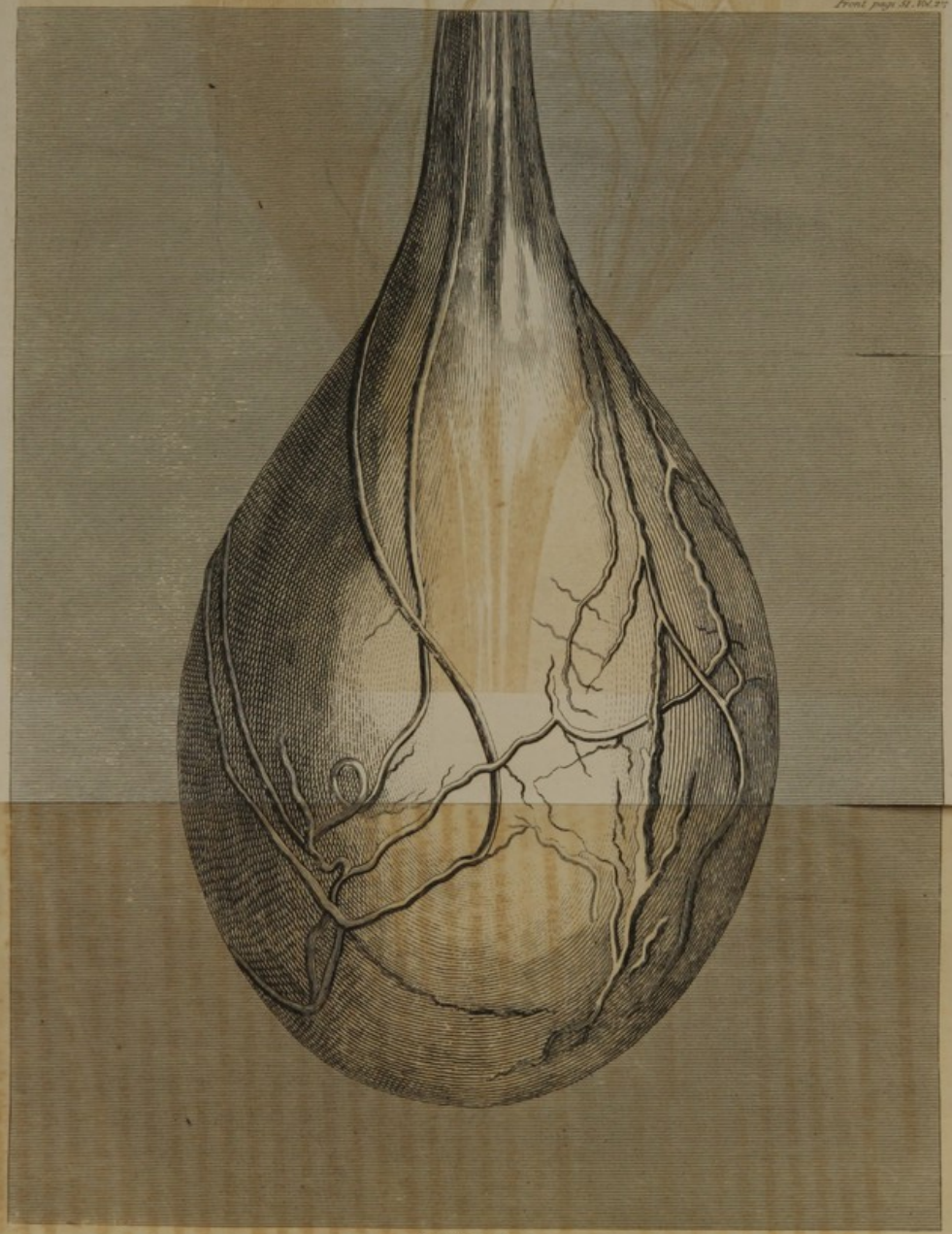
At the distance of three or four months, he came to the hospital again. He had now the appearance of very good health. His countenance was fresh; his appetite keen; his urine in proper quantity; and his legs fine. His tumor was larger; and he said it was become so troublesome, that if something was not done for it, he must quit his service, and go to the parish.

I could have wished, that his former state had been different; but having apprized him, how much that added to the hazard of any attempt toward curing him, I made an incision the whole length of the tumor, and gave discharge to a considerable quantity of clear water.

The cyst was firm and thick, and formed in the common tela cellulosa of the chord.

For three days the wound discharged a large quantity of serum, but it neither became tumid, nor inflamed; his pulse became hard and frequent; he was thirsty and restless, and had a languor in his countenance, which I did not like. On the fourth day the discharge of water ceased, but the incision still remained cold, lax, and flabby; and was so far from showing any tendency to suppurate, that, on the contrary, the edges began to be livid.

Bark, and cordial medicines, were prescribed by the physician; and fomentation, poultice, and animated digestive dressings were applied; but to no purpose. On the sixth day he complained of a burning heat in his back and kidneys, while his extremities were



Jacob Perkins Sc.

cold and damp; on the seventh he became delirious, and that evening died.

All the cellular membrane in the pelvis, and about the loins and kidneys, was excessively distended with air, and in several places discoloured; and in the cavity of the abdomen was a large quantity of bloody water.

SECT. VII.

HYDROCELE OF THE TUNICA VAGINALIS TESTIS.

The third species of this disease is that which is confined to the vaginal coat or bag, which loosely envelopes the testicle. In the short anatomical account already given of the production, structure, and situation of this tunic, it has been observed, that, in a natural healthy state, its cavity always contains a small quantity of a fine fluid, exhaled from capillary arteries, and constantly absorbed by vessels appointed for that purpose.

This fluid, in the natural small quantity, serves to keep the tunica albuginea moist, and to prevent a cohesion between it and the vaginalis; a consequence, which almost necessarily follows any such diseased state of these parts, as prevents the due secretion of it. On the contrary, if the quantity deposited be too large, or if the regular absorption of it be by any means prevented, it will be gradually accumulated, and, by distending the containing bag, will form the disease in question.

The two preceding species of hydrocele have their seat in the tunica communis of the spermatic vessels; that is, in the cellular membrane which invests them; one by a general diffusion of lymph through all its cells; the other by a collection of it, in one particular cyst or bag: that which makes our present subject has no concern or connexion with that membrane at all, but is absolutely confined to the tunica vaginalis testis.[n]

[n] Fallopius, although he was unacquainted with the real and true origin and nature of this disease, and supposed its manner of production to be very

It is a disease from which no time of life is exempt; not only adults are subject to it, but young children are frequently afflicted with it; and infants sometimes born with it. What is the immediately producing cause, I will not take upon me to affirm. Ruysch is of opinion, that it proceeds from a varicose state of the spermatic vessels. What real foundation there may be for such conjecture, I cannot say; certain it is, that the spermatic vessels are very frequently found varicose, in persons afflicted with this kind of hydrocele; but whether such state of these parts ought to be regarded as a cause, or as an effect of the disease, is a matter worth inquiring into.

In Morgagni are some observations on the state of the parts concerned, particularly the inside of the tunica vaginalis, and outside of the albuginea; which, if repeated and confirmed, may possibly lead us on to further information.

In the mean time, from all the circumstances attending the complaint, it is pretty clear, that whatever tends to increase the secretion of the fluid into the sacculus, beyond the due and necessary quantity, or to prevent its being taken up, and carried off, by the proper absorbent vessels, must contribute to its production; which is so slow and gradual, and at the same time so void of pain, that the patient seldom attends to it, until it has arrived to some size. Not but that it sometimes is produced very suddenly, and in a very short space of time attains considerable magnitude.

The size and figure of the tumor are various in different people, and under different circumstances. In general, at its first beginning, it is rather round; but as it increases, it frequently assumes a pyriform kind of figure, with its larger extremity down-

unlike what it really is, has yet given a very just account of the appearance, both of this and of the former: "Alia vero est hernia aquosa, in qua aqua dis-"tillat per vasa et venas, occulto modo, ac sensim ad scrotum. Hæc autem "est duplex; alia in qua continetur aqua in *membrana adnata*, et in proprio "folliculo; alia in qua continetur in *inguinali tunica quæ testem vestit*. Cog-"noscitur aquam esse in tunica adnata *quia separatur testis a parte aquosa* "*manibus;* præterea, ista hernia habebit *propriam circumscriptionem*, ali-"quando rotundam, aliquando ovalem. Si autem fit in vaginali, non possumus "amplius *arripere et distinguere testem* ab hernia; quoniam in eodem loco et "aqua, et testis sunt constituti."

GAB. FALLOPIUS.

ward: sometimes it is hard, and almost incompressible; so much so, that, in some few instances, it has been mistaken for an induration of the testicle: at other times it is so soft and lax, that both the testicle and the fluid surrounding it are easily discoverable. It is perfectly indolent in itself; though its weight does sometimes produce some small degree of uneasiness in the back. The great characteristic (as it is called) of this disease, and on which almost all writers have agreed to lay the greatest stress, and to rest their proof of the nature of the disorder, I mean the transparency of the tumor, is the most fallible and uncertain sign belonging to it: it is a circumstance which does not depend upon the quantity, colour, or consistence of the fluid constituting the disease, so much as on the uncertain thickness or thinness of the containing bag, and of the common membranes of the scrotum.

If they are thin, the fluid limpid, and the accumulation made so quick as not to give the tunica vaginalis time to thicken much, the rays of light may sometimes be seen to pass through the tumor: but this is accidental, and by no means to be depended upon. Whoever would be acquainted with this disorder, must learn to distinguish it by other, and those more certain marks; or he will be apt to fall into very disgraceful, as well as pernicious blunders. The colour of the fluid is very different and uncertain; sometimes it is of a pale yellow, or straw colour; sometimes it is inclined to a greenish cast; sometimes it is dark, turbid, and bloody; and sometimes it is perfectly thin and limpid.

In the beginning of the disease, if the water be accumulated slowly, and the tunica vaginalis thin and lax, the testicle may easily be perceived; but if the said tunic be firm, or the water accumulated in any considerable quantity, the testis cannot be felt at all; and other symptoms, or marks, must be attended to. In most cases, the spermatic vessels may be distinctly felt at their exit from the abdominal muscle, or in the groin; which will always distinguish this complaint from an intestinal hernia, the disease which it is most likely to be confounded with. It does indeed now and then happen, that the vaginal coat is distended so high, and is so full, that it is extremely difficult, nay, almost impossible, to feel the spermatic process; and it also sometimes happens, that the same kind of obscurity is occasioned by the addi-

tion of an encysted collection of water in the membrane of the chord; or by the case being combined with a true enterocele. These circumstances are not very frequent, but yet do occur often enough to render it well worth while to mention them; and to signify that, when they are met with, recourse must be had to other marks.

The general notion formed of this disease is, that it consists of a bag, filled with a fluid, in the middle of which the testicle hangs suspended, and by which it is completely surrounded.

This idea is not only erroneous, and contrary to fact, but may be productive of very mischievous consequences in practice. For from such conception (or rather misconception) of the state and disposition of the parts, it may be inferred, that all points of the tumor are equally fit for such operation as may become necessary for the discharge of the fluid; which is so far from being the case, that, in some parts of it, such operation is perfectly safe, easy, and harmless; in others, it is hazardous, painful, and may be productive of the most dreadful consequences. Whoever will take the pains to examine the structure and disposition of the two coats of the testicle, the albuginea and vaginalis, will find, that in one part they are so inseparably united, (being indeed one and the same membrane,) that is impossible for any thing to insinuate itself between them: while in every other part they are so absolutely unconnected, that from the great dilatability of the latter, a large quantity of fluid may be accumulated.°

In a hydrocele which is tolerably full, the place of this union is the posterior and superior, or rather the posterior and middle part of the tumor. A puncture or incision made here will do no ser-

° "Humor magna ex parte, in tunica Erythroide appellata, testiculum am-
" biente, in *partem anteriorem* colligitur; qua *potissimum membrana illa a testi-*
" *culo separatur.*"

PAULUS ÆGINETA.

Mr. Le Dran, whose character in practical surgery stands deservedly high, seems to be less clear in his idea, and less perspicuous in his account of this disease, than of most others: his account is, "Une vessie auqeuse placée sur
" l'un de testicules, auquel elle est adherente; et comme elle devient quel-
" quefois tres grosse, elle remplit presque tout le scrotum." This does not (at least to me) convey an idea that the seat of this disease is within the tunica vaginalis testis.

vice, as it cannot reach the water, and therefore cannot answer the intention for which it ought to be made; but it will injure the testicle, or its epididymis, and thereby do great mischief; whereas an opening made in every other part, will not only give discharge to the water, but can do no harm, and is free from all kind of danger.

This natural connexion between the two tunics, at the upper and hinder part, is the reason why, in a simple hydrocele, that part of the tumor feels so very unlike to every other. In that, the tunica albuginea, and vaginalis, being immediately continuous, no water can get between them; and therefore, the fingers of an intelligent examiner must immediately discover the firmness and hardness arising from the union of these parts: in all others, the two membranes being unconnected, and affording a void space for the collection of water, the fluctuation of it will always be distinguishable.

This is a circumstance which must for ever discriminate the simple hydrocele of the tunica vaginalis, from the anasarcous swelling of the scrotum; from the encysted hydrocele of the chord; and from the intestinal hernia. The first is every way equal, tumid, and soft; and every where equally receives and retains the impression of the fingers: the second, though circumscribed, not very compressible, and affording the sensation of fluctuation, yet does not pit, and is alike to the touch in all parts of it: and, in the third, if the testicle be distinguishable at all, it is found at the inferior part of the whole tumor.

An indurated or scirrhous testicle has indeed, very frequently, a quantity of fluid lodged in its vaginal coat; which is a circumstance not to be wondered at; the diseased state of the gland being sufficient to account for the non-execution of the absorbent faculty, and, consequently, for the collection of the water. But although part of this mixed tumor is undoubtedly owing to a fluid, and such fluid as is lodged within the vaginal coat, yet it is a very different disease from the true simple hydrocele, and ought not to be confounded with it; one of these marks of the latter being the natural, soft, healthy state of the testicle: and the characteristic of the former being its diseased and indurated enlargement.[p]

[p] When I say natural, soft, and healthy state of the testicle, I do not mean,

This is a point of more consequence than it may, perhaps, upon a cursory view, seem to be. It not only regards the definitions, but the treatment of the diseases: and, being rightly understood, and attended to, or not, may be productive of much good or ill.

We are, by most of the writers on this subject, advised in operating for the radical cure of an hydrocele, to regard carefully the state and condition of the testicle; and, if we find it enlarged, hardened, putrid, fungous, or any other way really diseased, to remove it immediately: which advice, within proper limitations, is certainly good. A testicle, in almost any of the just mentioned circumstances, ought undoubtedly to be removed: but these cautions have nothing to do with the true, simple hydrocele; and can relate only to the diseased, the scirrhous, or the cancerous testicle. When these disorders are the subject of consideration, then such hints and cautions make a very necessary part of it; but they can have no concern with the present.[q]

that the testicle, in a true, simple hydrocele, is never altered from its natural state, when unaffected by any disease: I know the contrary; I know that the testicle, in a hydrocele, is very frequently enlarged in size, and relaxed in structure, as well as that its spermatic vessels are often varicose; I use the words in opposition to the diseased indurated state of the scirrhous testis.

q "Namque ubi forte vel putredo, vel scirrhus, vel alia quædam corruptio "vehemens testiculum invasit, salutarius exscindere."

HEISTER.

This is also the doctrine of most of the writers (a large number in sugery) who have copied each other, both in their ideas of diseases, and in their proposed method of treating them.

Not writing from practice, or from what they have seen, they have related circumstances, under the article of the simple hydrocele, which never occur and have directed a method of conduct, which, if followed, must mislead the surgeon, and subject the patient to pain, fatigue, and even loss of parts, without any the least necessity. Under the head of radical cure of the simple hydrocele by incision, Heister has mentioned several circumstances as necessary to be attended to for the regulation of the operator's conduct, which circumstances do not occur in that disease: "Deligari autem vasa sperma-"tica filo, rescindique testiculus omnino debet sicuti in cap. de sarcocele do-"cuimus, quoties vasa seminalia, non insigniter tantum indurueruntur, sed mag-"nis quoque cruciatibus hominem ægrum affliguent. Despiciendum quoque porro est num testiculus tumefactus forte materiam aliquam "fluidam, sicut quandóque contingit, intus contineat. Si quid enim fluidi "intus hærere tactu percipimus, aut lympham, aut pus inibi consistere rec-"tissime colligimus. Interim neque tunc *rescindere* continuo (ut nonnullent,) "sed incidere potius, atque expurgare testiculum istum conveniet, &c. Sed

The truth is, that the majority both of the ancient writers and practitioners, misled by the sound of the term hydrocele, have mistaken a mere accidental effect for a cause; and have supposed that the fluid contained in the tunica vaginalis testis may not only constitute a disease by the mere distention of it; but may be productive of other diseases of the testicle itself. They have fancied the water to have in itself a noxious quality, or disposition; and that the testicle, by merely swimming in it, might become diseased, and unfit for use; whereas in cases wherein a disordered state of the testis accompanies a collection of water in its vaginal coat, the truth is just the reverse of this supposition: the testis is first diseased, and the faculty of equal, regular absorption thereby interrupted; by which means a quantity of fluid is accumulated, and that mixed appearance produced, which is not improperly called *hydro-sarcocele*. But in this case, the extravasation of water is really the consequence of the morbid state of the gland; and (being still mere simple lymph) neither is, nor can be the cause of it.

They who choose it may call this a species of hydrocele; and the literal sense of the word will certainly vindicate them; but they will by that means run the risk of confounding together two things extremely unlike to each other, and which require very different treatment: I mean the true simple hydrocele, in which

"si forte simul nimis jam tunc induratus, vel corruptus idem inveniatur, pre-
"dicta ratione, ligandus et resecandus, ne in carcinoma forte abeat."

That such state of the spermatic vessels and testicle does occur is beyond all doubt; but not in the simple hydrocele; not in the hydrocele that any rational practitioner can possibly deem fit for the attempt for the radical cure by incision. Neither is it possible for a man, who understands the disease at all, not to be acquainted with these circumstances before he attempts such operation; and if he is previously acquainted with them, he must be a very extraordinary man indeed to set about relieving them in such a manner. If the state of the testicle and its vessels be such as to require castration, (a thing always capable of being known before hand,) let that operation at once be performed, in a proper and expeditious manner, and not by piece-meal, as it is here described. If castration be not requisite, neither can any other part of the operation (with regard to the testicle) be so; for, notwithstanding these descriptions of incisions into, and expurgations of, diseased testicles may make a figure in books, they are very unfit to be introduced into practice. They never can do good: they must do unwarrantable, and generally irremediable, mischief.

the testicle is soft and sound, (only perhaps a little more lax, and larger than ordinary,) and the hydro-sarcocele, in which the testis is not only enlarged, but hardened, and not in a sound or healthy state: the former of these will permit such treatment with perfect safety; but in the other, may bring the patient into a state both of pain and hazard.[r]

It may indeed, and does sometimes, become necessary to let out the water from the vaginal coat of a testicle, in some degree diseased: but this should always be done with caution, and under a guarded prognostic; lest the patient be not only disappointed, by not having that permanent relief, which for want of better information he may be induced to expect; but be also (possibly) subjected to other unexpected inconveniences from the attempt.

Upon the whole, as just definitions, and accurate distinctions of diseases from each other, are absolutely necessary towards understanding them rightly, it seems to me much more proper to confine the term hydrocele to the mere simple accumulation of a fluid within the coats of the sound testicle, and to refer all those which either are combined with, or proceed from, diseases of that gland, to another class.

When the disease is a perfect, true, simple hydrocele, the testicle, though frequently somewhat enlarged, and perhaps loosened in its vascular texture, is nevertheless (as I have already observed) sound, healthy, and capable of executing its proper office: neither is the spermatic chord any way altered from a natural state, except that its vessels are generally somewhat dilated; neither of which circumstances are objections either to the palliative or radical cure of the disease. But in those disorders, which in some degree resemble this, the case is different; either the testicle, or spermatic chord, or both, bearing evident marks of a diseased state. In the true, simple hydrocele, the water is accumulated

[r] Some instances of this are related in this tract. Hildanus has given a particular account of a mistake of this kind: "Inciso scroto plurimum affluxit "aquæ, hinc primo subsedit scrotum; post paucos tamen dies secutus est "dolor, vehemens inflammatio et cancrosum ulcus, maximeque malignum; "quod adeo impetuose adjacentes partes occupavit, ut iupsius malignitas nul-"lo modo arceri possit; sed intra paucos dies maximo cum cruciatu e vita "decessit."

merely from the non-execution of the office of the absorbent vessels; which (whatever ultimate cause it may have) leaves no appearance of real disease on the parts: in all the other collections of fluid in this part, there are such appearances and marks of distemper, as may clearly convince us, that the extravasation is only a consequence of such state.

The two principal complaints, liable to be mistaken for an hydrocele, are, that kind of scirrhous testicle in which an extravasation of fluid is made in the tunica vaginalis; and the venereal induration of the testicle, attended with the same circumstance. One of these is always a disease of the general habit; the other too often so.

One requires, and generally submits to, a proper course of specific remedies; for the other (notwithstanding all that has been said on the subject) we as yet know of none; and therefore it is seldom cured but by total removal. In neither of these, can the mere discharge of the fluid contribute any thing material toward a cure; and in both of them, such attempt, injudiciously made, has often proved both painful and hazardous.

In the true venereal sarcocele, or indurated testis, the disease ought always to be eradicated from the habit before any attempt be made locally: the mere discharge of the water can never remove the obstruction in the gland; but when such obstruction has been by proper remedies removed, it is no uncommon thing to have the extravasated fluid again absorbed; or if it be not, and any operation becomes necessary, a soft, easy, healthy state of the testicle is certainly preferable to an indurated diseased one.

These two cases, or, to speak more properly, these two states of the testicle, although they agree in this one circumstance of not being essentially relieved by the mere evacuation of the water, do yet differ so widely in almost every other, that it behoves practitioners to be very careful in distinguishing between them. That method of treating the venereal induration, which is most frequently successful, will prove highly prejudicial in the scirrhous hardness. By mercury, in judicious hands, the pocky patient's disease may be removed, and his health restored: but I have hardly ever seen a scirrhus or cancer that was not exasperated, and made worse by it. Or, if that does not happen, yet, a mercurial course, in

such case, will always occasion a loss of time, which is not always retrievable. In short, he who treats a scirrhous testicle as he ought to do a venereal one, will not cure the disease, but waste his patient's time, and hurt his general health: and he who treats a venereal one as he most frequently ought to do a scirrhus, will, without any necessity, submit his patient to a painful operation, and thereby deprive him of a part very essential to him as a man.

CASE XV.

A GENTLEMAN, about thirty years old, showed me his testicle, which was both enlarged and hardened, and had very palpably a quantity of fluid in the vaginal coat. He had been told, that it was a water rupture, and that it might be immediately cured by means of a small incision.

The whole testicle and epididymis were (as I have already said) large and hard; and so were the vas deferens, and part of the spermatic process; but there was no kind of inequality on the surface; neither did it give the patient any pain, except what proceeded from its mere weight. He had some brown spots on his breast; a hardness below the frænum penis; a raggedness and induration of the edges of the sinis of the left tonsil; a pale plumbean countenance; and complained much of frequent pain in his knees and elbows.

I made no scruple to inform him that he appeared to me to be poxed; and that I did verily believe, that the disorder in his testicle arose from the same cause. I took pains to dissuade him from submitting to any attempt toward curing his local complaint in the testis, until he should have got rid of the disease which had infected his whole habit, by assuring him, that if what had been proposed to him was intended merely to let out the water, it could not even contribute to his being made well; and that if more than that was desired, he might probably experience more harm than good from the attempt. Not satisfied with my opinion, he went to Mr. Sainthill, who gave him the same kind of advice.

In a little time he applied to a gentleman well known for promising impossibilities; who told him, that this was a disease with which the faculty were perfectly unacquainted; and if he would

give him ten guineas, and take a lodging near him, he would undertake to cure him in a week.

He made an incision of about half an inch in length, in the very inferior part of the tumor, and let out a small quantity of bloody water; and then applied a pledget of lint, and a piece of sticking-plaster. The patient passed the night in a good deal of pain, and in the morning found his testicle much swelled, and very uneasy. He sent for his operator, who said, that this was of no consequence, and that if he would keep quiet that day, he would be very well the next. On the third day his testicle was so large, so inflamed, and so painful, that he became exceedingly alarmed, and sent for me.

I found the scrotum highly inflamed; the testicle and spermatic process large and hard; his pain exceedingly great; his pulse hard, full, and frequent; and his skin hot and dry. I bled him freely, and ordered him a clyster and a lenient purge, and wrapped the testicle up in a soft poultice. Next day, both the patient and the parts were in the same state. I bled him again; and his clyster and purge having thoroughly emptied him, I gave him two grains extract. thebaic. and directed that he should take one grain every six hours, until some ease or rest was procured. Two days were spent before any remission of symptoms was obtained: and it was near a fortnight, before the constant use and application of fomentation, cataplasm, &c. together with a general antiphlogistic regimen, and confinement to bed the whole time, had reduced the testicle to such state as to bear examination. When it became capable of this, it was found large and hard, but without any water in the tunica vaginalis. His general habit being recruited by a proper regimen, country air, and the bark, he was then put into a mercurial course, by inunction; under which all his other symptoms gradually disappeared, so likewise did his induration of the testicle.

CASE XVI.

A POOR labouring man in Essex got a venereal hernia humoralis. As his daily work would not permit him to take proper

care of himself, it was a considerable while before he had got rid of his inflammatory symptoms; and when he had so done, a part of the testicle, and the whole epididymis were left hard, and rather too large. In getting over a high stile he missed his footstep, and struck his scrotum with violence against the upper rail: the blow gave him excessive pain for some minutes; but that soon ceased, and he went on with his day's work. Next day his testicle appeared swelled, and was painful to the touch; but as the man had no subsistence but from his labour, he was obliged to follow it. At the end of a week, he was so much worse that he could go out no longer; and making his case known to some gentlemen, who used to employ him, a neighbouring practitioner was desired to visit him. A fluctuation being felt, it was supposed to be matter; and a warm adhesive plaster was applied to forward it. In a few days an opening was made for discharge of the supposed *pus*, but nothing followed except a very small quantity of bloody serum. The smallness of the quantity, and the nature of the fluid, joined to the very small subsidence of the tumor, induced the surgeon to think he had not gone deep enough; and to thrust a lancet further in: this was attended with acute pain, and followed by a copious hæmorrhage, which was not easily restrained; or, to speak more properly, did not soon cease. Inflammation, pain, tumefaction, &c. followed this method of proceeding; and at the end of a week the man was brought to St. Bartholomew's hospital.

Upon mere sight of the part, I should have supposed the case to have been a scirrhus of the malignant kind: the testicle or scrotum was large, hard, unequal, of a deep red dusky colour, with distended veins, and so painful that it could not bear the slightest touch; and the spermatic process was far from being in a natural or a healthy state. The man complained of constant pain in his back; the wound discharged a bloody offensive gleet; and long pain, and want of rest, had given him a very diseased aspect.

Nothing but the clear and circumstantial account, which both the man and the surgeon who had attended him (and who came with him to the hospital) gave, could have induced me to have thought the case to be any other than what I have just mentioned: but they were so positive, and so consistent, that I thought myself obliged to regard what they said, and to act accordingly.

By phlebotomy, evacuations, anodynes, rest, a low regimen, and the general antiphlogistic method, pursued vigorously and long, he got a cure.

CASE XVII.

A GENTLEMAN, about thirty-seven years old, apparently in good health, asked my advice concerning a diseased appearance in his scrotum, for the relief of which he had come from a considerable distance to this town.

The testicle was not much increased in size, but had lost its equality of surface, and was craggy, and very hard; and the vas deferens and epididymis were in the same indurated state; the spermatic chord was somewhat varicose, but not hard; and in the cavity of the tunica vaginalis was palpably a small quantity of fluid. It was somewhat tender to the touch; but the pain upon being handled was very slight, in comparison of what was felt an hour or two after such examination: at which time, although the pains were not constant, but rather attacked the part by intervals, yet they were extremely acute.

He said, that he had been told that his complaint was venereal, (to which opinion his method of life much inclined him to adhere,) and that he had also a beginning hydrocele. I replied, that I wished, for his sake, that I could think so too; but that I had no doubt of its being a scirrhus, which would not long remain quiet. He seemed dissatisfied; and said, that, considering the person who had pronounced his case to be venereal was a man of character in his profession, and whose judgment he believed was good, he thought I was rather too peremptory.

I desired him to take the opinion of some people of eminence in London, and named some to him: whether he did or not, I know not; but in about a fortnight or three weeks, I received a letter from him out of the conntry, signifying, that his friend was so clear in his first opinion, that the case was venereal, that he had prevailed on him to submit to a salivation for it; and that he only now desired my opinion concerning the best method of procuring

it; that is, whether he should attempt it by internals, or by mercurial inunction. I wrote back, that I was sorry to differ from his friend, or to seem too tenacious of, or partial to, my own opinion, and sincerely wished I might be mistaken; that I looked upon the method of salivating by inunction to be in general the least fatiguing or prejudicial to the constitution; and that in the case of particular, local induration, it certainly had the advantage of being applied immediately to the part affected; and therefore, if I could think that his complaint was venereal, I should undoubtedly prefer the use of the ointment to every internal means; but that I was so thoroughly satisfied that it was not, and so averse to the use of mercury for him, that I desired him to keep that letter as my protest against the process he was going into.

The ointment was freely used for above a month, but no alteration appeared in the testicle, except that it became rather larger, and more tender to the touch.

As the mercurial ointment happened not to affect his mouth, or make him spit any considerable quantity, the inefficacy of it with regard to the testicle was imputed to that; and a course of the mercurius calcinatus, with the kermes mineral, undertaken and followed for another month. During this, the testicle manifestly increased in size, became more unequal, and more frequently painful. He now came to London again; and calling on me, told me all that had passed; but being still possessed with the venereal idea, said that he was come hither in order to try the Lisbon diet drink, or something of that kind.

At my request he showed his disease to Mr. Nourse and Mr. Sainthill, who were clear that it was not venereal, and advised the operation. This he would not hear of at present, having got it into his head that when every thing else had been tried, it would always be time enough for that. During three weeks that he staid here, he drank, by the direction of some friend, every day a quart of strong decoction of sarsaparilla, with some of the sublimate solution in it. The testicle continued to increase, and the spermatic vein became somewhat varicose: but still there was a fair opportunity for extirpation. He did now indeed begin to incline to it; but being considerably reduced in strength and flesh by what he had taken, he would not comply with it until he had been in

the country, and was somewhat recruited: to which I could not object, as he then did not appear to be a fit subject for such an operation; I mean, on account of his great reduction of strength.

At the end of two months, he came to me again. I was much concerned to see him so much altered for the worse; he was emaciated to the greatest degree; and had such a leaden paleness in his countenance, that, had I known nothing of him, I should have concluded that such a man had a cancer about him. He had totally lost his appetite, and was never free from pain: his testicle was at least twice the size as when I last had seen it, and the whole process, quite up to the belly, large, hard, and knotty.

I would now by no means propose the operation: a consultation of physicians was therefore had, in which the solanum was prescribed. This was immediately tried, and proved here, as it has wherever I have seen it used; that is, the patient was much disordered by it in general, and received no benefit with regard to his disease: but as this affair happened not long after this poison had been in a kind of vogue, it was repeated until the patient could hardly see or hold his hand still. When this was laid aside, recourse was had to the cicuta, which, as usual, was perfectly inefficacious: to it, however, a fair trial was given. And when the poor man had thus made experiment of our most boasted specifics, and was satisfied that no honest or judicious man would attempt the operation, we had recourse to opium, during a few weeks that he existed.

When dead, I examined him.

The spermatic process was thoroughly diseased, about half-way up from the groin to the kidney; that is, it was enlarged, hard, and very full of knots; but I did not find any apparent disease in any other part within the abdomen.

CASE XVIII.

I RECEIVED a letter from Lincolnshire, in the month of November, desiring to know whether that season of the year was an improper one for the operation of castration, in the case of a scirrhous testicle; for that, if I did not, a patient labouring under such

complaint would set out immediately upon the receipt of my answer.

I wrote back, that the state and nature of the disease were of much more consequence toward determining the propriety or impropriety of an operation, than the time of the year could be: and therefore I desired either that I might have a circumstantial account of the case from some medical man, or that the patient would come to London. In about a week I received another letter, containing the following account.

That the patient was thirty-five years old; that previous to the appearance of the disease in the testicle, he had for some weeks been troubled with frequent and acute pains in his back and loins; that the testicle was considerably enlarged, indurated, and (in its posterior part) unequal in its surface; that part of the spermatic process, nearest to the testis, was too hard also; that the whole of it was now perfectly free from pain; that the patient was a married man, much subject to scorbutic eruptions and flying pains, from the same cause; that his appetite was fallen off, and his aspect become pale and wan; that he had taken a considerable quantity of the cicuta, and as much of the infusion of the solanum as his weak state would bear; that from the former he had neither experienced good nor harm, but that the latter had disagreed with him extremely; that he was now determined for the operation; and that he would be in London in a few days.

In less than a fortnight he came to me. He was extremely thin; and had a countenance so pale, and eyes so languid, that I made no doubt that his nights were sleepless. His testicle was large and hard, but perfectly equal, and perfectly indolent; the tunica vaginalis contained a small quantity of limpid fluid; and the vas deferens and epididymis had that kind of enlargement and induration which frequently accompanies a hernia humoralis: but the spermatic vessels were in a natural state, of proper size, and free from all kind of induration. He was so hoarse, that I could hardly hear him speak; and so deaf, that it was as difficult to make him hear. He complained much of frequent pains in his shoulders and elbows, one of the latter of which was considerably stiffened. The biceps muscle of the left arm was hard and gummy; on one of his eye-brows was a large spot, with a thin

scab on it; and, between the scapulæ, were four or five of the same.

I told him, that I had no doubt that his deafness, hoarseness, pains, spots, swellings, &c. were all venereal; and that I was much inclined to believe that the complaint in his testicle proceeded from the same cause. He did as venereal patients are frequently too apt to do; that is, he endeavoured to render my opinion improbable, by attesting, that there had been an interval of some years since he had held any illicit commerce with any woman whom he could suppose capable of injuring him; that he had been two or three years married; had only had a slight chancre, of which he was sure he had been well cured, &c.

I answered, that I was clear in my opinion; and would undertake to serve him on no other principle; but desired him to take the judgment of some other gentlemen of the profession; which he did, and returned to me again, with an account that they thought of his case as I had done.

The weakened reduced state in which he was, and a natural disposition which he had to a hæmoptysis, obliged me to proceed very cautiously: his stomach would bear no medicine of the mercurial kind; and a very little acceleration of pulse made him hawk up a bloody phlegm. I therefore determined upon the ointment in small quantities, and to do in this case what I have done in similar cases several times; that is, as soon as ever the mercury raised the pulse, or began to affect the mouth, I ordered him to take a decoct. corticis twice or thrice a day, through the whole of the salivation.

By these means he got rid of all his complaints, both general and particular, and came out of his mercurial course with a more healthy aspect, and more flesh on his bones, than he went into it.

Before I proceed to give an account of the means used for the relief, or cure, of the hydrocele of the tunica vaginalis testis, it may not be improper to inform the reader, that I have twice in my life seen this disease, though in a confirmed state, and in adult patients, disperse.

CASE XIX.

A GENTLEMAN, about forty-five years old, consulted me on account of a swelling in his scrotum, which was not very large, but palpably contained a fluid, and was so circumstanced in every respect, as to prove it to be a true hydrocele of the vaginal tunic; from which I advised him to have the water immediately drawn off.

As it was not very troublesome to him, he did not choose to have it done then; but went away, telling me that I should soon see him again. He took the opinions of two others, both of whom told him the same thing, and gave him the same advice.

At the end of half a year he came to me again, with the scrotum full, and of a pyriform figure, and so large as to be very evident through his breeches.

I would have tapped him immediately; but as he had never seen any thing of the kind, I could not convince him that it would not confine him the next day; and as he had some particular business to transact in the country, he chose to go thither first, and to submit to the operation when he should return from thence.

I saw no more of him for near two months; at the end of which time he called upon me, and showed me a scrotum perfectly empty, and free from disease.

Taking it for granted that he had been tapped, I asked him who had done it for him: he told me, that before he could finish the business for which he went into the country, he was seized (for the first time in his life) with a severe fit of the gout, which had confined him to his bed for six weeks; during which confinement, his swelling had gradually and totally dissipated.

I have often seen him since; and he still remains perfectly free from all appearance of disease.

CASE XX.

A MIDDLE-AGED man showed me a hydrocele of the vaginal tunic, which had been near two years collecting, but from which

the water had never been drawn: I advised him to have it done soon, and he fixed on the next morning.

In his way home he got fuddled; fell down into the area of an empty house; and in his fall struck his scrotum against a piece of scaffolding.

In the morning early he sent for me. I found him in bed, with a great ecchymosis under the skin of the scrotum, which was much swollen, and very painful. I would have persuaded him to have permitted me to let the water out, (thinking thereby to to have taken off part of the tension,) but he would not consent; and I was obliged to have recourse to fomentation, cataplasm, &c.

In about a fortnight, all the ecchymosis was dissipated, and all the swelling from the sound side of the scrotum; and both the patient and myself thought, that the tumor from the hydrocele was considerably less than it was before the accident. By persisting in the same method for about three weeks more, the whole of it disappeared, nor has returned since. Nor have I, ever since, seen the same attempt succeed.

SECT. VIII.

METHODS OF CURING THE HYDROCELE OF THE VAGINAL COAT.

THE methods of cure (as they are called) in this species of hydrocele, though various, are reducible to two; *viz.* the palliative, or that which pretends only to relieve the disease in present, by discharging the fluid; and the radical, or that which aims at a perfect cure, without leaving a possibility of relapse. The end of the former is accomplished by merely opening the containing bag in such manner as to let out the water: that of the latter cannot be obtained unless the cavity of that bag be abolished; and no receptacle for a future accumulation left. One may be practised at all times of the patient's life, and in *almost* any state of health and habit: the other lies under some restraints and prohi-

bitions; arising from the circumstances of age, constitution, state of the parts, &c. &c. &c.

The palliative cure (as I have just observed) consists in merely giving discharge to the fluid which is contained in, and distends, the tunica vaginalis.

The operation by which this may be accomplished is a very simple one. The only circumstances requiring our attention in it are, the instrument wherewith we would perform it; and the place or part of the tumor, into which such instrument should be passed.

The two instruments in use are the common bleeding lancet, and the trocar.

The former, having the finer point, may possibly pass in rather the easier, (though the difference is hardly perceptible,) but is, in my opinion, liable to inconveniences, to which the latter is not. The trocar, by means of its cannula, secures the exit of the whole fluid without a possibility of prevention; the lancet cannot. And therefore it frequently happens, when this instrument is used, either that some of the water is left behind, or that some degree of handling and squeezing is required for its expulsion; or, that the introduction of a probe, or a director, or some such instrument, becomes necessary for the same purpose. The former of these may in some habits be productive of inflammation:* the latter prolongs what would otherwise be a short operation, and multiplies the necessary instruments; which, in every operation in surgery, is wrong. To which it may be added, that if any of the fluid be left in the vaginal coat, or insinuates itself into the cells of the dartos, the patient will have reason to think the operation imperfect, and to fear that he shall not reap even the temporary advantage which he expected. The place where this puncture ought to be made is a circumstance of much more real consequence; the success of the attempt, the ease, and even sometimes the safety of the patient, depending upon it.

Whoever conceives, as many have done, and some still do, that the testicle hangs loose in the middle of the water within the

* A consequence which I have seen to proceed from it, attended with a slough of the whole dartos, and which I am much inclined to believe would not have happened in the same person, had the water been drawn off by a trocar.

vaginal coat, (like a clapper within a bell,) must also suppose that every part of the general tumor is equally fit and proper for this operation. The idea is erroneous, and the experiment may prove highly mischievous. All the anterior and lateral parts of the vaginal coat are loose and detached from the albuginea: in its posterior and superior part these two tunics make one; consequently, the testicle is, as it were, affixed to the posterior and superior part of the cavity of the sac of an hydrocele; and consequently, the water or fluid can never get quite round it. This being the state of the case, the operation ought always to be performed on that part of the tumor, where the two coats are at the greatest distance from each other, and where the fluid must therefore be accumulated in the largest quantity; and never on that part of it where the fluid cannot possibly be. The consequence of acting otherwise must not only produce a disappointment, by not reaching the said fluid; but may prove, and has proved, highly and even fatally mischievous to the patient.

It was a custom formerly, after performing this operation, to make use of fomentations and discutient applications, upon a supposition that by such means a return of the disease might be prevented. Among the old writers are to be found the forms of medicines to be applied to the groin and scrotum, to prevent a future descent of the fluid; but anatomy and experience have proved the falsehood of such supposition, and the absurdity of such applications: the present practitioners content themselves with a bit of lint and a plaster; and, if the scrotum has been considerably distended, they suspend it in a bag truss, and give the patient no further trouble.

In most people, the orifice thus made heals in a few hours (like that made for blood-letting); but in some habits and circumstances, it inflames and festers. This festering is generally superficial only, and is soon quieted by any simple dressing; but it sometimes is so considerable, and extends so deep, as to affect the vaginal coat, and by accident produce a radical cure. I have also seen it prove still more troublesome, and even fatal: but then the circumstances, both of the patient and of the case, have been particular, and such as required attention. (See Case XXI. and XXII.)

Whether it arose from a fear of wounding the testicle in the operation, or from a supposition that while the quantity was small it was more likely to disperse, or that while there was but little fluid, they did not think the disease sufficiently characterised, or from some other reason which they have not thought fit to give us; but many writers of good authority (and among them Mr. Serjeant Wiseman) have forbid the puncture in an adult, while the quantity may be supposed to be under a pint: which restriction is still scrupulously attended to by many practitioners, to the no small trouble and inconvenience of their patients.

When there is a sufficient quantity of fluid to keep the testicle from the instrument, there can be no reason for deferring the discharge; and the single point on which this argument ought to rest is this: "Whether the absorbent vessels, by which the extravasa-"tion should be prevented, are more likely to reassume their "office, while the vaginal coat is thin, and has suffered but little "violence from distention; or after it has been stretched and dis-"tended to ten or perhaps twenty times its natural capacity, and "by such distention is (like all other membranes) become thick, "hard, and tough." For my own part, I think the probability so much more on the side of the former, that I should never hesitate a moment about letting out the water, as soon as I found that the puncture could be made securely. And from what has happened within the small circle of my own experience, I am inclined to believe, that if it was performed more early than it generally is, it might sometimes prevent the return of the disease.

CASE XXI.

A GENTLEMAN, turned of sixty, came to me with an hydrocele of the tunica vaginalis.

He was corpulent, full habited, inclined to be asthmatic, and subject to an irregular kind of gouty inflammation, which attacked different parts of him, at different times. The disease was on the right side, the scrotum much distended, and on the skin of it was an inflammatory kind of blush. His pulse was hard, and as I

thought too frequent; and he seemed to me to have a degree of heat and thirst not consistent with health. His age, his habit, his general state, and what I apprehend to be the state of the sac, all forbade any attempt but the puncture; and I took some pains to dissuade him from that, until he should have removed both his general complaints, and the local inflammation on the scrotum.

He said that he felt himself perfectly well; that he was sure he had no gout about him then; that what I took for an inflammation on the scrotum was only a scorbutic eruption, to which he was frequently subject; and concluded with a hint, that he thought whatever should be done previous to letting out the water, could be designed only for my own benefit, by lengthening the time of my attendance.

I pierced the middle and anterior part of the scrotum with a small trocar, and drew off near a quart of a greenish fluid; I put a bit of lint and plaster on the orifice; and as the empty scrotum hung very loose and flabby, I persuaded him to let it be suspended in a bag-truss.

In the afternoon he went out; and at night, finding that the plaster was rubbed off, and thinking that the suspensory was put on for no other reason but merely to keep the dressing on, he took off his bandage.

Next day he went out again, walked a good deal, drank freely after dinner, and when he came to his lodging in the evening, he went to bed much out of order. In the night he had a severe rigor, for which he took a large spoonful of a tincture of snake-root and saffron, which he always kept by him.

On the third day, finding his scrotum much swollen, and very uneasy, he sent for me.

I found him in bed, complaining of great pain in the lower part of his belly and groin; his pulse was quick, hard, and irregular; his skin hot; his tongue dry, and black; his countenance flushed; and his intellects not quite steady. His scrotum was swelled and inflamed all over; and in a part, considerably distant from the puncture, was a mortified spot as big as a shilling.

After I had dressed him, I desired, as he was quite a stranger to me, as well as to the people of the house where he lodged, that he might have more assistance: accordingly a physician was sent for,

who prescribed for him. At the end of three days one half of the scrotum was completely mortified; and in about seven more it cast off, with so large a portion of the tunica vaginalis, that I had no doubt that none of it was left.

The gout now made an attack on his feet, and the inflammation left all other parts: the sore put on a good aspect, and in a short time he got well. But notwithstanding the very large portion of the vaginal coat which came away in a slough, I have twice since drawn off a full pint of water from the same side.

CASE XXII.

A MAN, about forty, afflicted with a large hydrocele of the tunica vaginalis, and which, from a misapprehension of the true nature of the disease, he had never consulted any body about, having been robbed by a servant of a considerable sum of money, was obliged to travel very hard, on horseback, from the neighbourhood of Exeter, to London.

When he set out, his scrotum was free from all disease, except its distention by the water; but when he came to this town, it was covered all over with an inflammation of the erysipelatous kind; was much increased in size, and very painful to the touch. He was much fatigued with his journey; and just before he went to bed in the evening, had a shivering, which was followed by a very restless night, and a considerable degree of fever. In the morning his scrotum was so much inflamed, that he was alarmed at the appearance, and sent for assistance. The person who came to him immediately made an opening, by means of a pointed knife, into the tunica vaginalis, and gave discharge to a considerable quantity of water; but by night the whole scrotum was mortified. That evening I saw him, but without any hopes of being able to serve him. His pulse, which had been full, hard, and rapid, was now small and faltering; his head was very unsteady, and his extremities cold; all the tumefaction of the scrotum was gone, and it seemed one large eschar. On the next morning he died.

Now, though it be very possible, that the same appearance and event might have ensued, if no puncture had been made; yet I

think it is very clear, that it would have been more prudent to have tried first what a soft cataplasm and an antiphlogistic method could have done. For, by making the opening hastily, and without a proper prognostic, the operator (whether deservedly or not) incurred all the blame.

CASE XXIII.

A POOR man was brought from the neighbourhood of Rosemary-lane to St. Bartholomew's hospital.

His scrotum was of prodigious size; very hard, excessively inflamed quite up to his groin; it was of a dusky red colour; extremely painful to the touch; and in one part seemed inclined to sphacelate: the spermatic process also was considerably thickened. He had a hard, full, rapid pulse; a hot skin, a flushed countenance, great thirst; and complained of most excruciating pain in his back.

The account he gave was, that he had, for some years, been troubled with a swelling on the right side of his scrotum, which some of the surgeons of St Thomas's hospital had told him was a water-rupture, and would have tapped; that he had also applied to several rupture-doctors, each of whom had sold him a bandage, and some of them had pretended to cure him by medicines and applications; that, finding no relief from any of these, he had a few days before given an itinerant stage-quack three guineas to cure him. That this operator laid him on his back, on a couch, and lifting up the tumor, thrust an instrument into it. That no discharge followed but blood. That it bled for near a quarter of an hour, and then stopped upon his fainting away. That from the time of this operation (which was two days) he had been in extreme pain; and, that his operator not coming to take any care of him, his friends had brought him to the hospital. He was immediately bled, had a clyster injected, and the scrotum was enveloped in a soft, warm poultice, and tied up in a bag-truss. When he had passed a stool, I ordered him a grain of extract. thebaic. to be taken immediately, and repeated again at the distance of six or eight hours. Next day he was much the same in every respect;

his pain was excessive, particularly in his back, and he had not closed his eyes. I bled him again freely, (he had two stools in the night,) and gave him two grains of opium, and direction to repeat one grain every six hours until he got ease and sleep. His scrotum was well fomented, and the cataplasm continued. Two days more were spent in this manner before we obtained any remission of the symptoms: when that was done, I pierced the anterior part of the tumor, and drew off more than a pint of bloody serum. The testicle now appeared very much enlarged, and hardened; but, by persisting in the antiphlogistic method, he at length got well.

I suppose the reader will have as little doubt as I have, that all this mischief was produced by wounding the testicle, or epididymis.

CASE XXIV.

A young fellow, who was waiter at a tavern in the city, and who had for some months past laboured under a succession of pocky symptoms, had at last a true venereal sarcocele, with a small quantity of fluid in the vaginal coat.

As he had several other venereal symptoms then upon him, and his way of life subjected him to great irregularity, I advised him to obtain leave to quit his place, and attend to his cure. This he did not choose to comply with; and I heard no more of him till about a month afterwards, when his master desired me to call at his house.

I found the lad in bed, with a high fever, and with his scrotum swelled and inflamed to a very great degree. He said that two days before, he had met with an acquaintance, (a surgeon's mate of a man of war,) who told him, that his whole complaint was a water-rupture, and that for a bottle of claret he would cure him immediately. That he had thrust a lancet deep into the lower part of the swelling; that nothing followed but blood; that he had spent some minutes in poking into it with a probe, in hopes of getting the water out, but ineffectually; but that he had been in racking pain ever since. Phlebotomy, clysters, opiates, febri-

fuge medicines, &c. were all employed, by which means his pain, fever, &c. were at length got the better of; but almost the whole testicle cast off in one large slough.

MEANS FOR A RADICAL CURE.

Every other method of treating this kind of hydrocele, except the puncture, was either originally intended to obtain a radical cure; or, having been found to have been often productive of such, has been, by different people, ranked sometimes among the palliative, sometimes among the radical means.

In many of the old writers are found directions for obtaining the cure of this disease by the use of a seton, a cannula, a tent, a caustic, a ligature, an injection, or an incision.

Some of these are adopted or preferred by one and some by another, according to the theory which they entertained of the disorder, or to the benefits which they had seen to have accidentally arisen from the use of the said means.

To reduce these under some kind of method, (which the manner of their being delivered to us does in general not very easily admit,) we may say, that the seton, the tent, and the cannula, were either originally meant to palliate a disease, of which the old practitioners had very disagreeable apprehensions; or that they were made use of upon a supposition that the fluid contained in the cyst was in itself noxious; or that the general habit of the patient was relieved, and many other disorders prevented by the said humour falling, or being deposited in that part; or from an opinion that the cure of it ought not, by any means, to be hastily or rashly attempted; that the caustic, cautery, and ligature, were designed to prevent the supposed descent of the water from the abdomen into the scrotum; and, that the injection was calculated for the constriction of a supposed breach in lymphatic vessels.

Some of these (happily for mankind) are now quite laid aside, the reasons for their use being found to be false and groundless: of this kind are the cautery, the ligature, and the injection. The water is now, by every body who has made any inquiry into the matter, known to be formed and collected in the part where it is found; and not to have fallen into it from the belly: and, though an

obstruction in the lymphatic vessels of the spermatic chord, may in some degree prevent the regular and due absorption of the fluid from the vaginal tunic, yet no breach or rupture of such vessels can ever produce the disease in question: the extravasation, in such case, must be in another part; and may possibly cause a hydrocele of the cellular kind, in the common membrane of the spermatic vessels, but which can never be found within the tunica vaginalis.

The reasons originally given for the use of the the tent and the cannula, *viz.* the noxious quality of the fluid, and the necessity of a gradual cure, are now also known and acknowledged to be without foundation; and therefore though these methods, or methods like these, do still continue to be used, yet it is with another view, and upon other principles: not with intention to lengthen the time of a cure, by making a gradual drain for the prevention of other disorders; but merely to abolish the cavity of the tunica vaginalis, by having excited and maintained such a degree of inflammation and suppuration, as shall produce an union between that coat and the albuginea testis.

This is indeed the only rational end which can, by any of these means, be pursued: for the disorder being absolutely local, and the tunica vaginalis (the seat of it) most commonly somewhat altered from its natural state, by having been distended, unless the absorbent vessels can again be restored to a capacity of doing their duty, (a circumstance which does not very often happen,) the arteries will continue to exhale new serum into the cavity, and the hydrocele will still remain, or be renewed in a short time after each discharge.

To obtain this end, two kinds of means are proposed: in the use of one, it is intended, by means of a small wound, to excite such a degree of inflammation as shall occasion, or be followed by a total and absolute cohesion of the tunica vaginalis with the tunica albuginea. In the other, a larger and more free incision is made; whereby the cavity of the former of these coats is converted into a hollow or open sore, or ulcer, to be filled up by a new incarnation; or else, a part of the said tunic being cut away, its power of again holding the extravasated fluid is equally prevented.

The first, or union of the two coats, in consequence of inflammation, has sometimes been found to follow the use of such means as

were intended to procure only a temporary relief: it sometimes follows the simple puncture with the trocar, or lancet. The ancient method of letting out the water, by a small incision, frequently produced it;[t] and the seton, the tent, and the cannula, though used for another purpose, or at least for other reasons, were found to be followed by it so often, that they soon were ranked among the means for obtaining a radical cure.

[t] This was by making, first, an incision of some length through the scrotum and dartos, so as to lay the tunica vaginalis bare, and then by making a puncture in the latter. The acounts given by Brunus and Theodoric are the same as that of all the writers before them, and have been copied by many since: "Curatio ejus est, ut incidatur cutis testiculorum sectione ampla secundum "longitudinem ejus; dein perfora, et aquam extrahe."

[u] Many of the old writers have left us directions for passing the seton, and for introducing the tent, either of lint or sponge; and the cannula, either of alder, or of silver.

Gulielmus e Saliceto, having first proposed the use of external applications, says, "Si hac via non consumitur aqua, tunc perfora bursam, cum "phlebotomo tuo acuto, et extraho aquam, non subito totam, sed partem; et "pone in foramine illo tentam lineam, vel stuppeam, aut spongiam; ut posses "de die in diem aquam extrahere: et nota, quod hujusmodi ægritudo mul-"toties recidivat; et si sic, semper redeas ad perforationem antedictam: et "via ista, et modo, perfecte curabitur."

Fabritius ab Aquapendente speaks of the tent as frequently used by him in the mixed case of hydrocele and sarcocele, or diseased testicle; though, by the account he gives of his success, it is pretty clear that he used it in the hydrocele only, or when the testicle was not really diseased. His words are, "Si carnosa simul et aquosa sit hernia, ego talem adhibeo curam. Seco cutem, "et incisionem facio exiguam, et in loco potius altiori, quam in fundo; inde, "turunda imposita cum digestivo, et pus movente medicamento procedo, "neque, unquam totum pus extraho, sed perpetuo bonam partem intus re-"linquo, quod sensim carnem corrodat, et ita sanat." An adhesion of the vaginal coat with the albuginea may be the consequence of such treatment of an hydrocele, and consequently such patient may obtain a radical cure; but whoever has seen any thing of the disease properly called a sarcocele, will know, that it will very seldom bear such rough treatment.

This method of procuring a firm cure (by the tent) is mentioned by Ruysch: "Sanari quidem valet id mali pertuso scroto, ope instrumenti touchart dicto, "vel lanceola phlebotomica, ut aqua vulnere exeat, sed sito plerumque re-"crudescit malum. Si autem curationem aggrederis aperiendo scrotum a "parte superiori ad latus, tumque vulnus turunda oblonga unguento rosaceo, "mercurio precipitato rubro inuncto oppleveris, donec lenis inflammatio, "eique succedens suppuratio parva, membranulas stillantes putrefecerit, "tuncque eas tenaculo eduxeris," &c.

They were indeed (as I have already observed) originally designed to discharge the water gradually; and to continue such a drain from the parts where it had been collected, as might prevent any of the ill consequences apprehended from the removal of the local disorder: but the inflammation which supervened sometimes, producing a cohesion of the sacculus to the surface of the testicle,

Professor Monro, of Edinburgh, has proposed a method of cure upon the same principle; but much better, and more likely to procure the one thing aimed at, (the lenis inflammatio,) as he employs no catheretic medicines. His words are, "Considering how readily contiguous inflamed parts grow together; and how many instances there are, of people having a radical cure made of this hydrocele, by inflammations coming on the part; it would seem no unreasonable practice, to endeavour a concretion of the two coats of the testicle, when they are brought contiguous, after letting out the water through the cannula of a trocar, by artfully raising a sufficient degree of inflammation.

"This to be sure must be done cautiously, and so that the surgeon can reasonably expect to be master of the inflammation; and therefore the application of all irritating medicines, the operation of which he could not immediately stop, or any single mechanical effort, the effect of which he could not be sure of, are not to be employed.

"Suppose the cannula of the trocar was to be left in; by the extremity of it rubbing against the testicle, an inflammation might be artfully raised; the cause of which might be taken away as soon as the surgeon thought fit," &c. MEDICAL ESSAYS.

This method, with some small alteration, I have once or twice used with success. Being afraid of the pain which might be caused by the extremity of the cannula rubbing against the tunica albuginea, and the irritation in consequence thereof, I have left it in, but with a piece of bougie (whose length exceeded that of the cannula about a quarter or an eighth of an inch) within it. Of all the methods of using a tent, I think this is the best, as the cannula secures its passage into the cavity of the vaginal coat; which the collapsing of that tunic, and the loose texture of the dartos, would otherwise render somewhat difficult. But although I have once or twice succeeded in this manner, I have much oftener been frustrated: sometimes it has proved absolutely ineffectual; and at others, I have seen it raise such a disturbance, as to render it necessary to lay the whole cavity open before a cure could be obtained.

Of all the methods of obtaining a radical cure of an hydrocele, by exciting inflammation within the tunica vaginalis, and thereby obtaining an adhesion between it and the albuginea, that by the seton is by much the best: it is the least painful, the most easily managed, excites the least troublesome symptoms, and is the most frequently successful; but, as I shall have occasion to speak of this hereafter, I shall defer saying any more concerning it in this place.

what was originally calculated for a palliative remedy only, was by many adopted for a radical one.

If the event, and consequence flowing from these means, were as much in our power as they have been said to be; that is, if we could with any tolerable precision or certainty determine the degree of inflammation to be excited, and the effect of such inflammation on the vaginal coat, there would be no doubt of the utility of them: but this is far from being the case: for although it sometimes is sufficient for the purpose wished for, and rises no higher than just to a degree equal to that purpose, yet it also frequently happens, that either such degree and extent of it is not excited, or it rises much higher, and proves much more painful and fatiguing, than was promised or intended; or (as I have several times seen,) after a great deal of pain and confinement, a partial cohesion only has been the consequence, and the disease has still remained, notwithstanding all the patient's and our trouble. Sometimes the pain, inflammation, and symptomatic fever are but little; but on the other hand, they are all three sometimes so great as to become alarming, at least to a patient who has been taught to expect a cure upon much more easy terms. The whole scrotum sometimes becomes excessively inflamed; and after a good deal of pain and trouble, large deep sloughs are produced, and the process becomes as irksome as any of those, whose event (with regard to a cure) is much more certain.

If the inflammation be but slight, the pain and tumefaction moderate, the symptomatic fever light, the suppuration small, and an universal cohesion of the two membranes is produced, the event is very fortunate, and a troublesome complaint is thereby got rid of, upon easy terms. If the event prove what I have mentioned in the second place; that is, if either the inflammation be confined to the dartos, where it sometimes produces several superficial abscesses (of no consequence toward the cure of the disease); or if it has been so partial, as only to have occasioned the cohesion between the tunics of small compass, the cavity will not by this means be abolished, nor any thing like a radical cure be obtained; consequently the patient will have undergone all the fatigue, confinement, or pain (be it more or less) for nothing, But if the inflammation rises high, if the scrotum swells considerably, and

large deep sloughs are formed, (as sometimes happens) the symptoms and the hazard are then fully equal to what attend those more certain methods. Which of the three will be the event, no man can say. Under the same external appearances, different people are more or less liable to inflammation and fever. The confinement of matter, in consequence of too small an opening, will in some habits make strange havoc, in a very short time; and if a large opening and a plentiful suppuration must at last be submitted to, the method by a large incision at first is preferable, as the cure is more certain, and the loss of time less. Different circumstances in the patient will render one method preferable to, and more likely to succeed than another; but whenever a cure is attempted by any of the before mentioned means, the uncertainty of the event should be made known, and the patient be apprised of what may happen, either with regard to trouble or disappointment.

All the methods hitherto taken notice of, are calculated to produce a perfect or radical cure, without making a large wound, or bearing the appearance of a chirurgical operation: those of which I am now to speak, are intended for the same purpose; but by making a large and free opening into the bag containing the fluid, to render the accomplishment of such purpose more certain.

These are called the cure by *caustic*, and the cure by *incision*. The cure by caustic is calculated to spare the terror which a cutting instrument always conveys; and (as the patrons of it say) to avoid the painful symptoms, and hazard, which frequently attend a large incision in these parts. The method is this: a piece of the common paste caustic, rather less than a finger's breadth, properly secured by plaster, is applied the whole length of the anterior part of the tumor, which will necessarily make an eschar of proportional size. When this eschar either casts off, or is divided, an opening of nearly the same length and breadth is thereby intended to be made into the cavity of the tunica vaginalis testis: by which means an opportunity is given to the surgeon to apply such dressings to the inside of the said tunic, as shall, by the generation of new flesh, fill up, and abolish its cavity. The preference which some practitioners have given to this method before that by incision, has been upon a supposition that a circumstance which

very seldom happens, will most frequently occur; I mean, the penetration of the caustic through the vaginal tunic, containing the fluid.

By this they hope to avoid the symptoms which are supposed to be generally excited by the division of the said bag by a cutting instrument. I will not say, that the caustic never does this; but I must say, that I have very seldom seen it do so. If the tumor be very large and full, the containing parts be very much on the stress, and the skin and dartos very thin, the caustic may now and then penetrate through, to the vaginal coat: but this, whatever may be thought or pretended, very seldom happens; and when it does not, the tunica vaginalis must be divided in the same state, and manner, as if no caustic had been applied. All the difference between the two methods (caustic and incision) will then amount to this: that in the former, the skin being mortified, the patient is freed from a part of his apprehension at its being cut; and the surgeon fancying that his escharotic has gone through the vaginal coat, will divide it, as a part of the eschar: but a more careful examination of what he is about, at the time of such operation, would generally convince the latter, that he divides the bag unaltered by the caustic; and the symptoms which often attend this process, confirm it. It has indeed been proposed to divide the eschar made in the skin, down to the surface of the tunica vaginalis, and then, by the application of a fresh caustic, to make an eschar in that coat also. But whoever makes, or submits to this experiment, will find that of two evils he chooses the greater; and to avoid the pain of incision, incurs a much greater degree of it by the repetition of the escharotic. The pain attending the first application of the caustic is indeed to some persons but little; but in many it is fully equal to that of the knife, and must always be of much longer duration. If it does not penetrate the tunica vaginalis, that bag must be divided by a cutting instrument (as I have already said) in the same state as if no caustic had been applied; which incision is and must be accompanied with the same symptoms (in the same person) as in the operation by the knife only. Nor can we at all times confine the caustic, so as that it shall not cause a much larger sore than is intended, or can be necessary.

Upon the whole, the cure by caustic, as it spares the terror and apprehension of a bloody operation by the knife, and as it requires no dexterity in the operator, may on those two accounts become preferable both to many patients and surgeons; yet whoever promises to perform, or expects to receive, a radical cure by caustic, upon much easier terms than by incision, will most frequently be disappointed; that is, they will frequently find the fever and inflammatory symptoms full as high, and the sore full as painful in the one as in the other; and consequently all their care and attention to obviate mischief, full as necessary. Neither is the accessary confinement, in general, at all less in the one than in the other.

One of the methods made use of by the ancients, to let out the fluid from an hydrocele of the vaginal coat was (as I have already observed), by making a pretty large division of the scrotum and dartos; and having by that means laid the tunic bare, to make an opening into that also, and thereby discharge the contents. This method sometimes produced a perfect cure in the first instance, but much more frequently produced only a temporary relief. If the opening made in the tunica vaginalis was small, and united again immediately, the bag filled again with water, and the disease recurred; but if the orifice, instead of immediately uniting, became inflamed, or sloughy, such an adhesion of that coat to the albuginea testis sometimes followed, as caused an abolition of the cavity of the former, and consequently a radical cure. Though this happened now and then, and the cure was really accidental, yet it furnished a hint for attempting to attain the same end, with a much greater degree of certainty. This was, by dividing or laying open the whole cavity or bag containing the water: and that, sometimes; by a mere simple division of it; sometimes, by the total removal of some part of it.

Paulus Ægineta, Albucasis, Severinus, and many others of the best of the ancient writers, have given a particular account of this operation; and it has at all times been practised by some, though it has generally been decried, and dreaded. In what manner, and with what caution it may have been executed, by those who have given so bad an account of it, I know not; but by what I have

seen of it, I am very confident that the ills attending it have been much exaggerated; that, under proper cautions and restrictions, it will be found to be practicable with perfect safety; and that it ought by no means to be laid aside. Some writers of very good character have appeared very averse to it, and have ascribed to it such symptoms in general, as are indeed very alarming; but which do not occur, unless the operation be performed improperly, or on subjects unfit for it. I have practised it very often, and do not remember to have seen any ill effects from it, more than two or three times. I would be very cautious how I advanced any thing in a matter of this kind, which experience would not vindicate, or by which others might be misled; but I have so often made the experiment, and with such success, that I cannot hesitate to assert, that under the necessary restraints, regarding age, habit, state of the disease, &c. it is a very useful operation, and may be practised with great propriety. I may, perhaps, be thought to speak better of it than it deserves: I am not conscious that I do; but I am much inclined to believe, that they, who appear so averse to it, have either practised it on improper subjects, and improper circumstances, or, having imbibed a prejudice against it, have been unnecessarily alarmed at what would not in other cases have alarmed them; or, that not being sufficiently apprehensive and attentive, they have suffered their patients to get into circumstances of hazard, which are not justly chargeable on the operation merely, and would not happen under more careful management.

Advanced age, an apparently bad or cachectic habit, a disposition to anasarcous or leucophlegmatic swellings, an intemperate life, the custom of drinking spirituous liquors, and any such general disorder in the constitution as is likely to increase the symptomatic fever, which such an operation must necessarily produce, are just objections to it: any disease of the glandular part of the testicle, its coats or vessels, an old irreducible hernia, a diseased state of the urethra, prostate gland, or neck of the bladder, are (while they continue) good reasons for not performing it: but *consideratis considerandis*, in young and healthy people, and in a recent state of the disease, this method of obtaining a radical cure is a very good and a very practicable one.

The method of performing the operation is as follows: Having appointed an assistant to grasp the upper part of the tumor, in order to render it tense below, a puncture should be made in the lower and anterior part, through the skin and vaginal coat. If the operator intends to finish the incision with a knife, he should make this puncture large enough to admit the end of his fore-finger; which he should introduce immediately, before the water is all discharged, and the vaginal coat collapsed; and upon that finger so introduced, he should continue his division of the whole length of the bag, and of the scrotum which covers it. If he intends to use the probe-scissors (a more tedious and a more painful method), he may make his first puncture with a lancet, and then introduce his scissors. Upon the first division, the water rushes out, and the tumor subsides: if the puncture be made small, a part of the fluid will insinuate itself into the cells of the dartos, and by the immediate collapsion of the vaginal coat, the operator will find some difficulty in introducing either his finger or his instrument into the orifice made in it; if he does not do this, he will divide only the skin and the dartos, and the patient must undergo a second incision, for the division of the cyst: all which inconvenience may be avoided, by making the first opening large enough for the introduction of the finger; and when that is in, all the rest is, upon that, very easily executed.[x]

When the vaginal tunic is divided, and the fluid thereby discharged, the testicle, covered only by its tunica albuginea, comes into view; and if the incision was either begun, or continued very low, it generally thrusts itself out from the wound. This should be gently replaced; and if the vaginal coat is not much thickened by having been long distended, nothing more need be done, than

[x] Some practitioners, terrified at the accounts which they have received of the operation, and yet being desirous of producing a radical cure in this manner, have thought that they might lessen the hazard, by reducing the size of the incision; and therefore make a very small one: but whoever depends upon this, will find himself mistaken. An incision made one-fourth of the length of the sac will be attended with all the trouble and hazard, which follow one of two-thirds; with this additional inconvenience, that the former will very often prove ineffectual at last.

to lay a small quantity of fine lint[y] into its cavity; and then covering the wound with a large pledget and a soft bolster, tie the scrotum up in a suspensory bag. This operation, if properly performed, may be executed in a very few seconds: it requires no other violence, than the mere division of the parts; and if this divison be made with a knife, rather than scissors, it will require much less time, and cause much less pain.

The membranous structure of the parts on which this wound is inflicted; their continuation from the peritoneum; and the great irritability of some of those which are necessarily laid bare, and put under a necessity of receiving dressings, must occasion pain and symptomatic fever. This it is the business of art to moderate and relieve: phlebotomy, lenient aperitives, febrifuges, and opiates, will therefore become necessary. But in this case, as in many others, it will generally be found much more easy to prevent bad symptoms than to remove them, when they have been permitted to attain a considerable height. The operation is, or ought to be, confined to the young and the healthy, in whom inflammatory symptoms are most likely to occur; but (I believe I may venture to say) to whom we have more efficacious remedies to apply in such disorders, than can be used to people of a different habit, and in different circumstances.

The general induration of all the parts about, the thick tumid lips of the incision, and the general inflammatory enlargement of the scrotum, have for the first four or five days a disagreeable appearance; and may, if neglected or mistreated; prove very troublesome or even hazardous; and the kind of discharge, which during that time is made, (a thin discoloured gleet,) seems very unequal to the reduction of so much tumefaction; but when the febrile symptoms are appeased, and a kindly suppuration begun, let the surgeon have patience, and not by an over-officiousness, or by improper dressings, interrupt nature in what she is about: let him, by warm fomentations, keep the parts clean and perspirable; let him dress the wound with a small quantity of soft, easy, di-

[y] By no means to fill, or distend it, or to make any pressure on the testicle; whose tunica albuginea is very irritable, as well as acutely sensible.

gestive applications; and covering the whole scrotum[z] with a soft, warm poultice, suspend it in a proper bag; and he will in general, soon see a favourable change in all the appearances; he will see the inflammation disappear, the tumor resolve, and all the tumefaction in due time subside. But if he neglects these general cautions, and under a notion of assisting digestion, goes to work with precipitate and other irritating dressings, the face of things will not be so agreeable; the tumor will not subside; and he will continue, or rather create, a painful, undigested sore, with all its consequences; but, for which, he only is accountable.[a]

[z] The impalpable farina seminis lini, put into boiling water, with a proper quantity of ung. sambuc., fresh butter, or lard, is the easiest made, and is the neatest, softest, smoothest, and most relaxing application of the kind; has nothing offensive in its flavour; nor is it, like most other cataplasms, likely to excite a herpes.

[a] The great hardness which almost always attends inflammations of these parts, has (I suppose) been the reason, why so many writers have advised, and so practitioners still use such applications, as (though really escharotics) are called dissolvers of induration, and removers of obstruction.

I would be very cautious how I made objection to what so many have recommended; and, in a matter of mere speculation, would rather doubt my own judgment, than that of some others: but this is a fact, of which I have too often been convinced to be mistaken; and, therefore, I cannot help saying, that it appears to me, that all applications of this kind, even in the mildest of them (the red precipitate) are generally very improperly used; that they give unnecessary pain; and retard, what they are used with design to expedite.

Inflammatory hardness and tumefaction is not peculiar to the scrotum, upon its being wounded: it is common to all parts of similar structure; that is, the adipose and cellular membrane all over the body.

When such parts are irritated by a large wound, they cannot resist a sudden influx; the consequence of which must, for a time, be obstruction, induration, and swelling: but one moment's reflexion on the natural structure and state of these parts, before such wound was inflicted, or such irritation excited, will prove that ease, relaxation, and free suppuration, must be the intentions proper to be pursued; and that every application, which either stimulates, gives pain, or corrodes, must pervert and counteract such intentions.

The breasts of women, the axillæ of both sexes, the parts surrounding the intestinum rectum, the cellular membrane in the perinæum, under the integuments of the penis, and in several other parts of the body, are liable to this kind of alteration, when injured; but this induration is very unlike to a glandular one, and requires very different treatment. In the latter, a

In about six weeks, the scrotum is generally reduced to nearly its natural size; and when the wound is quite healed, the cicatrix is a mere line, corresponding to the original incision; which is a

destruction of parts is sometimes necessary, and escharotic medicines may therefore be required. But in the former, mere relaxation is all that is wanted: whatever gives ease, and appeases the inflammatory tension, will best produce matter, and answer the purpose which ought to be aimed at.

The most convincing proof of the truth of this doctrine may be drawn from that case, which, of all those which affect this kind of membrane, is generally the most troublesome; I mean the fistulæ in perinæo. In these the induration and enlargement of the parts are sometimes so great, as to be very alarming; hard callous excrescences; deep and long sinuses, with small orifices; constant pain and irritation, from the lodgement of matter and urine; a symptomatic fever of the hectic kind; and a difficulty either of retaining the urine within, or expelling it from the bladder, make a part of the most frequent characteristics of this disease: and yet, even these cases, terrible as they are, do frequently admit relief, and are sometimes even cured, without any destruction of parts, or the use of any one escharotic application: a free division of all the hollow and hard parts; the application of soft, easy digestives, and of a warm, relaxing poultice; a total abstinence from all such external remedies as corrode or irritate; and all such internal ones as, under the title of deobstruents, increase the velocity of the circulation, and waste the patient's strength, by watching, purging, and sweating; and an easy and gradual distention of the urethra, by a simple *unmedicated* bougie; will, in some instances (indeed, in all, where any good can be done at all) remove most of these disagreeable circumstances and appearances: in which cases, a kindly suppuration will be afforded by all the divided parts; a florid, well conditioned incarnation will be the consequence; the cicatrix will be small, soft, and moveable, and very unlike to what must follow from the use of catheretic applications.

This is really a matter of much greater general importance, than it is supposed to be: the symptomatic fevers, which are either produced or maintained by the injudicious application of painful dressing, are much more frequent than they are thought to be: not to mention the loss of time which they must always cause, and the very disagreeable deformities they often occasion.

The surgery of most of our forefathers was coarse and rough; and many of the practitioners affected a kind of brutal, unfeeling rusticity. The old maxim, "Dolor medicina doloris," was so generally received, that the surgeon almost forgot his patient's sensation; and the common people thought they were neglected, if they were not tortured. Lord Bacon's most excellent advice, "Inveniend umquid natura ferat aut faciat," was but half remembered; they tried very sufficiently what nature would bear, but very seldom had patience to know what she could do. Under a mistaken notion of going

circumstance of more consequence to the patient than is imagined, especially if he be obliged to get his bread by labour.

If the tunica vaginalis, containing the water, by long or frequent distention; or from any other cause is become thick and hard, and cannot therefore contract itself, or be contracted, upon the evacuation of the fluid; it will contribute considerably to the thickness of the lips of the wound, as well as to their hardness, pain, and difficulty of digestion. In this case, the best way is to remove a part of it, on each side, at the time of the operation. The cellular structure of the dartos easily admits this to be done; and when these sides are thus taken away, the lips of the wound consist only of the common integuments. A knife will do this with much more ease and expedition than any other instrument whatever. The method proposed by the late Mr. Douglas, of doing it by repeated snips of the probe-scissors, is operose, unhandy, and unne-

to the bottom of wounds and abscesses, and of dissolving indurations, they crammed and distended the cavities, and corroded and irritated their sides, till a train of bad symptoms were often excited, which the original disease had no share in the production of.

That this is no exaggeration, let their works testify; and that something of this kind is still too much in use is too well known. All dressings are in fact extraneous bodies; and when they either consist of such materials as give pain, and excite irritation, or are crammed in with injudicious violence, they are foreign bodies, with other mischievous qualities annexed. Where destruction of parts is necessary, the sooner it is executed the better, and the necessary pain must be complied with; but in the application of dressings to the inside of abscesses, to hollows made by the removal of diseased parts, to large sores attended with hardness and inflammation of the common membrane: in short, wherever mere suppuration is required, they cannot be too light, soft, and easy; all that we have to do is, not to obstruct nature in the execution of those offices, to which she is generally fully equal; in which we can lend her no assistance beyond removing impediments out of her way. In the particular case of the divided tunica vaginalis, that degree of thickness and hardness, which it sometimes acquires by long distention, is urged as a reason for the use of caustic applications: but this is a method of reasoning to which I cannot agree, having often experienced the contrary. That membrane, like all others of the exanguious kind, is difficult and slow of digestion, especially if altered by disease; but that it will in time become sloughy, digest, and yield a kindly suppuration and incarnation, by the mere use of simple, easy applications, and without that of any escharotic, (not even the red precipitate,) I have often and often experienced.

cessarily painful and tedious: nor is the cutting away an oval piece of the scrotum, as advised by that gentleman and some others, at all necessary: on the contrary, the more loose that part of the scrotum is, which is to cover the testicle, (now deprived of its vaginal coat,) the better; as it will be more capable of corrugation.

With these cautions, and under the proper restrictions already mentioned, this method of obtaining a radical cure is very practicable. That it is sometimes accompanied by troublesome symptoms is beyond all doubt; and so is the method by caustic. I cannot say, that I have never seen it prove fatal; nor can that be said of any operation of consequence. Much depends on the choice of a proper subject, and the observance of the necessary means and cautions; without which, both this, and the use of the caustic, will always be troublesome, and sometimes hazardous.

Before I finish the account of this method of cure, I would take the liberty of mentioning one circumstance more, which appears to me to be of consequence. When the quantity of fluid is large, and the scrotum and tunic much on the stretch, I think it is better to discharge the water by mere puncture; and not to perform the operation for the radical cure, until a fresh accumulation has again moderately distended it. The inflammation necessarily consequent upon the division of these parts, just after they have been so much on the stretch, and so suddenly let loose, may be (and I think I might say, that I have seen it prove) productive of worse symptoms, and a higher degree of fever and tumefaction, than usually occurs when the same parts are divided in a less distended state.

This method of obtaining a radical cure by incision, of which I have given the fairest and most impartial account in my power, must always be considered as a matter of choice, and never can be an operation of necessity; that is, they who are afflicted with the disease, for whose cure it is calculated, will always have it in their power to be temporarily relieved by the palliative means, or may make trial of any of the above mentioned less certain attempts, without incurring any, or a very small degree of hazard. Now as this method can never be said to be totally and absolutely void of some danger; as it bears the appearance of an operation of some severity; and as it must always be voluntarily and deliber-

ately submitted to, without any real necessity from the circumstances of the disease; in other words, as it must be chosen by the patient, merely to avoid the trouble and inconveniences attending the disorder, and not necessarily applied to, as some other operations are, to save or preserve life, it does not often happen that we are called upon to practise it.[b]

The number of people labouring under this disease, and who come within the above mentioned necessary restraints, from age, habit, manner of living, date of the complaint, thickness of sac, &c. &c. &c. is great. And that of those, who either have an insuperable dread of an operation, or are so circumstanced or connected in life, as to make any such degree of danger highly improper to be voluntarily incurred, is still greater: so that by far the majority of those who are afflicted with the disorder, are obliged (however irksome it may be, or however disagreeable it may prove to them) to carry it through their life, seeking relief now and then from the palliative remedy of tapping. This renders it, to the active and to the laborious, a complaint of more consequence than is generally imagined.

From these considerations, I have often been induced to think seriously on the subject, and to make many experiments; the result of which, when likely to prove at all useful to mankind, or creditable to the art of surgery, I shall always think myself obliged to communicate.

Every practicable method proposed by the ancients I have tried;

[b] The method of cure of the hydrocele by incision, which Mr. Pott has here so fully described, he did not perform during the last twenty years of his life; on the contrary, in every conversation, public and private, represented it as a severe and unnecessary operation; during which time it has not been performed at St. Bartholomew's hospital. Before that period it was the usual practice.

As this disease has of late been the subject of so much disquisition, and so many improvements have taken place in the treatment of it, I had entertained hopes that the operations by incision and excision would have been wholly laid aside, as I must confess they always appeared to me painful in the execution, and productive of great and dangerous inflammation, often causing a fever which put the life of the patient in considerable hazard. Mr. Cheselden, who was by no means a timid operator, speaking of the cure of the hydrocele by incision, says, "This I have done, and seen done several "times; but never thought the cure worth the trouble and pain the patient "underwent."—E.

and have found them in general painful, fatiguing, hazardous, or inefficacious.

The tent, whether of lint or sponge, is subject to great objections, both in its first application, and its future necessary continuance. The cellular structure of the dartos, and the loose connexion between the skin and tunica vaginalis, render its introduction (unless a cannula be used) sometimes difficult. When in, great care must be taken to keep it there for some time, or the effect intended (an inflammation of the vaginal coat and albuginea) cannot be obtained; and the means made use of for its distention, as well as the nature of the tent itself, (especially if made of sponge,) prove frequently very fatiguing, not to say mischievous, by the irritation and the necessary confinement of the matter. And, after all, I have several times seen it produce only a partial cohesion; and that so small an one, as to prove no cure at all, nor at all prevent the future accumulation of water, or the necessity of frequent tapping.

The cannula, when used for the same purpose instead of a tent, is indeed easily introduced; and when in does not confine the matter: but then its hardness, inflexibility, and thin edge, and the absolute impossibility of directing or managing it in the frequent and necessary motions of the patient, though confined to his bed, render it a very unpleasant and troublesome guest within the tunica vaginalis; and if, to avoid this inconvenience, a piece of bougie be kept within it, this, while it is there, confines, what ought to be discharged.

The point to be aimed at is, to excite such a degree of inflammation, both in the tunica vaginalis and tunica albuginea, as shall occasion a general and perfect cohesion between them: and this, if possible, without the production of slough or abscess; without the hazard of gangrene; and without that degree of symptomatic fever which now and then attends both the caustic and the incision; and which, when it does happen, is so alarming both to patient and surgeon.

These ends I have frequently obtained, by the use of a seton. It is a method of cure mentioned by Aquapendens, as used by Guido, and others before him (though their process was somewhat different from mine). I have several times tried it on subjects of

very different ages, some of them more than fifty years old. It requires confinement to bed only for a few days; after which, the patient may lay on a couch to the end of the attendance; which is generally finished in about three weeks, or a month at the farthest: and, during all that time, no other process or regimen is necessary; than what an inflammation of the same part from any other cause (for example, a hernia humoralis) would require. But for a more particular account of this I must refer the reader to the tract on this subject, which he will find at the end of the present.

SECT. IX.

THE HÆMATOCELE, OR TUMOR FROM BLOOD.

This is a swelling of the scrotum, or of the spermatic process, proceeding from, or caused by blood; and though spoken of by writers as one simple disease, is liable to so considerable variety, both with regard to nature and situation, as to admit, or even require, being divided into several kinds.

Such distinction of the different kinds of hæmatocele, though not usually made, is absolutely necessary toward rightly understanding the disease; the general idea or conception of which appears to me to be somewhat erroneous, and to have produced a prognostic which is ill founded, and hasty. According to my conception and experience in this matter, the disease, properly called hæmatocele, is of four kinds; two of which have their seat within the tunica vaginalis testis; one within the albuginea; and the fourth in the tunica communis, or common cellular membrane, investing the spermatic vessels.

In passing an instrument, in order to let out the water from an hydrocele of the vaginal coat, a vessel is sometimes wounded; which is of such size as to tinge the fluid pretty deeply at the time of its running out. The orifice becoming close, when the water is all discharged, and a plaster being applied, the blood

ceases to flow from thence, but insinuates itself partly into the cavity of the vaginal coat, and partly into the cells of the dartos; making, sometimes, in the space of a few hours, a tumor nearly equal in size to the original hydrocele.—This is one species.

It sometimes happens, in tapping an hydrocele, that although the fluid discharged by that operation be perfectly clear and limpid, yet, in a very short space of time (sometimes in a few hours) the scrotum becomes as large as it was before, and palpably as full of a fluid. If a new puncture be now made, the discharge instead of being limpid (as before) is now either pure blood, or very bloody.—This is another species; but, like the preceding, confined to the tunica vaginalis.

The whole vascular compages of the testicle is sometimes very much enlarged, and at the same time rendered so lax and loose, that the tumor produced thereby has, to the fingers of an examiner, very much the appearance of a swelling composed of a mere fluid, supposed to be somewhat thick or viscid. This is in some measure a deception; but not totally so: the greater part of the tumefaction is caused by the loosened texture of the testis; but there is very frequently a quantity of extravasated blood also.

If this be supposed to be an hydrocele, and pierced, the discharge will be mere blood.—This is a third kind of hæmatocele; and very different, in all its circumstances, from the two preceding: the fluid is shed from the vessels of the glandular part of the testicle, and contained within the tunica albuginea.

The fourth consists in a rupture of, and an effusion of blood from, a branch of the spermatic vein, in its passage from the groin to the testicle. In which case, the extravasation is made into the tunica communis, or cellular membrane investing the spermatic vessels.

Each of these four I have seen so distinctly and perfectly, that I have not the smallest doubt concerning their existence and of their difference from each other.

The tunica vaginalis testis, in a natural and healthy state, is a membrane, which, although firm, is of no great thickness; it is white, or rather of a reddish white colour; and its blood-vessels are (in a healthy state) no more apparent to the eye, than are those of the tunica albuginea; but when it has been long or much distended,

it thereby becomes thick, and tough; and the vessels (especially those of its inner surface) are sometimes so large as to be very visible, and even varicous. If one of these lies in the way of the instrument, wherewith the palliative cure is performed, it is sometimes wounded: in which case, as I have already observed, the first part of the serum which is discharged is pretty deeply tinged with blood.

Upon the collapsion of the membranes, and of the empty bag, this kind of hæmorrhage generally ceases, and nothing more comes of it. But it sometimes happens, either from the toughness of the tunic, or from the varicous state of the vessel, that the wound (especially if made by a lancet) does not immediately unite; but continues to discharge blood into the cavity of the said tunic, thereby producing a new tumor, and a fresh necessity of operation.

This is what I have taken the liberty to call the first species of hæmatocele, and plainly and evidently consists in a wound of a vessel of the vaginal tunic.

Upon the sudden discharge of the fluid, from the bag of an overstretched hydrocele, and thereby removing all counter-pressure against the sides of the vessels, some of which are become varicous, one of them will, sometimes, without having been wounded, burst. If the quantity of blood shed from the vessel so burst be small, it is soon absorbed again, and, creating no trouble, the thing is not known.[c] But if the quantity be considerable, it, like the preceding, occasions a new tumor, and calls for a repetition of the operation. This I call the second species: which, like the first, belongs entirely to the vaginal coat, and has no concern either with the testicle, or with the spermatic vessels. In both, the bag which was full of water, becomes in a short space of time distended with blood; which blood, if not carried off by absorption must be discharged

[c] From this cause it very often happens, that the last running (if I may use the phrase) of the water from an hydrocele, is bloody (all the former part having been perfectly clear); and from hence it is, that a bloody discharge may almost always be produced upon the same occasion, by pressing and handling the scrotum. They who would see a very ingenious account of this kind of hæmatocele, and a very probable application of the same principle, for the solution of some other appearances in diseases, may find it in the Edinburgh Essays from Professor Monro, the father.

by opening the containing cyst; but in neither of these can castration (though said to be the only remedy) be ever necessary: the mere division of the sacculus,[d] and the application of dry lint to its inside, will in general, if not always, restrain the hæmorrhage, and answer every purpose, for which so severe a remedy has been prescribed. The other two are indeed of more consequence: they interest either the testicle itself, or the vessels by which it is supplied with blood, and rendered capable of executing its office; and are sometimes not curable, but by removal of the part.

One of these is seated within the tunica albuginea of the testicle; the other in the tunica communis of its vessels: they are neither of them very frequent; but when they do happen, they call for all our attention.

If blood be extravasated within the tunica albuginea, or proper coat of the testicle, in consequence of a great relaxation, and (as it were) dissolution of part of the vascular compages of that gland, and the quantity be considerable, it will afford or produce a fluctuation, to the hand of an examiner, very like to that of an hydrocele of the tunica vaginalis; allowing something for the different density of the different fluids, and the greater depth of the former from the surface.

[d] It may indeed happen, that the blood of the patient may be in such state, as to be incapable of coagulation: in which case, the hæmorrhage will continue from the inside of the sac, although it be laid open; and also from all the divided parts. This circumstance, though a very hazardous one, cannot be foreseen; nor do I know, in this state of the juices, what benefit can arise from the removal of the testicle; for the hæmorrhage will certainly be continued, from all parts of the wound necessary in such operation, upon the same principle, and for the same reason that it could not be restrained from the inside of the sac. Such an indisposition of blood is often, in cachectic habits, the cause of very troublesome and fatal hæmorrhages, at some distance of time from amputation, as well as immediately. If this want of an agglutinant quality in the blood is not corrected, or is not capable of correction, it generally goes hard with the patient, let the operation be what or where it may: for it is not merely the suppression of the bleeding that is required; the same ill quality of blood will prevent suppuration, produce bloody, sanious gleeting, gangrene, and mortification. This is an evil, of which every practitioner must have seen so many instances, that it is needless to produce particular ones.

If this be mistaken for a simple hydrocele, and an opening be made, the discharge will be blood; not fluid, or very thin; not like to blood circulating through its proper vessels; but dark, and dusky in colour, and nearly of the consistence of thin chocolate (like to what is most frequently found in the imperforate vagina). The quantity discharged will be much smaller than was expected from the size of the tumour; which size will not be considerably diminished. When this small quantity of blood has been so drawn off, the testicle will, upon examination, be found to be much larger than it ought to be; as well as much more loose and flabby; instead of that roundness and resistance arising from a healthy state of the gland, within its firm strong coat: it is soft, and capable of being compressed almost flat, and that generally without any of that pain and uneasiness which always attend the compression of a sound testicle. If the bleeding ceases upon the withdrawing the cannula, (supposing a trocar to have been used,) and the puncture closes, a fresh accumulation of the same kind of fluid is soon made, and the same degree of tumefaction is produced, as before the operation: if the orifice does not close, the hæmorrhage continues, and very soon becomes alarming.

In the two preceding species, the blood comes from the tunica vaginalis, the testis itself being safe and unconcerned; and the remedy is found, by opening the cavity of the said tunic: but in this, the hæmorrhage comes from the substance of the testicle; from the convolutions of the spermatic artery, within the tunica albuginea. The division of the vaginal coat can here do no good; and an incision made into the albuginea can only increase the mischief: the testicle is spoiled, or rendered useless, by that kind of alteration made in it, previous to the extravasation; and castration is the only cure, which a patient in such circumstances can depend upon.

The last species of this disease arises from a bursting of a branch of the spermatic vein, between the groin and scrotum, in what is generally known by the name of the spermatic process. This, which is generally produced by great or sudden exertions of strength, feats of agility, &c. may happen to persons in the best health, whose blood and juices are in the best order, and whose genital parts are free from blemish or disease.

The effusion, or extravasation is made into the cellular membrane, which invests and envelopes the spermatic vessels, and has something the appearance of a true hernia. When the case is clear, and the extravasated blood does not give way to discutient applications, the only remedy is to lay the tumor fairly open, through its whole length. If the vessel or breach be small, the hæmorrhage may be restrained by mere compression with dry lint, or by the use of styptics; but if it be large, and these means do not succeed, the ligature must be made use of. If the bleeding branch can be tied singly, the testicle may be preserved; if it cannot, and the whole spermatic process must be included, it is unnecessary to add, that the testicle must be removed.

CASE XXV.

A HEALTHY man, about thirty years old, desired me to let out the water from an hydrocele; which operation he said, had, for some time past, been performed upon him, twice a year, by the late Mr. Bell, of Red-lion-square; and he desired also that I would do it with a lancet. I let out near a pint, the first part of which was deeply tinged with blood; but as it ran, it became clearer and clearer, and at last was perfectly limpid; and when I put on the plaster, he did not bleed a drop. The next morning he came to me again; told me that he had bled a good deal in the night; and showed me his linen, which was very bloody. As there was no discharge at this time, I only renewed his plaster, put him a bag-truss on, and desired that he would go home and keep quiet. He remained free from hæmorrhage for some hours, and therefore neglecting my last caution, he walked about a good deal, and heated himself, and the next day sent for me to look at his scrotum, which was large and full. Making no doubt, from all the circumstances, that the tumefaction was from blood, I told him my opinion; and at the same time advised, if it did not dissipate by proper attempts for that purpose, to submit to have the vaginal coat laid open, and thereby obtain a radical cure.

Some time was spent in attempting discussion; during which

the tumor increased, and he now and then bled pretty freely from the orifice, which became spongy, and would not heal.

Finding all endeavours ineffectual, he submitted: the tunica vaginalis was laid open; a considerable quantity of blood was discharged (some in a fluid state, but principally grumous;) he had no disagreeable symptoms; and, in about six weeks, was perfectly well.

CASE XXVI.

An elderly man, who had often had a large hydrocele tapped at the hospital, came one day, as usual: I made a puncture with a lancet, and let out the water; but was near half an hour before I could stop an hæmorrhage from the wound.

The next day he came again, and complained to one of my dressers, that he had bled, more or less, all the night. He was properly dresssed; the bleeding restrained; and he was advised to go home, and keep quiet upon the bed.

The third day, when I was again at the hospital, he came and showed me his scrotum; which was as full, and as large, as when I first tapped it: the orifice was not healed; and, upon pressure, blood was discharged from it. He said, that he could not afford to rest from his labour; and my week for accidents being expired, Mr. Crane took him under his care.

He (finding the bloody discharge still continued, notwithstanding the man kept in bed, and was properly taken care of) made a free incision into the tumor; turned out a good deal of coagulated blood with his finger; and then, lightly filling the cavity with lint, obtained a suppression of the hæmorrhage, and produced a radical cure.

CASE XXVII.

A gentleman who used to come to London about every five or six months, to have a large hydrocele emptied, came to me under a great alarm.

Having often had the water drawn off by puncture in London, he determined to let the apothecary of the village where he lived do it for him, and thereby save him the trouble of a journey. The operation was very properly performed, and the bag perfectly emptied: but the next morning, to his great astonishment, he found it as full as before. His apothecary was as much surprised as himself; and the patient got into a post-chaise, and came immediately to London.

Upon hearing this account, and seeing and feeling the tumor, I made no scruple of declaring it to be bloody; and that if it did not soon dissipate by rest, and proper applications, it must certainly be let out.

All attempts for dispersion proved fruitless, the tumor increased, and as his health and habit were good, and his age by no means advanced, I advised him to submit to an incision; by which I hoped that he would not only get rid of the present evil, but would most probably obtain a radical cure. He complied, upon condition, that I would first by puncture satisfy him, that I was right in my conjecture with regard to the contents.

I passed a lancet into the fore-part, and gave discharge to a clear blood: while that was running out, I made, by means of a probe-pointed knife, an incision of sufficient size to admit a dossil or two of fine lint. For a day or two, the symptoms were untowardly, and the discharge was large, and bloody; but by proper care, keeping very quiet, and taking freely of the bark with elixir vitrioli, every thing ended well.

CASE XXVIII.

A LUSTY, healthy man, about forty, who had the care of a manufacturer's warehouse in my neighbourhood, consulted me on account of a large hydrocele of the tunica vaginalis. The tumor was very large, the parts considerably on the stretch, and I advised him to have it tapped directly.

About twenty ounces of clear water were drawn off by means of a trocar, without the appearance of a drop of blood. As he had carried his burthen long, and had never been relieved from it be-

fore, he was much surprised at this immediate ease, and went to work as soon as he got home.

The next morning he came to me much alarmed, and showed me his scrotum; which was full half as big as before the puncture had been made. I had no doubt that its present contents was blood; and was very apprehensive that it might require the same treatment as the preceding case: which, in his constitution, and manner of living, must have been attended with hazard.

I ordered him home to bed immediately, took some blood from his arm, and directed a cooling purge to be taken the next morning; the scrotum was suspended, and wrapped in a rag folded seven or eight times, and wetted in a solution of sal. ammon. crud. in vinegar and water, and he had direction to keep it constantly wet. On the third day I bled him again, and ordered him another purge for the fourth, and continued the same application.

Finding the swelling quite at a stand, and imagining that by mending his state of blood, a further effusion might possibly be prevented, and an opportunity given for the absorption of what was already shed, I advised him to take a dram of the cortex every six hours: this he did for as many days; during which, the tumor visibly lessened: and, by persisting in the same method, he got well: that is, all that degree of tumefaction, which I suppose to have been caused by blood, disappeared. After some months the scrotum became large again; and he followed the advice which I had given him; *viz.* to have the fluid drawn off, before it attained too large a size. I have several times since tapped it, and have always drawn off a clear fluid.

CASE XXIX.

A MAN, about forty-seven, of a sallow complexion, and subject to colicky complaints, had the water drawn off from an hydrocele of the vaginal coat, by means of a small trocar. The quantity was near a pint; and the bag was perfectly emptied. The next morning it seemed to contain a fluid, although in no great quantity: he showed it to the person who tapped him the day before, and who advised him to put on a bag-truss, and to take a smart

purge. In three days it was so manifestly increased, as to alarm the patient, and make him desirous of further advice.

On the sixth day from the first operation, I saw him, and found the scrotum so much enlarged, that I made no doubt the vaginal tunic contained at least seven ounces, which I suspected to be blood.

I advised a discutient application, and the free use of the cortex; but this did not suit the humor, either of the patient or of his surgeon. He took three or four purges of rad. jalap. and made use of a warm fomentation. At the end of about a month, I was desired to see him again. The tumor was larger, and his strength impaired by his purging. It appeared to me to be now of such a size, and in such state, that nothing but the operation could serve him; and for which I prepared him, if the puncture should produce a discharge of blood only. An opening was made with a lancet, and the discharge was clear fluid blood: I would have proceeded, but the patient would not permit me: and he was dressed with a superficial pledget, and a plaster.

Blood oozed from the orifice all that night, and part of the next day; and when I saw him again, he could not have lost less than a pint.

I was well aware, what might be the consequence of a division of the tunica vaginalis, in such a habit; but, at the same time, it seemed to be the unicum remedium, for he would take no medicine. The hæmorrhage continuing another day, he submitted. The operation discovered no one bleeding vessel; nor did I imagine that it would, being convinced that it came from the inside of the tunic. He was dressed with dry lint, and put to bed with an opiate. All that night, and the succeeding day, the discharge was large and bloody: and the lips of the incision, on the second, were flabby, and free from inflammatory tumefaction. I told him my opinion freely, and pressed him to take the bark, or have more assistance; both which, at that time, he refused to do.

On the close of the third day, the hæmorrhage still continuing, he becoming sick and faint, and his pulse failing a little, he was alarmed, and permitted us to direct for him. A draught, consisting of a dram of bark, half a dram of confect. cardiac., and three or four drops of tinct. thebaic., was ordered to be taken every four hours.

Not to make the account tedious, by a relation of every minute circumstance, he persisted in this method, and it was four days before the bleeding ceased, or the edges of the incision became inflamed, or showed any tendency toward the suppuration. But at last, with some difficulty, he got well.

CASE XXX.

A LABOURING man, who had fallen down in the street with a load on his back, was brought into St. Bartholomew's hospital, on a suspicion of his having got a rupture, in consequence of his fall; he having immediately perceived a swelling in his groin and scrotum, which he had not before.

The tumor seemed to occupy the whole spermatic process; which was so enlarged by it, that it was impossible to feel the passage of it from the abdomen, through the muscle: but the testicle below it was perfectly distinct.

The appearance of a tumor, the suddenness of its formation, the distinct situation of the testicle below, and an accidental circumstance of the man's not having had a stool for two days past, inclined Mr. Freke (whose week it was) to believe it to be, and to treat it as, a rupture. He made some attempts for reduction; and, finding them fruitless, determined upon the operation immediately.

He divided the skin and membrana adiposa, down to what he took to be the hernial sac; and when he had so done, had a mind to endeavour at the return of the intestine, without opening the sac.

Mr. Freke was a man not easily to be dissuaded from what he had a mind to do; and having got the whim into his head, was determined to make the experiment on this, which he thought a fair case for the purpose. Accordingly (with his probe-scissors) he divided the tendinous opening in the abdominal muscle; and then again tried to reduce the gut, but to no purpose; for nothing would go up. At last, though with much reluctance, he was obliged to lay open the containing membrane. He had no sooner done this, than a large quantity of blood, partly fluid, and partly grumous, burst forth, and the whole tumor subsided; leaving

the process perfectly free; and containing neither intestine nor omentum.

The parts were now washed clean, and diligent search made for the breach whence this blood issued; but none could be found: the man was dressed with lint and pulv. boli armen. (a method of dressing, which Mr. Freke was fond of) and, in a proper space of time, the man got well without any new hæmorrhage.

In this case, some of the circumstances might be said to render an intestinal hernia not improbable; and the want of stools might have increased such probability: but then it should have been considered, that although this be one symptom of the strangulated intestine, yet it is not, by any means, an univocal, or infallible one. A want of stools may happen from other causes, even in a person who has a rupture, but cannot singly be a reason for the operation immediately; which ought to be indicated and authorised by other concomitant symptoms and appearances. A costive habit may attend a person who has an intestinal hernia, when the gut labours under no stricture, and does its office perfectly well in the scrotum; but such patient will not have the symptoms of an incarcerated intestine; nor indeed had this man. His not having been at stool two days before, was an accidental circumstance; which might or might not have been occasioned by the descent of a piece of the intestinal canal: the truth of which should have been proved by the use of a clyster and a purge, before an operation had been performed.

CASE XXXI.

A YOUNG fellow, straining to get rid of a hard stool, felt a sudden pain in his left groin; and, upon examination, found a swelling, extending from thence into the scrotum. He took it for a rupture, and immediately applied to an advertising operator; who, after several unsuccessful attempts to reduce it, put a truss on him; and told him that the tumor would gradually shrink to nothing. The truss he wore for some days, when, finding both his pain and swelling increase, he applied to a surgeon in his own neighbourhood; with whom I saw him.

The tumor was large, and had somewhat the feel of an omental hernia; the abdominal aperture seemed to be dilated by it; the testicle was tolerably distinct below; his pain in an erect posture was considerable, but in a supine one, very little: he had neither heat, nor quickness of pulse, nor hiccough, nor vomiting; and had been thrice at stool that day.

As there was no reason for supposing any degree of stricture on the intestinal canal, I advised the keeping him in bed, bleeding him freely, and trying what a proper poultice would do.

This method was tried for several days, but without any benefit: on the contrary, the pain increased, as well as the tumor; and a fluctuation within became palpable.

This fluid I thought possibly might be collected in the sac of an omental hernia (a case which I had more than once seen); and as there was plainly enough in quantity to render a puncture perfectly safe, we made one with a lancet, and let out some ounces of clear blood.

When the swelling was thereby lessened, we felt the spermatic vessels, but could discern them very indistinctly; and the process seemed much loaded and enlarged.

Next day the man was perfectly well in health; but the scrotum looked swelled, and black, as if it had been much bruised: he had also bled from the puncture, which was not closed, and discharged blood freely, upon any pressure being made above.

Though we were in some doubt concerning the true nature of the case; yet it was clear, that if the hæmorrhage continued, the part must be laid open.

For three or four days it continued, notwithstanding all our endeavours; and at last it was so considerable, as to indicate the operation immediately.

A knife was introduced into the orifice made by the lancet, and an incision of some length made; but no sacculus, no particular cavity found; nothing like a hernial sac, or tunica vaginalis testis; in short, nothing but cellular membrane; which satisfied us that the blood must come from the spermatic chord.

As the bleeding still continued, and was derived from a part above our incision, we continued it quite up to the groin, and found that all the cellular membrane of the process was loaded

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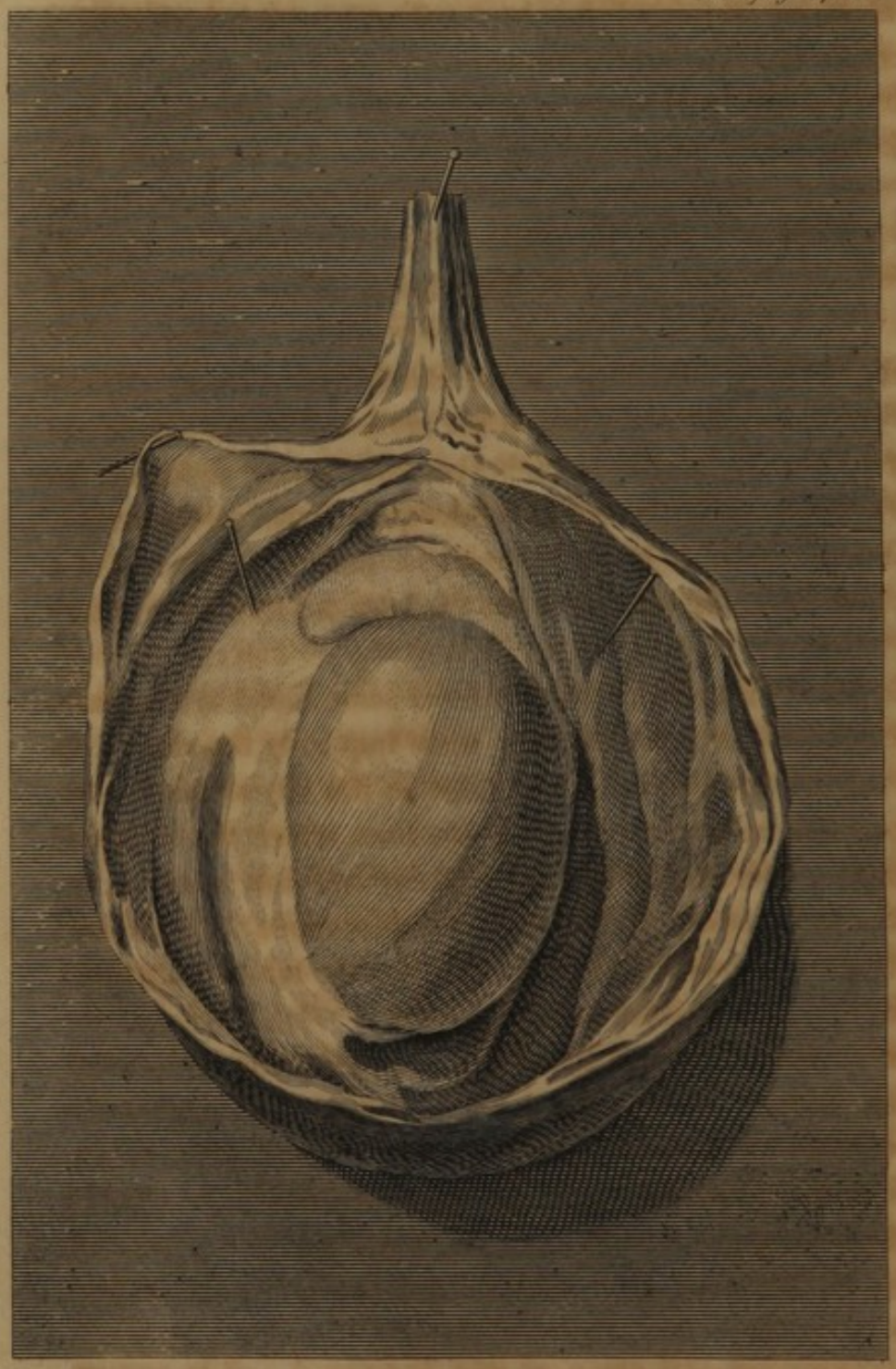

Jacob J. Hooker Sc.

with extravasated blood; and that it came from a considerable breach now in view. We dressed it with lint, pressed out from a styptic, and intended to have permitted that dressing to have remained on for a day or two: but we were soon sent for on account of an alarming return of the hæmorrhage; which had been so considerable as to produce a swoon.

Castration appeared to us to be the only remedy; and it was immediately performed.

CASE XXXII.

A MIDDLE-AGED man came to St. Bartholomew's hospital, and desired me to look at a swelling in his groin and upper part of the scrotum on the right side; which, he said, came suddenly, by lifting a heavy weight. From the groin quite down to the testicle the spermatic process was enlarged; he had no symptoms of a hernia; and the testis was much too distinct and free for a hydrocele.

While I was examining it, I perceived some blood to drop from the lower part of the swelling; and, upon inquiring the reason, he told me that a puncture had been made in it a day or two before, upon a supposition that the swelling was from water; that it had at intervals bled ever since; but that since it had last stopped, the tumor was increased. From these circumstances, I concluded the swelling to be caused by blood, shed into the tunica communis, from a branch of a varicose spermatic vein.

He submitted to have it laid open: no particular breach was discovered, though the whole membrane was much loaded: the wound was dressed with lint pressed out from spirit. vin. These dressings were suffered to remain on, until they were separated by a beginning suppuration: and by keeping quiet, and being properly taken care of, the man got well, without any return of hæmorrhage.

CASE XXXIII.

A POOR man was brought to my house, by a gentleman of the profession, for my own opinion concerning a tumor of the scrotum.

The swelling was large; of a globular kind of form; painful, not only in general from its weight, but often even when suspended, or when the patient was in bed. It palpably contained a fluid; but the fluctuation of that fluid was not (to my fingers) like the fluctuation of water. In all the posterior part of the tumor, an enlarged, and somewhat hardened testicle might plainly be distinguished; and the general weight of the whole far exceeded that of any hydrocele I had ever met with of equal size. That it was not a mere simple hydrocele I was very clear: but, whether it was a collection of fluid in the tunica vaginalis of a diseased testicle, (what is in general called a hydro-sarcocele,) or what other morbid or altered state of parts it might be owing to, I would not pretend to say. A puncture was made in it with a small trocar; and about four ounces of dark-coloured blood, not so fluid as blood generally is while circulating in its proper vessels, was drawn off; a bit of plaster and lint was applied to the orifice, and the man went about his business.

In two days the same surgeon brought the man to me again. The puncture was healed; but the tumor was as large as when I had seen it two days before, and palpably contained the same kind of fluid. What that was we knew: and the consideration was, what was the properest method of giving the man relief. Had he been in good health, I believe I should have advised laying the tumor open; at least so far as to have obtained a more precise knowledge of its nature; but the patient's age and general health were such as would by no means make an operation of that sort an eligible thing. He was near to sixty; asthmatic; had drank freely, and had a yellow countenance, and swelled legs in consequence of it. I advised him to come into the hospital, and try whether, by proper care, his habit might not be mended. Soon after his admission, I had a mind to see whether the contents of

the tumor were really the same as before, and made a puncture in it again with the trocar; the discharge was again blood; and it was two days from this operation, before a bloody discharge from the orifice ceased.

A continuance of dram-drinking brought on a general anasarca, and an extravasation of water in the abdomen; and when he had been in the hospital about two months, he died.

I would not omit the opportunity of examining his scrotal disorder; and found, that the trocar had, at each operation, pierced the tunica albuginea, that the bloody extravasation was within that coat; that the tunica vaginalis was almost universally, though slightly, adherent to the surface of the albuginea; that the vascular compages of the whole testicle was much enlarged, and at the same time so loosened, that a part seemed to have been dissolved into the fluid which produced the fluctuation, which fluid was mere blood; and that the epididymus was hardened, and very considerably enlarged.

I have since had an opportunity of seeing a patient labouring under the same complaint; whose testicle was rather hastily, and inadvertently, laid open; that is, divided. The immediate consequence was a large and obstinate hæmorrhage. Whether it was produced by the division of the substance of the testicle, or by the irritation of such applications as were made use of for stopping the bleeding, I will not pretend to say: but when I saw him, he had a rigid neck; and was what is commonly called jaw-locked. Castration, from the state in which his testicle was when I saw it, must have been the only remedy for his local complaint; but his spasmodic attack rendered that improper, and every thing else fruitless.

I have also (from a very ingenious practitioner of my acquaintance) received an account of a similar case, in which the testicle was divided, and the hæmorrhage (from the patient's obstinate refusal to submit to the operation of castration) proved at last fatal.

SECT. X.

To the different kinds of hydrocele, which have already been mentioned, some of the modern French writers have added another, *viz.* that which is formed by a collection of fluid in the sac of a true hernia.

The title of this clearly describes its true nature; and therefore I shall only inform the reader of what has fallen within my own knowledge relative to this disease.

CASE XXXIV.

A YOUNG fellow, about twenty-five years old, applied to me on account of a swelling in his scrotum. It was large, of an irregular figure, not very tense, perfectly indolent, and accompanied with a remarkable fulness of the spermatic process.

The account which he gave of himself was, that he had had a rupture as long as he could remember; that he had, on that account, worn a steel truss for many years; that, upon taking his truss off, his rupture always came down immediately, and was very easily returned up again; that it had never occasioned any obstruction in his stools, nor given him any pain; that, about a year ago, he had been persuaded to leave his truss off, and to substitute in its place, a bandage made of dimity, without any iron in it, but which had been buckled on very tight; that, when he had worn this bandage about six months, he found that his rupture was down, and that he could not get it up again; that, upon this, he had applied to the person of whom he bought the bandage; who, after he had ineffectually tried to reduce the rupture, sold him another bandage, and buckling it on still tighter than the first, assured him, that it would never do him any harm; that, from the time of putting on this second, his scrotum had gradually become larger, with considerable pain and uneasiness.

From the feel of all the lower part, I made no doubt that the tumor contained a considerable quantity of fluid; and had there

been no other circumstance to influence my judgment, I should have supposed the disease to have been a hydrocele of the tunica vaginalis testis; but the very distinct and particular account which the man gave of himself, and the feel and the appearance of the spermatic process, made me hesitate.

Whatever might be the true nature of the case, a fluid there certainly was; and that in quantity sufficient to render the discharge of it both safe and warrantable. I made a puncture in the middle and anterior part, and let out above a pint of brown serum. This discharge removed all the swelling from below; but made little or no alteration, either in the look or the feel of the upper part of the process. I endeavoured to reduce it; but found it impracticable, and desisted; advising the man to let it alone, to wear no bandage of any kind; and if at any future time it became troublesome to him, I desired that I might see it.

In about a year's time, he came to me again, with his scrotum as big as before, and palpably containing a fluid.

As I had felt the testicle very plainly after the first operation, and as I did not believe the tumor in the process to be formed by the intestine, I advised him to have the whole laid open. He submitted, and I took him into the hospital for that purpose. I made an incision, from the middle and anterior part of the scrotum, quite up to the groin, and found in the lower part of the bag, which contained the fluid, the testicle covered only by its proper coat, or tunica albuginea; and in the upper part, or neck of the same bag, a considerable portion of omentum. The upper part of this portion of caul was hardened in its texture, and so perfectly adherent to every point of the neck of the sac, as to prohibit the return of even a fluid from thence into the belly: but the lower part was in its natural state, loose, soft, and capable of being expanded. All the lower or loose part I cut off, without making a ligature, or being troubled with any hæmorrhage; the upper part I left as I found it; filled the wound lightly with dry lint, and treated the case as I should have done that of the radical cure for an hydrocele. In about seven weeks the man got well, and has ever since remained so.

This man's rupture was of the congenial kind; and therefore the sac of the hernia, and that of the hydrocele, were the same, *viz.* the tunica vaginalis testis.

CASE XXXV.

While the first edition of this book was in the press, Mr. Spray desired me to visit a patient with him, who had some pressing symptoms of a strangulated rupture.

The patient was a healthy young man, about twenty-two years old, and he gave the following account of himself.

That, as long as he could remember, he had been subject to a rupture, which never came lower than his groin, was always easily put up, and had never given him any trouble; that he had, when a child, worn a truss, but, either from its being ill-made, or from his not knowing how to put it on, it had never answered the purpose, and that he had for some years disused it; that, for a month or two past, his rupture had been constantly down; and that, within that space of time, he had never been able to return it, though he had often tried; that still, as it gave him no pain, nor produced any other inconvenience than the mere swelling of the scrotum, he had taken no notice of it, nor applied to any body for assistance until within the last three days; since which, he had been affected with great pain in his belly, a stoppage of stools, and a vomiting.

The lower part of the scrotum was much enlarged, contained a considerable quantity of fluid, and bore very much the appearance of a hydrocele; but the upper part, or spermatic process, was hard and painful, and seemed to be girt tight by the tendon of the abdominal muscle. This, added to an extreme tightness of his belly, want of stool for three days past, anxiety, restlessness, vomiting, and beginning hiccough, determined me to propose the operation immediately.

The lad consented, and I made an incision from the upper part of the tumor, just above the abdominal opening, quite down to the bottom of the scrotum.

Having carefully divided the cutis and common membrane, I came to what appeared to be a hernial sac: this I opened, and thereby let out about half a pint of clear limpid water; upon the discharge of which the whole tumor of the scrotum subsided; and my assistants were convinced, that I had mistaken a hydrocele for

a hernia. But, although the whole of the swelling of the scrotum was entirely dissipated by the discharge, yet the tumor and hardness about the abdominal opening was unaltered, and the patient's pain the same. With a probe-pointed knife I laid open the whole sac, whence the water had proceeded, quite down to its bottom; and found the naked testicle within it: this gave the disease still more the appearance of a hydrocele, and I began to think that it was so; but, upon passing my finger up to examine the state of the abdominal tendon, I found a small portion of intestine engaged in it, and bound extremely tight. I lengthened the incision, so as to have a fair view of it, and thereby we all became thoroughly satisfied of the true nature of the case. The piece of intestine was small, a good deal darkened in colour, and bound so tightly by the tendon, that it was with great difficulty that I could introduce my finger for the conveyance of the knife. When I had made a sufficient dilatation, I endeavoured to return the gut; but could not execute it, although there was no obstruction from the tendon. I drew out some inches of it, thinking that I might thereby be enabled to make the return more easily: that which I drew out, I replaced with the utmost ease; but could not disengage the small portion which made the original disease. At last, passing my finger round in the dilated opening, I found that the intestine adhered to the lower border of it, by a small membranous filament; upon the division of which the gut slipped in immediately.

The young man had stools very soon; and, by proper care, very soon got well.

This also was a congenial hernia; the sac which contained the intestine, the fluid, and the testicle, being the tunica vaginalis: but had I been contented with merely dividing the tunic, and had not proceeded in the examination and division of the abdominal tendon, the lad would have been destroyed by the stricture.

SECT. XI.

The rest of the false herniæ (as they are called) are the pneumatocele, the varicocele, the cirsocele, and the sarcocele; to which, some have added the hydro-sarcocele.

The first of these is (as I have already said) a mistake: there is no hernia produced by mere wind. The two diseases, which, in new-born children and infants, are taken for, and called wind-ruptures, are, a tumor produced by a small quantity of fluid remaining in the lower part of the tunica vaginalis, after its communication above with the cavity of the belly is closed; and a true (but small) intestinal hernia.

The varicocele is a dilatation of the blood-vessels of the scrotum. These are of different size, in different people; and, like the vessels in other parts of the body, are liable to become varicose; but are seldom so much enlarged as to be troublesome, unless such enlargement is the consequence of a disease, either of the testicle, or of the spermatic chord. When this is the case, the original disease is what engages our attention, and not this simple effect of it; and therefore, considered abstractedly, the varicocele is a disease of no importance.

The cirsocele is a varicose distention and enlargement of the spermatic vein; and, whether considered on account of the pain which it sometimes occasions, or on account of a wasting of the testicle, which now and then follows it, may truly be called a disease. It is frequently mistaken for a descent of a small portion of omentum. The uneasiness which it occasions is a dull kind of pain in the back, generally relieved by suspension of the scrotum. It has been supposed to resemble a collection of earth-worms; but whoever has an idea of a varicose vessel, will not stand in need of an illustration by comparison. It is most frequently confined to that part of the spermatic process which is below the opening in the abdominal tendon; and the vessels generally become rather larger, as they approach nearer to the testis. In books are to be found prescriptions for lessening the distended veins; but I cannot

say that I ever saw any good effect from external applications of any kind.

In general, the testicle is perfectly unconcerned in and effected by this disease; but sometimes it happens, that it makes its appearance very suddenly, and with acute pain, requiring rest and ease; and sometimes, after such symptoms have been removed, I have seen the testicle so wasted, as hardly to be discernible.

CASE XXXVI.

A young fellow, on a journey, found himself one evening more than ordinarily tired; and, as soon as he got to bed, was seized with a violent pain in his back, which (to use his own words) shot down into his stone.

The pain was so great, as to oblige him to send for somebody immediately, who bled him freely: this produced no relief, nor was the pain yet attended with any tumor of the scrotum, or testicle; or by any appearance whatever of the parts affected. The pain continued, without remission, all the next day: he was again let blood, had a clyster, and a gentle purge. On the third day, toward evening, the pain totally left him, and a fulness appeared in the groin, tending down toward the testicle: this made him so uneasy, that, finding the apothecary, who had the care of him, did not seem clearly to know what it was, he got into a post-chaise, and came home to London.

His journey brought on a return of pain: but by losing some more blood, keeping in bed, applying an emollient poultice to the groin, and suspending the parts in a bag-truss, he became easy, and all the tumefaction dispersed; except a small fulness of the spermatic chord, occasioned by the varicose state of its vessels. But the testicle was so diminished, as to be hardly perceptible; and remains so, to the time of my writing this.

CASE XXXVII.

An ostler, at an inn in Smithfield, was, by the fall of a horse, thrown over his head, and his groin struck against the pummel of

the saddle. It gave him exquisite pain; and he was brought immediately to the hospital, upon a supposition that he had burst himself.

Upon examination, no swelling appeared, either of the testicle or of the spermatic chord; but the pain (which he said was exquisite) was confined to that part of the latter, which is between the testicle and the groin.

He was largely blooded, had a clyster, and a purge: his pain continued two days; and, when it left him, the spermatic vessels became greatly varicose. No application, which was made use of on this account, proved at all beneficial; that is, rendered the distended vessels at all less; and, when he left the hospital, he was perfectly free from pain: but his testicle, on that side, was scarce discernible.

I once saw the same effect, from the injudicious application of a truss, on a true circocele: the vessels, by means of the pressure, became enlarged to a prodigious size, but the testicle shrunk to almost nothing.

CASE XXXVIII.

A YOUNG gentleman about twenty-five years old, after having heated himself much with exercise, went too soon into a river to bathe. In the middle of the ensuing night, he was seized with a coldness and shivering; which were followed with great heat and thirst, and a slight sweat. He sent for a surgeon, who bled him and gave him a clyster, bid him keep in bed, and drink plentifully. Next day, he gave him a laxative medicine, and some febrifuge draughts.

For three days, his fever was unremitting; but on the fourth he became cooler, and was seized with a most acute pain in his loins; for which he was again bled and purged. On the fifth day, his back became easy; but both testicles, though very little swollen, were so tender, as hardly to admit the touch; and, in a very few hours, the spermatic vessels were so distended, as to make an apparent tumor. By means of fomentation, poultice, and rest, all uneasiness was removed in about a fortnight; but, at the end of

that time, both patient and surgeon were excessively astonished, at not being able to find the testicles. The latter came to London immediately, and desired me to examine him, after having given me the preceding account.

The spermatic vessels were full, and varicose; the vasa differentia too large, and rather too hard; as were also the epididymes: but there was not, on either side, the least appearance of a natural testicle. A flattened, compressed kind of membranous substance (which, I suppose, was the tunica albuginea) seemed to hang from each epididymis; but there was not any trace or vestige of the glandular or vascular parts of either testis.

This is the only time I ever saw this complaint on both sides in the same subject.

SECT. XII.

THE SARCOCELE, OR DISEASED TESTICLE.

THIS is a disease of the body of tne testicle; and, as the term implies, consists, in general, in such an alteration, made in the structure of it, as produces a resemblance to a hard, fleshy substance, instead of that fine, soft, vascular texture, of which it is in a natural and healthy state composed.

The ancient writers have made a great number of distinctions of the different kinds of this disease according to its different appearances, and according to the mildness or malignity of the symptoms, with which it may chance to be attended. Thus, the sarcocele, the hydro-sarcocele, the scirrhus, the cancer, the caro adnata ad testem, and the caro adnata ad vasa, which are really little more than descriptions of different states and circumstances of the same disease, are reckoned as so many different complaints, requiring a variety of treatment, and deriving their origin from a variety of different humours.[e]

[e] "Humores crassi sunt duo, pituita et melancholia, e quibus tum scirrhi "in aliis partibus, tum indurationes carnæ in testiculis oriuntur. Tumor hic

Every species of sarcocele consists primarily in an enlargement, induration, and obstruction of the vascular part of the testicle; but this alteration is, in different people, attended with such a variety of circumstances, as to produce several different appearances, and to occasion the many distinctions which have been made.

If the body of the testicle, though enlarged and indurated to some degree, be perfectly equal in its surface, void of pain, has no appearance of fluid in its tunica vaginalis, and produces very little uneasiness, except what is occasioned by its mere weight, it is usually called a simple sarcocele, or an indolent scirrhus. If, at the same time that the testis is enlarged and hardened, there be a palpable accumulation of fluid in the vaginal coat, the disease has by many been named a hydro-sarcocele. If the lower part of the spermatic vessels and the epididymis were enlarged, hard, and knotty, they supposed it to be a fungous or morbid acretion, and called it the caro adnata ad vasa. If the testicle itself was unequal in its surface, but at the same time not painful, they distinguished it by the title of caro adnata ad testem. If it was tolerably equal, not very painful, nor frequently so, but at the same time hard and large, they gave it the appellation of an occult or benign cancer. If it was ulcerated, subject to frequent acute pain, to hæmorrhage, &c. it was known by that of a malignant or confirmed cancer. These different appearances, though distinguished by different titles, are really no more than so many stages (as it were) of the same kind of disease, and depend a great deal on several accidental circumstances; such as age, habit, manner of living, &c. It is true, that many people pass several years with this disease, under its most favourable appearances, and without encountering any of its worst; but, on the other hand, there are many, who, in a very short space of time, run through all its stages. They who are most conversant with it, know how very convertible its mildest symptoms are into its most dreadful ones; and how very short a space of time often intervenes between the one and the other.

"est durus, tactui renitens, indolens, et si exquisitus sit scirrhus, sensu "caret. Si a melancholia oriatur, color sublividus; si a pituita, colorem "cutis non mutat; si a melancholia superassata, dolor punctorius, et inequa-"lis tumor; hic durus, ibi mollis."

FAB. AB AQUAPENDENTE.

There is hardly any disease, affecting the human body, which is subject to more variety than this is, both with regard to its first manner of appearance, and the changes which it may undergo.

Sometimes the first appearance is a mere simple enlargement and induration of the body of the testicle; void of pain, without inequality of surface, and producing no uneasiness nor inconvenience, except what is occasioned by its mere weight. And some few people are so fortunate to have it remain in this state for a very considerable length of time, without visible or material alteration. On the other hand, it sometimes happens, that very soon after its appearance in this mild manner, it suddenly becomes unequal and knotty, and is attended with very acute pains, darting up to the loins and back; but still remaining entire, that is, not bursting through the integuments. Sometimes the fury of the disease brooks no restraint; but making its way through all the membranes which envelope the testicle, it either produces a large, foul stinking, phagedenic ulcer with hard edges; or it thrusts forth a painful gleeting fungus, subject to frequent hæmorrhage.

Sometimes (as I have already observed) an accumulation of water is made in the tunica vaginalis, producing that mixed appearance, called the hydro-sarcocele.

Sometimes there is no fluid at all in the cavity of the tunica vaginalis; but the body of the testicle itself is formed into cells, containing either a turbid kind of water, a bloody sanies, or a purulent, fetid matter.

Sometimes the disorder seems to be merely local, that is, confined to the testicle, not proceeding from a tainted habit; nor accompanied with diseased viscera; the patient having all the general appearances and circumstances of health, and deriving his local mischief from an external injury. At other times, a pallid, leaden countenance, indigestion, frequent nausea, colic pains, sudden purgings, &c. sufficiently indicate a vitiated habit, and diseased viscera; which diseased viscera may also sometimes be discovered and felt.

The progress also which it makes from the testis upward, toward the process, is very uncertain; the disease occupying the testicle only, without affecting the spermatic process, in some

subjects, for a great length of time; while in others, it totally spoils the testicle very soon, and almost as soon seizes on the spermatic chord.[f]

These, and some other circumstances to be mentioned hereafter, are materially necessary to be observed; as they characterise the disease, point out its particular nature and disposition, and serve as marks whereon to found our judgment and prognostic of the most probable event, as well as the most proper method of treatment. Various have been the causes to which theoretic and whimsical people have assigned this disease; but as a recital of conjectures can convey no instruction or useful information, I shall pass them over; and only take notice, that among the great number which have been mentioned, there are two, which, though equally groundless with the rest, have yet obtained a degree of credit that may mislead: these two are the hernia humoralis, and the hydrocele of the vaginal tunic.

The hernia humoralis is a defluction of the inflammatory kind, proceeding most frequently from an irritation in that part of the urethra, where the vasa deferentia, or vesiculæ, seminales terminate. It is attended with pain and heat, and most frequently fever. During the first, or inflamed state of the disease, the whole compages of the testicle is enlarged; but when by rest, evacuation, and proper applications, that inflammation is calmed, there seldom or never remains, either fulness, hardness, or any other mark of disease in the glandular part of the testis. The epididymis indeed seldom escapes so well: that often continues enlarged and indurated for a considerable space of time, but without producing either pain or inconvenience; and without occasioning any alteration in the figure or structure of what is called the body of the testicle: whereas the true sarcocele, or hernia carnosa, most com-

[f] This is the common language, and therefore I use it; but I would not be understood to mean that the progress of the disease is always and invariably upward, from the testis into the process. I have seen the spermatic process truly cancerous, when the testicle has been free from disease; and am well satisfied, from experience, that a diseased state of the vessels within the abdomen, or of the parts in connexion with those vessels, may produce a morbid state of the process, proceeding downwards from thence; but the other is by much the most frequent.

monly[g] begins by an indolent induration of that part of the testis, and affects the epididymis secondarily; or after it has already spoiled the vascular part of the gland.

I would not be understood to mean, that a sarcocele never follows a hernia humoralis; there is no reason in nature why it should not: a hernia humoralis does not, nor can prevent the testicle, in any future time, from becoming scirrhous; I only say, that it does not, at any time, necessarily cause or produce it. So also with regard to the epididymis; I do not mean to say, that it never is the primary and original seat of a scirrhus; I know that it is, and and shall produce some instances of it. Neither do I intend to say, that a scirrhus never attacks an epididymis, which has been previously hardened by a hernia humoralis: there can be no reason why it should not; I only mean to signify, that it is my opinion, that the induration caused by a venereal hernia humoralis does not, at any time, necessarily produce a scirrhus. A scirrhus indeed may fall on that part, after it has been so diseased, but it would as certainly have attacked it, if there had been no preceding affection of it.

There is also a venereal affection of the testicle, independent of a gonorrhœa, or of any disease of the urethra.

This is seldom an early symptom; and I do not remember ever to have seen an instance in which it was not either immediately preceded, or accompanied, by some other appearance plainly venereal. It has neither the inequality, nor darting pains of the scirrhus, and always gives way to a mercurial process, properly conducted.

A quantity of water is frequently collected in the vaginal coat of a truly scirrhus testis. This has given rise to the supposition, that the testicle often becomes diseased, from its being surrounded by, or swimming in, the same fluid—a supposition entirely groundless.

That scirrhous and cancerous testes very frequently are found to have a quantity of fluid accumulated in the tunica vaginalis of them, is beyond all doubt; but that such testicles become diseased,

[g] I say most commonly, because it is neither necessarily, nor always.

in consequence of being surrounded by such fluid, or, in other words, that a simple hydrocele may produce a scirrhous testicle, is by no means true.

The simple hydrocele is (as I have already at large observed) a collection of water in the tunica vaginalis: this fluid, in a natural and healthy state of the parts, is small in quantity, and, by being constantly absorbed, does not distend the cavity of the tunic, but only serves to keep that membrane from contracting any unnatural cohesion with the tunica albuginea. The regular absorption of this fluid being by some means prevented, the quantity soon becomes considerable, and, distending its containing bag, constitutes the disease called a hydrocele; but makes no morbid alteration in the structure of the testicle.[h]

When the testicle becomes enlarged in size, hardened in texture, craggy and unequal in its surface, painful upon or after being handled, attended with irregular pains shooting up the groin towards the back, and this without any previous inflammation, disease, or injury from external violence, it is said to be affected with a scirrhus. This, as I have already remarked, is of different kinds and degrees, and appears under different forms; but, although the appearances which the disease makes are various, according to the alteration produced by it in the testicle, yet every such morbid alteration may obstruct or prevent the regular absorption of the fluid deposited in the vaginal tunic, and occasion a species of hydrocele; that is, a tumour from water.

This is that kind of disease, which, by Fabritius ab Aquapendente, is called hydro-sarcocele; but which was so very unlike to a simple hydrocele, that, whoever mistakes the one for the other, will commit an error, which may prove very mischievous to his patient, and very detrimental to himself.

In the true simple hydrocele, the testis, though somewhat loosened in its texture, and a little enlarged, yet preserves very nearly its natural form; the collection is made without pain or uneasiness, and very soon becomes sufficient to hide or conceal the testicle; nor is the examination of such tumour attended with any pain; but

[h] That is, no such alteration as renders it painful, or incapable of executing its office; and, consequently, no such alteration as can ever require extirpation, or any other chirurgical operation on the testicle itself.

the increased size, and hardened state of the scirrhous testis, renders it discoverable, through a much larger quantity of fluid than will totally conceal the former. When felt, it will be found to be hard, and generally somewhat unequal, and not unfrequently attended with irregular shooting pains, especially after having been examined.

In the simple hydrocele, the fluid distends the tunica vaginalis so equally, that, although it does not surround the testicle, (nor indeed can,) yet it seems so to do: whereas in the hydro-sarcocele, though the anterior part of the tumor may, in some measure, bear the appearance of a simple hydrocele, yet an examination of its posterior part will always discover the true nature of the case:[i] to which may be added, that, under the same apparent magnitude, the latter will always be found to be considerably heavier than the former.

In short, the name of this species of disease (hydro-sarcocele) is undoubtedly a very proper one, and capable of conveying a very just idea of its true nature, *viz.* an accumulation or collection of water in the vaginal coat of a scirrhous or diseased testicle: but the majority of writers have, by supposing the water to be the cause, instead of the consequence of the diseased state of the testis, committed a very material blunder, and endeavoured to establish and authorise a very prejudicial and destructive method of practice. For, by conceiving that the noxious quality of the fluid produces a fungus or fleshy excrescence on the surface of the testicle, they have supposed, that after having discharged the said fluid from its containing bag, they could, either by establishing a suppuration, or by using escharotic medicines, waste or destroy

[i] This has been very judiciously remarked by Mr Le Dran. Schenkius gives an account of a beginning sarcocele, which was mistaken for an hydrocele; upon which a radical cure was performed by castration. Upon dividing the body of the testis, a quantity of thick fluid was discharged; a thing by no means uncommon, but which was here mistaken for semen. The patient died not long after the wound was healed; and the kidney on that side, and the parts about it, made a very morbid appearance. This appearance was by Schenkius supposed to be owing to the hasty cure of the hydrocele; but was indeed the effect of the same virus which had first spoiled the testicle. Neither was the fluid in the body of it semen, but sanies or matter; a circumstance most frequently met with in scirrhous testes.

the said excrescence, and obtain a radical cure of the whole disease. Now the scirrhosity of the testicle being the original disease, and the extravasation a mere accident, such treatment can never do any material good, and may often be the cause of very essential evil.

Fabritius ab Aquapendente has given a particular description of this method, which he recommends, from having practised it with success: his words are, "Modus singularis est quando hernia "aquosa cum carnosa mista est; tunc enim primum incide, et fac "foramen in parte scroti quæ non sit declivis, neque in fundo "scroti, sed circa medium; nec fac admodum latum: et extracta "aqua, turundam impone quam longissimam, medicamento, pus "moventi infectam, ut resina terebinthinæ, cum thure, ovi vitello, "et butyro; emplastrum emolliens, et pus movens applica, ut "diachylon cum gummis, et axungia porci; genitum autem pus, "non evacueter per forament, sed data opera intus servetur, ut "*contactu suo, carnem sensim putrefaciat.* Neque inovenda medi-"camenta, nisi tota *caro fuerit in pus conversa;* id quod longo sit "tempore."[k]

Now, to pass over the absurdity of the doctrine of removing or dissolving a fungous excrescence, by means of the putrefying quality of matter, as well as the great disturbance which must be the consequence of confining it within the tunica vaginalis, it is very clear from these, and from every other circumstance attending the disease in question, that the cases which Fabritius had successfully made his experiment upon, must have been mere simple hydroceles, attended with a small degree of enlargement; but without any diseased state of the testicle.

This is one method of procuring a radical cure of the said disease—a method in use before Fabritius practised it, and still in some measure employed—a method which, in some instances, has always been successful; and which may, in general, be tried on any simple hydrocele, in a young and healthy subject. The

[k] "Si carnosa, et aquosa sit hernia, ego talem adhibeo curam; seco cutem, "et incisionem facio exiguam, et in loco potius altiore, quam in fundo: inde "turunda imposita cum digestivo et pus movente medicamento diutius "procedo, neque unquam pus extraho, sed perpetuo bonam partem intus "relinquo; quod sensim carnem corrodit, et ita sanat."

cure (when it effects one) is not brought about by the destruction of an excrescence from the testicle, or the dissolution of its supposed induration; but merely by exciting such an inflammation, as shall occasion an adhesion of the tunica vaginalis to the tunica albuginea; by which means, the cavity of the former is obliterated; the testicle remaining, as to size and consistence, just as it was before such operation was performed.[1] But this, though practicable, and sometimes successful in the hydrocele, is not to be thought of in the diseased or scirrhous testicle. The operation, as described by Aquapendente, consists of two points; first to let out the water, and then to cause a plentiful suppuration. When the testicle is really and primarily diseased, and the extravasation is a consequence of such disease, the discharge of the water from the cavity of the tunica vaginalis, whether by puncture, or by incision, can contribute nothing material toward a cure of the principal complaint, and is therefore useless; but it may, in many cases, do harm, by creating a disturbance in parts whose state requires the most perfect quietude; and is therefore wrong. When the disease is a mere simple hydrocele, the palliative cure, as it is called, by

[1] Another method of treating this disease, in use before Fabritius ab Aquapendente, (as may be seen in Guido and others,) and much preferable, if used in proper cases, is the method by seton.

This, as I have already observed, I have several times practised with success, in those who would not submit to incision, or in whom it was by no means proper.

Fabritius ab Aquapendente had a different, and that an erroneous, idea of this disease: he conceived that there was a fungous kind of excrescence on the testicle, and that this excrescence required erosion and destruction; this he aimed at accomplishing, by means of the matter collected within; and therefore his principle aim was to confine and increase it, by making his puncture, for the introduction of his tent, in the upper part of the tumor; and by imbuing it, from time to time, medicamentis pus moventibus.

Had he been right in his idea, his practice would have been just; but his conception of the disease was erroneous, and his practice absurd. The rational intention should be, to excite such a degree of inflammation as may produce an union between the tunica vaginalis and the albuginea. The formation of matter is a mere accidental consequence of this inflammation; and the means used to procure the end (provided it be procured) cannot be too gentle. The matter is of no real use, and therefore it is so far from being necessary to confine it, that if the conjunction of the coats can be obtained, without the formation of any, it is so much the better.

puncture, is right and necessary: it renders the life of the patient easy; rids him, every now and then, of a very troublesome burden; is perfectly safe; may be performed and repeated occasionally, at any time of the patient's life, or in almost any state of the disease; but the introduction of tents or setons, or the endeavour by any means to excite inflammation, or to establish suppuration within the tunica vaginalis, requires (even in the simple hydrocele, where the testicle is unaffected) some little consideration, and ought not to be hastily or unadvisedly put in practice.

In some ages, habits, &c. the symptoms will rise very high, and occasion both trouble and hazard; and if this be the the case, when the testis is not at all diseased, and when there is no malignity, either in the local complaint, or in the habit of the patient, what have we not to fear where there is both? where the parts are already spoiled by disease, and where irritation and inflammation may (and do) excite the most fatiguing symptoms, and the most direful consequences?

Besides the hydro-sarcocele, or lympid extravasation of fluid, in the cavity of the vaginal coat, (and which must therefore always be external to the testicle,) scirrhous and cancerous testes are liable to collections of fluid, within the substance of them, under the tunica albuginea.[m] These are sometimes large, and in one cavity; sometimes small, and in several distinct ones. They are also very different in nature, in different cases; sometimes serous, sometimes sanious; sometimes purulent; sometimes bloody. These are very apt to impose on the inadvertent and injudicious (especially if they be attended with some degree of inflammation in the skin); and to induce an opinion of an abscess, or imposthuma-

[m] Job a Meekren has made a very just and judicious remark on this subject. Fabritius ab Aquapendente had reckoned a collection of fluid, within the tunica albuginea testis, among the kinds of hydrocele. This Meekren does not allow; but, having described the true hydrocele of the vaginal coat, speaks of this collection within the albuginea, as it really is; that is, as a consequence of the diseased state of the gland. His words are, "Hieronymus "Fabritius ab Aquapendente, Part I. de Operat. Chirurg. cap. 75. aquam in "testibus congregari docet eam quæ ex imo ventre eo defluit: at error est "(meo judicio) magni anatomici. Spatio enim eo, quod est inter testiculum "et tunicam, imo in scroto ipso, aqua sæpius colligitur: *nunquam in testibus* "*ipsis, nisi putrescant.*"

tion, which may be relieved or cured by an opening; but *caveat operator.* These collections will be found to bear a much smaller proportion to the general size of the tumor, than they who are not conversant with them are inclined to apprehend; the subsidence, after the opening has been made, will also be much smaller than was expected; and instead of relief and ease, all the symptoms of pain, swelling, inflammation, &c. will be increased and aggravated; and if the opening be considerable, it not infrequently happens that an ill-natured fungus is thrust forth, which, by bleeding, gleeting, and being horridly painful, disappoints the surgeon, and renders the state of the patient much more deplorable than it was before. Neither is this sensation, which is thought like the fluctuation of a fluid within the testicle, to be at all times depended upon as implying that there is any fluid at all there. The touch, in this case, is subject to great deception; and I have seen a loosened texture of the whole vascular structure, or body of the testicle, produce a sensation so like to the fluctuation of a fluid lying deep, as has imposed on persons of good judgment and great caution.

Many of the most esteemed writers on this part of surgery, either not being practitioners, or being afraid to differ from those who have written before them, have lazily and servilely copied each other, and have thereby fallen into an obscure jargon concerning this disease, which neither themselves nor their readers have understood. They have talked of the scirrhous testicle, the caro adnata ad testem, and the caro adnata ad spermatica vasa, as so many different diseases, requiring different methods of treatment.

The melancholia, the atra bilis, and a certain inexplicable adust state of humours, are said to be the causes of these different appearances; and the fleshy substance arising from, or adhering to, the spermatic vessels, is said to be more benign, than either the fungus arising from the testicle, or the true scirrhus. For the first, they have described an operation, which is coarse, cruel, painful, and (notwithstanding all that they have said about it) unsuccessful; all which they must have known, if they had *practised* it. I therefore am much inclined to believe, that this is one of the many parts of ancient surgery, which, having been devised by some one bold, hardy operator, and by him described as practicable, has been related by many of his successors as practised. The second, the

caro adnata ad testem, they allow to be attended with more difficulty, as well as hazard, and seldom to be attempted with success.[n]

[n] "Ramex hæc inter excrescentias annumerari potest, cum sit additamentum ex toto præter naturale; nec illi insunt signa apostematis, sed tantum ut caro quæ circa scrotum aut epididymem generari solet."

ANDREAS A CRUCE.

"Curatio ejus est, ut incidatur cutis testiculorum, et excorietur usque ad superiora; deinde extrahe didymum et testiculum, et libera eos ab omni parte ex illo carnositate."

BRUNUS.

"Fit etiam hernia quandoque ex carnositate quadam præter naturam nascente juxta testiculum; et tunc pellicula incisa undique debet excoriari; et discooperta carnositate illa a corio exteriori usque, superius *cauterio* abscindatur."

ROLANDUS.

"Cura ejus non potest fieri nisi cum manu pellem exteriorum scindendo, et carnem a testiculis scarnando, et incarna-auferendo."

LANFRANC.

"Scinde pellum testiculi cum rasorio usque ad testiculum, et tunc carnositatem, quam invenis, removeas et excarnes totalitur a testiculo."

GUL. E SALICETO.

"Notandum est in hac operatione num caro concreverit circa tunicas, an circa ipsos testis; numque firmiter an minus firme adhereat partis substantiæ. Incidendum est totum scrotum usque ad carnem concretam, quæ si quidem valenter haud sit affixa, vel summis digitis, vel manubriolo scalpente, a teste vel tunicis, sensim sit auferenda."

FAB. AB AQUAPENDENTE.

"Caro item sæpissime testiculis, aut eorum tunicis adnascitur, serosus enim humor iste nonnunquam acris factus venas capillares, membranasque leviter erodit. Hinc pars illa sanguinis que paulatim exudat, quæque optima et laudibilis est, beneficio caloris innati, in carneam substantiam concrescit, &c. reliquum vero sanguinis quod serosum est, paulatim membranas totumque scrotum adeo extendit, ut caro ista quæ testiculo adherit, digitis palpari non possit."

FABRITIUS HILDANUS.

"Secandum est scrotum, et detegenda caro, et a teste deradenda vel a vasis, &c."

GAB. FALLOPIUS.

The false reasoning, the want of anatomical knowledge, the cruelty and inutility of the proposed operations, and the terrible consequences which must follow from their being put in practice, are too glaring to need any comment; and such as must incline every reasonable man to hope, that these authors (and a great multitude of others, who might be named) did in this

They who are under a necessity of forming their opinions principally from books, and who have not frequent opportunities of knowing from experience, how very little they are (in many cases) to be depended upon, may be inclined to think that all these distinctions really exist; and that these operations by fire and sword, by knives and cauteries, so exactly described, must be sometimes necessary; but having never seen the particular cases requiring such treatment, have a very imperfect idea, either of them, or of the operations; and are, to the last degree, alarmed and intimidated, when any thing, which they think is like to it, occurs to them in practice. To such, it may not be amiss to explain this matter, in as few words as I can; begging pardon of the more intelligent reader for the digression.

In the short anatomical account which I have given of these parts, I have taken no notice, that the spermatic vessels terminate in the testicle; and that, after the semen has been secreted from

part of surgery as they have done in many others; that is, copy each other in the precepts relative to the cause and treatment of this disease, but did not put their directions often into practice. The imperfect state of anatomy, in the time of the above cited writers, may be admitted as an excuse for them; but even very late ones have fallen into the same error.

"In the fungous excrescence upon the testis, when the same is not overgrown, you are to make way thereto; which is then to be consumed by escharotics, or by the actual cautery."

TURNER.

"Si quid vero carnis enatum a testiculo deprehenditur, quod graviter "hominem affligat, nec discuti tamen per adhibita medicamenta convenien- "tia queat, tum si testiculus integer adhuc est, atque illibatus, feliciter ut "plurimum sanari noxa poterit, ipseque testiculus servari; dummodo quic- "quid præter naturam super increvit, *deoperto scrotu*, quam exactissime ab eo "*solvatur*, atque rescindatur."

"Quod si autem ipsum testiculum invaserit: vel exindi etiam propter "nimios cruciatas, vel similes alias causas, indecore prominentes partes "nequeant, necessarium utique erit, vel universum testiculum, *vel quandam* "*saltem ejus partem*, modo jam proposito exscindere."

HEISTER.

Te set aside the strange distinction between the "caro enata a testiculo," and that "quæ ipsum testiculum invaserit," (a distinction taken from books only,) I believe I may venture to say, that the professor never found, that the operations which he describes and advises, were attended with success; and I hope that he has not often seen them performed.

the blood, it passes from that gland into a body which seems superadded to, although it be really continuous with, it. This body is therefore called the epididymis, and is so placed, with regard to the testis, that a heedless or uninformed observer may suppose, that the spermatic vessels terminate in it; especially if it be enlarged by disease. It takes its rise from the testicle, by a number of vessels, called from their office, vasa efferentia: these soon become one tube, which, being convoluted and contorted in a most wonderful manner, forms the greater part of the said body; and at last, ceasing to be so convoluted, it ends in one firm canal, called the vas deferens; by which the secreted semen is conveyed from the testicle to the vesiculæ seminales.

Whoever will attentively consider the epididymis in its natural position, with regard to the testicle and the spermatic vessels, will see, that if it be enlarged beyond its proper size, it will extend itself upward, in such a manner as to seem to be closely connected with them, and to bear the resemblance of a diseased body, springing from them.

This is the case called the caro adnata ad vasa spermatica; and is really and truly nothing more, than an enlargement of the epididymis; a circumstance which occurs not infrequently, but does not imply any malignity, either in the part or in the patient's habit; and can never require such a horrid operation as our forefathers have directed us to perform upon it; nor indeed any at all.

The epididymis is frequently enlarged, in venereal cases, either separately, as in the remains of a hernia humoralis, or together with the testicle, in that affection of it, which I have called the venereal sarcocele; and sometimes from mere relaxation of its natural texture, without any disease at all. But in none of these can it require, or even admit, any manual operation of any kind. Indeed, whoever will consider the epididymis, as it really is, as the medium by and through which the semen is conveyed from the testicle to the vas deferens, must immediately be sensible of the glaring absurdity of removing any part of it.

The scirrhus and cancer do not very often begin in this part; they most frequently make the first attack on the body of the testis; and, though the epididymis is often cancerous, yet it most frequently

becomes so secondarily, or after the testicle is spoiled; so that the removal of it, if practicable, could serve no good purpose. It would not remove the disease; for that has, before-hand, most commonly taken possession of the testicle; and the cutting off any part of a scirrhous or cancerous tumor of any kind, is what no man, who has the least knowledge of what he is about, will ever think of.

In short, these two cases, which, by the inattention and misrepresentation of our ancestors, have created such perplexity in the minds of their readers, are either a simple enlargement of the epididymis, without any morbid alteration in its structure; or a diseased (that is, a scirrhous) state of the same part; or else, a scirrhous or cancerous testicle, with inequality of surface. The first of these requires no manual operation of any kind; and the two last will admit of none: the first is no disease at all; and the two last are such diseases, that every attempt made on them, by knife or caustic, (unless for total expiration,) must render them worse, and more intractable.

The manner of treating a sarcocole, or hernia carnosa, depends entirely on the particular nature and state of each individual case. In some, it will admit of palliation only; in others, the disease may be eradicated by the extirpation of the part; so that, under the article of method of cure, we have only to consider, and point out, as clearly as the nature of the disease will permit, what states and circumstances, both of it, and of the patient labouring under it, forbid the operation, and what render it advisable.

On this head, great variety of opinions will be found among writers; so great, that a man, who is under a necessity of forming his judgment from them, will find himself under some difficulty how to act; and so great, that I cannot help thinking it to be clear, that the majority have not written from practice, but from mere conjecture, or from the works of those who who have gone before them.

Some have given it as their opinon, that while the testicle is perfectly indolent, (let the alteration in its structure, form, or consistence, be what it may,) it is better to suffer it to remain, than to remove it. In support of this opinion, they say, that although the disease has plainly taken possession of the part, yet, while it

causes no pain, the constitution receives no damage from it; nor is the health of the patient impaired by it; whereas, by removing the testicle, the same virus may seize on some part of more consequence to life. This method of reasoning takes for granted two things, which do not appear to be strictly or constantly true, *viz.* that this disease is never perfectly local; and that a scirrhous testicle, though free from pain, will not in time produce any evil to the general habit of the patient. Others advise us to stay until the tumor becomes painful, and manifestly increases in size, or acquires a sensible inequality of service: that is, (in other words,) until it begins to alter from a quiet state to a malign one: which advice, as well as the preceding, supposes that the hazard of the mere operation of castration is too great to render it an advisable thing, until the patient is pressed by bad symptoms; and that a scirrhous testicle, which has been quiet and free from pain for some time, may be as successfully extirpated after it has become painful, and has acquired a malignant and threatening state, as at any time before such alteration. The latter of these will hardly be admitted (I believe) by those, who form their opinions from experience; and with regard to the former, I can, with great truth, affirm, that I never saw the mere operation of castration, when performed in time, and on a proper subject, prove fatal.

Many people have I known, who have lived several years, their whole lives, perfectly free from disease, after the removal of quiet, indolent, scirrhous testicles; and several have I known, who, having deferred the operation until they were urged by pain, increase of size, and inequality of the tumor, have, from the sore becoming cancerous, not been able to obtain a cure. That I have seen the same thing happen, after the removal of a testicle, circumstanced in the best manner, is beyond all doubt; but not near so frequently as in those cases in which the operation has been deferred until the symptoms became alarming, and the disease had changed its appearance, from a benign quiet one, to one that was malign and painful. Indeed, were we capable of knowing with certainty which those scirrhi were, that would remain quiet and inoffensive through life, or for a great length of time, and which would not, we should then be enabled to advise or dissuade the operation upon much better (that is, much surer) grounds, than at present

we are able to do. We have no such degree of knowledge; all our judgment is formed upon the mere recollection of what has happened to others in nearly similar circumstances; and experience, though the best general guide, is, in these cases, more fallacious than in many others.

A few people there certainly have been, who have been so fortunate as to carry a scirrhous testicle through many years, with little or no pain or trouble: but the number of those, in whom time (and that frequently a short space), change of constitution, external accidental injury, &c. do not make such an alteration in this disease, as to render the operation less likely to be successful than it would have been at first, and under more favourable circumstances, is so small, that I think early castration (that is, as soon as the disease is fairly formed and characterised) may be recommended and practised by every honest and judicious surgeon.[o]

[o] Scirrhous and cancerous tumors are found in many parts of the body, as well as in the testicle; and in all others, as well as in that, bear different characters; that is, show a greater or less disposition to malignity; remaining sometimes of small size, and easy for many years; at others, increasing fast, and so producing great pain, and all its bad consequences.

Of all the kinds of this disease, those which follow upon some external violence (such as blow, bruise, &c.) are thought and said to be the least; therefore, great regard has always been paid to this distinction by writers, and great hopes conceived from this circumstance by patients. I wish I could say that such hopes were always as well founded as they are thought to be. I mean, that experience most frequently verified them.

When a scirrhus seizes a part that has previously sustained an injury from without, such probable cause is undoubtedly a favourable circumstance; but it does not, by any means, necessarily follow from thence, that the constitution of such person is free from taint. It is a presumption, but not a proof; and this presumption becomes more reasonable, if the diseased state of the part follows such accidental injury soon, than if it appears at a great distance of time.

No man will pretend to say, that such mischief has not been done by outward violence, that cancerous disorders have not followed, in the parts so injured, in persons, who, before such accident, never had any appearance of such disorder; and who possibly might have lived many years, nay, their whole life, without its appearing in such form and manner: but that, previous to such accident, there was no cancerous disposition or malignity in the habit, is an inference which cannot be admitted.

What disorders of the joints do we see produced by very slight injuries

Indeed, the circumstances of frequent pain, and the manifest tendency to an increase of size, are by some people looked on as

done to them? disorders which are clearly and plainly scorphulous, and which would not have appeared at that time, or in that part, had it not been for such accident; but surely no man will from thence conclude, that such people have no scrophulous taint in their blood, or glands, previous to such strain or bruise. How many internal parts are there for this disease, as well as some others, to make its attack upon; but which, by being out of sight, and not deemed objects of surgery, are not known; and pass either for other diseases, or for the symptoms of other diseases? What tumors of the lumbal glands and mesentery; what obstructions, in all parts of the contents both of the abdomen and thorax, do we not find, upon examining the dead, whose disorders were very little known or understood while they were living; but whose prevailing indisposition, whose natural dyscrasia, would most probably have shewn itself in some more visible part, if such part had accidentally suffered from external violence?

All that we from experience know, and therefore all that we ought honestly to say on this occasion, is, that it has very often happened, that where that kind of disorder, which produces scirrhous or cancerous tumors, has been brought into action by external injury (whether it be in the breast, testicle, or any other part, it matters not); or when such kind of disease has seized such part, no preceding violence having been offered to it, and has therein occasioned a fixed but indolent kind of swelling, which has either remained a long time of one size and state; or, if it has altered, has altered very slowly, and given the patient but little uneasiness; if such tumor has been so situated and circumstanced, that it could safely be extirpated or removed, that such removal or extirpation has often cured the present evil; and that the patient has remained free from any thing of like sort, during his or her life.

This is true, and therefore is and ever will be a sufficient reason for pressing such operation, when all other circumstances are favourable. That the patient may keep well after it, is by no means improbable; that the scirrhus would remain, through life, indolent and inoffensive, is very improbable. But whoever boldly asserts, that such extirpation will always and certainly cure the disease, is very inexperienced, or is wilfully guilty of a deception, the two distinguishing marks of a quack, who always promises, what he either does not know, or does not believe.

When a scirrhus or cancer is favourably circumstanced, and so situated as that it may be extirpated, such extirpation is indeed the only remedy: and that method by which such extirpation can be most certainly and expeditiously executed, is, beyond all doubt, the best.

The two in use are, the knife and the caustic. The former, in the hand of a surgeon who is an anatomist, has every advantage which can be desired or supposed: it gives less pain, is more secure and more expeditious; but it impresses on the patient the apprehension of an operation, and the fear of an hæmorrhage. The use of caustic is infinitely more painful, not only in immediate sensation, but in duration; it often requires repetition; it is less man-

such marks of a malignant disposition, that they have been by them reckoned as dissuasives from the operation.

ageable, less secure; and the great length of time which sometimes the separation of the mortified parts takes up, renders it very tedious. But it is attended with two circumstances, which have greatly contributed to the support of cancer quackery: one is, that it spares the patient the horror of an operation, which, though infinitely less painful than the effect of the caustic, is not believed to be so; the other is, that the ragged appearance, which the bottom and sides of the parts make after having been removed by such application, is so unlike to the smoothness of that which has been removed by incision, that ignorant people are easily induced to believe, what the designing always tell them, *viz.* that the medicine has taken their disease out by the roots; and that the ragged parts which they see, are such roots.

It is amazing what weight this single circumstance has with many, and even with some sensible people; few of whom are persuaded to believe what is as true as any proposition in Euclid, *viz.* that the caustic of equal strength, applied on any glandular part of any person, will always produce exactly the same effect and appearance, as, in this case, passes with them for the roots or branches of the disease.

When nurses and quacks talk of the fibrous roots of a cancer, and of cancerous fermentations, they are excusable; the one from their ignorance, the other from the nature of their trade; but when they who pretend to some kind of medical knowledge use this kind of language, it is shameful.

If either the fears of the patient, or the particular circumstances of the part to be removed, render the use of caustic preferable, or necessary, every practitioner is well acquainted with those which are perfectly efficacious; but every practitioner also knows, that good reasons for preferring the use of them to the knife very seldom occur: it is in this as in the attempts toward a radical cure for ruptures, and some other parts of surgery, we are censured where we ought to be applauded, and blamed for those very things from whence we ought to derive praise. We have laid aside certain methods and processes, because we found them (upon experience) to be painful, hazardous, and ineffectual; and these very methods, destructive and infallible as they are, have given credit and honour to those who have had ignorance and inhumanity enough to revive them.

We are not yet so happy as to be possessed of any medicine which will cure a cancerous habit. When the constitution is thoroughly infected, neither our knives nor caustics will avail: they can only remove the local mischief, but can have no effect on the general one in the constitution. Whoever says otherwise, says what is not true; and whoever believes otherwise, is imposed upon. When the habit is concerned, as it too frequently is, it must be an internal remedy that proves a specific, whenever we are so happy as to be blessed with the discovery. The supposition, that an escharotic can, by destroying a particular part, eradicate the disease from the habit, is (one would be inclined to suppose) too gross an absurdity for the most credulous believer to swallow; and yet it is believed, and trusted to every day.

But these gentlemen carry their fears and apprehensions much too far the other way. Pain and a quick increase of size are certainly no favourable symptoms; they show a disposition to mischief, but they are not such positive proofs of a cancerous habit, as to render all hope of a cure, from the removal of the diseased part, vain: there are many instances to the contrary; and though no honest or judicious man will venture to promise success, even in the most favourable of these cases, yet it is well known, that those which have had very unpromising appearances, not only from the state of the testicle, but from that of the spermatic chord, have succeeded often enough, to make the chance of a cure, by the operation, by no means a desperate one. The state of a man left to his fate in these circumstances, that is, to the fury and progress of the disease, is so truly miserable, that nothing should be left unattempted, which carries with it any probability of being serviceable; and a practitioner is vindicable, in pressing what he has known to be successful; though, at the same time, he ought to make a guarded kind of prognostic.

Upon the whole, I think it may justly be said, that the man who has the misfortune to be afflicted with a truly scirrhous testicle, has very little chance (notwithstanding all that has been said and written about specifics) to get rid of it by any means, but by extirpation; and all the time the operation is deferred, he carries about him a part not only useless and burthensome, but which is every day liable, from many circumstances (both external and internal) to become worse, and more unfit for such operation.

While the testicle is small, and free from acute or frequent pain, the vessels from which it is dependent are most frequently

Indeed, it sometimes happens, in the treatment of these cases, that either the arrival of puberty, a favourable turn in a constitution, or the renewal of long-obstructed evacuations, (especially the uterine ones,) shall restore the patient to a better state of health, and prevent either the further progress of the disorder, or any new appearance of it in any other place. In this case, if the extirpation was made by an external application, and not by an instrument, such application is thought to have wrought the cure, and has all the credit of doing what it really had no share in then, what it never can do, nor have the appearance of doing again, but in the like accidental circumstances.

soft, and free from disease; whereas, when the testis has been suffered to attain a considerable size, the case is frequently otherwise; the spermatic vessels are often large and varicose; and the cellular membrane investing them sometimes becomes thick, and contracts such connexions and adhesions, which, though they may not amount to an absolute prohibition of the operation, do yet render it tedious, troublesome, and more hazardous, than it would be in other circumstances. Every addition to the original complaint in the body of the gland is against the patient; and if any of these are the consequence of not having removed it in time, it will follow, that the sooner it is removed, the better. If we wait for what some call indications of the necessity of operating, we shall often stay until it will do no good. Many a one have I seen lose a very probable chance of a cure by delay: but I do not remember ever to have seen a testicle removed, by a man of judgment, which testicle did not, upon examination, fully vindicate the extirpation. If we were possessed of any medicine, either external or internal, which had been known now and then to have dissolved scirrhi, it would always be right to recommend the trial of them previous to an operation; and it would always be right to defer operating until such trial had been made. But the truth is, we know no such medicine. The credulous on the one hand, and the designing on the other, have told us many strange stories of cures effected by such applications and remedies; and I do most sincerely wish, that what each of them have said was true; but repeated, faithful experience has proved that it is not; and that they who have placed their confidence in them, or laid out their money on them, have been disappointed and cheated.

Some circumstances there are now and then attending this disease, which are out of our sight, and out of our knowledge, and which will render all our pains abortive: such are tubercles, indurations, and other diseased appearances in the cellular membrane enveloping the spermatic vessels within the abdomen; scirrhus, viscera, &c. If any of these can be known, they constitute a good reason for not attempting the cure by the operation; but the mere possibility that such may exist, is certainly no reason for abstaining from it. The apparent evil, that is, the diseased testis, is certain; the other

may or may not be the case. The one, if left to itself, is most likely to destroy the patient in a most miserable and tedious manner; and the other (the suspected mischief) may possibly not exist.

But though the timely and proper removal of a scirrhous or cancerous testicle does frequently secure to the patient life, health, and ease, which, in such circumstances, are not attainable by any other means; yet it must be remarked, that the improper and untimely performance of the operation is not only not attended with such happy and salutary event, but generally brings on high symptoms, and quick destruction. It therefore behoves every practitioner to be perfectly well acquainted, not only with such circumstances as render castration practicable and advisable, but with those which prohibit such attempt.

These are of two kinds, and relate either to the general habit of the patient, and the disorders and indispositions of some of the viscera, or to the state of the testicle and spermatic chord.

A pale, sallow complexion, in those who used to look otherwise; a wan countenance, and loss of appetite and flesh, without any acute disorder; a fever of the hectic kind; and frequent pain in the back and bowels, are, in those who are afflicted with a scirrhous testicle, such circumstances as would induce a suspicion of some latent mischief, and incline one to suppose that the same kind of virus, which had apparently spoiled the testis, may also have exerted its malign influence on some of the viscera: in which case, success from the mere removal of the testicle is not to be expected. They, whose constitutions are spoiled by debauchery and intemperance, previous to their being attacked with this disease, who have hard livers, and anasarcous limbs, are not proper subjects for such an operation. Hard tumors within the abdomen, in the regions of the liver, spleen, kidneys, or mesentery, implying a diseased state of the said viscera, are very material objections to the removal of the local evil in the scrotum. In short, whenever there are manifest appearances or symptoms of a truly diseased state of any of the principal viscera, the success of the operation becomes very doubtful; more especially, if such symptoms and appearances, upon being properly treated, resist in such manner as to make it most probable, that a cancerous virus is the

real cause of them. When none of these require our attention, the object of consideration is the testicle and its spermatic vessels. The state of the mere testis can hardly ever be any objection to the operation; the sole consideration is the spermatic chord. If this be in a natural state, and free from disease, the operation not only may, but ought to be performed, let the condition of the testicle be what it may. If the spermatic chord be really diseased, the operation ought not to be attempted. For although, on the one hand, a probability of success will vindicate an attempt, even though it should fail; yet, on the other, where there is no such probability, an operation, though performed in the most dexterous manner, will prove only a more ingenious method of tormenting.

This therefore (the state of the spermatic chord) is a matter which may require our most serious consideration; since, on this it is (when the disease appears to be local) that we must found our judgment; and by this must form our resolution, either to leave a man to the truly miserable fate of being slowly, though certainly, destroyed, by a cruelly painful, and frequently very offensive disease; or endeavour to save, and preserve him in health and ease, by means which have so often proved successful, as truly to deserve the appellation of *probable*.

All writers on this subject agree in saying, that if the spermatic process has partaken of the diseased state of the testicle, that is, has become enlarged and hardened, and such enlargement and induration extends itself quite up to the abdominal muscle, that the operation of castration ought not to be performed, because it not only will prove successless, but will hasten the death of the patient. And this is, in some degree, most certainly true; but not without some limitation. A truly and absolutely diseased state of the spermatic chord, in any part of it, is certainly a very material objection to the operation, as it most commonly proves a bar to the success of it; and a morbid state of the same chord quite as high as the abdominal muscle, that is, of all that part of it which is external to the cavity of the belly, is a just and full prohibition against such attempt. But on the other hand it must be observed, that every apparently morbid alteration of the spermatic chord is not really such; and therefore, that every enlargement, induration,

fulness, &c. which seems to alter the spermatic vessels from that state which is called a healthy and natural one, is not to be regarded as a disease; at least, not as such a disease as is sufficient to prohibit the attempt to obtain a cure by extirpation.

The difference between these, it is the duty of every practitioner to become perfectly acquainted with, as it is from a consideration of these, that he ought to determine, whether he may, with that firmness and assurance which the probable expectation of success will give him, propose and advise castration, or find himself obliged in conscience to dissuade, or refuse, the performance of it.

When the spermatic vessels are not only turgid and full, but firm and hard; when the membrane, which invests and connects them, has lost its natural softness and cellular texture, and has contracted such a state, and such adhesions, as not only greatly to exceed its natural size, but to become unequal, knotty, and painful, upon being handled; and this state has possessed all that part of the chord, which is between the opening in the oblique muscle and the testicle, no prudent, judicious, or humane man will attempt the operation; because he will most certainly not only do no good to his patient, but will bring on such symptoms as will most rapidly as well as painfully destroy him. Of this there are so many proofs, that the truth of it is incontestible.

In some modern French books, we have indeed miraculous accounts of operations of this kind, performed by dividing the tendon of the oblique muscle, by tracing the diseased spermatic vessels within the cavity of the belly, and there making the ligature and excision: but these are operations which make a figure in books only, and are performed only by visionary writers; or, if ever they have been practised, serve to show the rashness and insensibility of the operators, much more than their judgment or humanity. Whoever (notwithstanding these tales) performs the operation in the circumstances above mentioned, will prove himself much more hardy than judicious; and will destroy his patient, without having the satisfaction of thinking that his attempt, though successless, was yet vindicable; the only circumstance which can, in such events, give comfort to a man who thinks rightly.

On the other hand, as I have already said, every enlargement

of the spermatic chord is not of this kind, nor by any means sufficient to prohibit or prevent the operation.

These alterations, or enlargements, arise from two causes, *viz.* a varicose dilatation of the spermatic vein, and a collection, or collections of fluid in the membrane investing and enveloping the said vessels. In the first place, as there is no reason in nature why a testicle, whose vessels have previously (for some time perhaps) been in a varicose state, should not become scirrhous; so it is also clear, that the scirrhosity seizing such testicle, will by no means remove, or even lessen, such varicose dilatation of the vessels from which it is dependent; on the contrary, will most probably, and indeed does most frequently, increase such distention: but such mere varicose enlargement of the vessels, whether it be previous or consequential to the morbid state of the testis, does not, nor ought to prevent the removal it, if otherwise fit and right. It is indeed an objection to the doctrine of Mr. Le Dran, and a few other writers, who make no ligature on the chord, and trust to a slight contusion of it between the finger and thumb for a suppression of hæmorrhage; but is none to the rest of the operation, as I can from experience testify.

In the next place, the diseased state of a truly scirrhous testicle, its weight, and the alteration that must be made in the due and proper circulation of the blood, through both it and the vessels from which it is dependent, may and do concur in inducing a varicose dilatation of the spermatic vein, without producing that knotty, morbid alteration and hardness, which forbid our attempts. Between these, a judicious and experienced examiner will generally be able to distinguish.

In the former (the truly diseased state) the chord is not only enlarged, but feels unequally hard and knotty; the parts of which it is composed are undistinguishably blended together; it is either immediately painful to the touch, or becomes so soon after being examined; the patient complains of frequent pains shooting up through his groin into his back; and from the diseased state of the membrane composing the tunica communis, such adhesions and connexions are sometimes contracted, as either fix the process in the groin, or render it difficult to get the finger and thumb quite round it.

In the other, (the mere varicose distention,) the vessels, though considerably enlarged and dilated, are nevertheless smooth, soft, and compressible; the whole process is loose and free, and will easily permit the fingers of an examiner to go all round it, and to distinguish the parts of which it is composed. It is not painful to the touch; nor does the examination of it produce, or occasion, those darting pains which almost always attend handling a process malignantly indurated.

I do not say, that the distinction between these two states is always and invariably to be made; but that it often may, I know from repeated experience; and that the operation may safely be attempted, and successfully be performed, I know from the same experience. The state of a man, left to the mercy of a malignant scirrhus, is so truly deplorable, that we cannot be too attentive in examining the precise nature of each individual case, and in embracing every opportunity of giving him that relief, which it may at one time be in our power to give, and which, the favourable opportunity missed, it may never be in his power again to receive.

The other circumstance which I have mentioned as capable of deceiving an operator, and inducing him to believe that the spermatic chord is much more diseased than it really is, and thereby deterring him from the performance of an operation which might prove successful, is the extravasation, or collection of fluid in the cellular membrane enveloping the spermatic vessels, between the abdominal opening and the testis.

In the cellular membrane leading to a diseased testicle, it is no very uncommon thing to find collections of extravasated fluid. These, as they add considerably to the bulk, and apparent size, of the process, make the complaint appear more terrible; and, as I have just said, less likely to admit relief.

When this extravasation is general through all the cells of the investing membrane, and the spermatic vessels themselves are hardened, knotty and diseased, the case is without remedy; for although a puncture, or an incision, will undoubtedly give discharge to some, or even the greatest part of the fluid; yet this extravasation is so small, and so insignificant a circumstance of the disease, and the parts in this state are so little capable of bearing

irritation, that an attempt of this kind must be ineffectual, and may prove mischievous.

But on the other hand, collections of water are sometimes made in the same membrane, from an obstruction to the proper circulation through the numerous lymphatics in the spermatic process, while the vessels themselves are really not diseased, and therefore very capable of permitting the operation. In this case, the fluid is generally in one cyst, or bag, like to an encysted hydrocele, and the spermatic chord, cyst and all, are easily moveable from side to side; contrary to the preceding state, in which the general load in the membrane fixes the whole process, and renders it almost immoveable.

A discharge of the fluid will, in this case, enable the operator to examine the true state of the process, and, as I have twice or thrice seen, put it into his power to free his patient from one of the most terrible calamities, which can befal a man.

There is one more circumstance relative to the scirrhus testicle, which appears to me to be worth attending to, as I cannot help thinking, that it has misled many, who have not had sufficient opportunity of comparing theory with practice.

It has been confidently asserted, and is generally believed, that a scirrhus testicle never begins in the epididymis of the said testicle. The consequence of this doctrine is, that when a disease, which affects a testicle, by enlarging and hardening it, makes its first attack on the epididymis only, such disease is not allowed to be a scirrhus, nor permitted to be treated as such.

That inflammatory kind of tumor, which, in the virulent gonorrhœa, seizes the testicle, and is called the hernia humoralis, affects the epididymis; and, even under the best care, sometimes leaves it too large, and too hard. This is said never to end in, or produce a scirrhus; and I do not recollect that I have ever known it to do so. The disease, which consists in an induration and enlargement of the whole testicle, in the more confirmed lues, affects the epididymus also, as well as the glandular part of the testicle; and I do not remember to have seen it either become cancerous, or not yield to mercury, properly administered. But that a true scirrhus, or cancer, sometimes makes its first attack on the epididymis, which it alters or spoils, before it at all affects the testicle,

is a truth, of which I have not the least doubt. Among others, I formerly believed the contrary doctrine; and, in the first edition of this book, have given it as my opinion; but I am, from experience, so perfectly convinced of the truth of what I have now asserted, that I think myself obliged to declare it. The mistake I suppose to have been made by the first propagators of this opinion, thus: The hernia humoralis, and the venereal sarcocele, always enlarge the epididymis, and generally leave it somewhat too hard: both these have, by adventurous and unknowing people, been mistaken for scirrhi: but it being found, by experience, that these alterations in the epididymis, were either totally removed by medicine, or, if any part remained, it continued harmless through life, an inference was drawn, that, as true scirrhi are not often either removed by medicine, or continue harmless, therefore an original affection of the epididymis could never be a true scirrhus—a deduction, which the premises do not by any means authorise; and which I am satisfied is not true.

The operation of castration is performed as follows:—

The patient being laid on a table of convenient height, the integuments covering the spermatic vessels in the groin are to be divided. This incision should be begun, as nearly as can be, opposite to the opening in the abdominal muscle, and should be continued a good way down the scrotum.

The manner of beginning this incision is differently described by writers; some of them advising that the skin be held up by an assistant; others that the knife be used perpendicularly, in this as in other parts. It is indeed a matter of no importance at all, either to patient or surgeon, and therefore may very safely be left to the choice of the latter; but the length of the division is of consequence to both. A small wound will indeed serve to lay bare the spermatic chord, but it will not permit the operator to do what is necessary afterward, with dexterity or facility: a small wound gives as much pain in the infliction as a large one; and, as the scrotum must, first or last, be divided nearly to the bottom, it had better be done at first, on every account. The spermatic chord, thus laid bare, is to be freed from its surrounding membranous connexions; and then the operator, with his finger and thumb separating the blood-vessels from the vas deferens, must pass a

needle, armed with a ligature, between them; and having tied the former only, must cut through or divide the whole chord at a quarter or half an inch distance from the said ligature, according as the state of the process and testicle will admit. This done—he is then (with the same knife, with which he has performed the former part of the operation,) to dissect the testicle out from its connexion with the scrotum: the loose texture of the dartos, the previous separation of the testicle from the spermatic vessels, and the help of an assistant to hold up the lips of the wound, will enable him to do this with very little pain to the patient, and great facility to himself.[p]

If any considerable artery bleeds, either in the scrotum or in the dartos, it must be restrained by ligature; and when that is done, the void space in which the testicle was, is to be very *lightly* filled with soft dry lint;[q] which lint should be suffered to remain until it

[p] This circumstance of cutting off the testicle, before it be dissected out from the scrotum, immediately after the ligature has been made, is of more consequence to the patient's ease, as well as to the facility and expedition of the operation, than they who have not tried it are aware of.

[q] Lint, however soft and lightly applied, acts as a foreign body, and prevents the immediate union of the wound. Our present method, and which Mr. Pott practised since his publication of this work, appears to be a considerable improvement on this part of the operation:—When the testis is removed, and the bleeding vessels of the scrotum, if there are any of consequence, are secured, no lint, nor dressing of any kind, is introduced; but the parietes of the wound are brought together and retained by ligatures, more or fewer, according to the extent of the wound, as, from the moisture of the parts, sticking-plaster cannot be depended on: these ligatures should be tied with slip-knots, that they may be loosened, without a necessity being induced of removing them, in case of any fresh hæmorrhage, which sometimes happens after the patient is warm in bed. Dry lint is then applied, and kept on by a simple dressing, avoiding every thing greasy on the edges of the wound: by these means the parts unite and heal in great measure by the first intention; or, if any collection of matter is formed in the cavity which the testis occupied, it will be in small quantity, and easily discharged by the lower part of the wound, which must form a depending and an advantageous opening; after which the granulations will gradually fill the space, and the cure will be but little retarded. This excellent plan of preserving as much sound and undiseased skin as possible, and putting no obstructions in the way of Nature's healing powers, has of late years been applied to almost every species of tumor which it may be necessary to remove, and may be esteemed one of the greatest improvements of modern surgery. E.

be perfectly loosened by the suppuration from every part of the sore. If it be removed sooner, it must be done by force: in which case, it will give unnecessary pain, and leave a crude, undigested sore; if it be not removed until quite loose, it will give no pain, and the sore will be found clean, and well digested, and requiring no other dressing afterward than mere dry lint; which, from this time, should be applied in such quantity and manner, as to give Nature an opportunity of contracting and healing the wound as fast as she can; in both which, she may be considerably assisted by the judicious exhibition of the bark.

I am very sensible, that in the above direction for the performance of the operation of castration, I have differed from the doctrine of some very eminent modern practitioners; and particularly from Mr. Le Drain.

No man thinks more highly of Mr. Le Dran's abilities than I do; but, in these matters, every one must take the liberty of judging for himself; and I cannot help thinking, that I have good reason for my opinion.

Mr. Le Dran, having divided the integuments in the groin and scrotum, separates the testicle from the surrounding membrane with his fingers, and with scissors. This method is rather coarse, is unnecessarily painful, and does what must for ever be wrong—multiplies the instruments to be used, without any necessity. The knife, in the hands of any man, at all accustomed to the use of one, will execute the whole with more apparent dexterity, with less pain, and much greater expedition.[r]

I have, without hesitation, directed the spermatic chord to be

r "Je fens le scrotum jusqu'au dessous du testicule malade, et avec mes "doigts je detache le testicule d'avec le tissu cellulaire, qui le tient attaché "dans le scrotum. Si quelque portion membraneuse a de la peine à se de-"tacher, je la coupe avec des *ciseaux*." Mr. De Garengeot divides the whole scrotum with scissors; and I cannot say that I have not seen it done in London: but it is a tedious, coarse, cruel, and very unhandy method of doing it. "Cette premiere incision faite, l'operateur poussera de force le doigt indice, "ou le grand doigt, sous la peau, dans les cellules graisseuses, afin d'entrer "dans le scrotum, et il aggrandira son incision, en coupant sur son doigt avec "des ciseaux mousses la peau, qu'il aura separée des graisses, et il ouvrira "ainsi tout le scrotum."

GARENGEOT, OPERAT. CHIR.

tied. Mr. Le Dran's advice is different. He advises, that a ligature be passed underneath it, and left there to be tied; or not, as occasion may require.

He then takes the extremity of the latter between his finger and thumb; and, by rubbing, pinching, or bruising, produces a degree of contusion sufficient (as he thinks) to prevent, in general, any hæmorrhage; and, having so done, he cuts off the testicle from the said chord, immediately below the bruised part, leaving (as I said before) the ligature ready to be tied, if necessary.[s]

This method of first bruising, and then cutting off, the spermatic chord, without making a ligature on it, is also prescribed and practised by some gentlemen of eminence here; and I make not the least doubt, that, both with these gentlemen, and with Mr. Le Dran, it may have been successful; but, as I have seen three people lose a very alarming quantity of blood, and one very nearly his life under it; and as in the many times which I have performed this operation, I never saw the least inconvenience arise from the ligature, I cannot approve the omission of it.[t]

Mr. Le Dran himself not only seems to be apprehensive of what *may* be the consequence, by his passing a ligature, and leaving it ready to be tied, and by the very good reason which he gives

[s] "Il n'y a que l'artere qui m'interesse, parce qu'il n'y a qu'elle qui puisse "donner du sang apres que j'aurai coupé le cordon. Je la prends entre "deux doigts, à l' endroit où elle passe sur l'os pubis, et avec elle les veines "qui l'entourent; puis je passe entre ces vaisseaux et le canal deferent, que "l'on distingue sous le doigt, à sa dureté, une aiguille, enfilée de deux brins "de fil cire. J'ôte l'aiguille, et je laisse les fils, pour faire la ligature, au cas "qu'elle devienne necessaire. Je prends aussitot les vaisseaux plus bas que "l'os pubis, et je le froisse entre mes doigts, pour y faire une espece de "contusion; puis je coupe le cordon un peu au dessous de cette endroit "froisse."

M. Le Dran.

[t] That it would be in the highest degree dangerous to omit securing the spermatic artery, is now universally acknowledged; but as tying the chord (notwithstanding the vas deferens is left out) is by far the most painful part of the operation, it has been the practice of many good operators to dissect down to the vessel, and to put a ligature round it, by a needle; or, if the vessel be divided by means of the forceps, without including any surrounding parts; then to divide the remainder of the chord, and finish the operation in the usual manner. E.

for not cutting off the spermatic chord (as most of his countrymen advise) close to the opening in the tendon of the oblique muscle; but also in the same paragraph acknowledges, that a fatal hæmorrhage has been the consequence of the ligature having slipped off, after it has been made.[u]

In the case of a perfectly sound and unaltered spermatic chord, in which the vessels are not become varicose, and the operator can make his division of them as low as he pleases, this *froissement*, this contusion may be sufficient to prevent an hæmorrhage; but in cases where the spermatic chord is enlarged, Mr. Le Dran himself does not think it safe to trust to it. And that the vessels from which a scirrhous testicle is dependent, may be considerably enlarged and distended, and that pretty high, and yet not so diseased as to render the operation unadviseable or unsuccessful, I have more than once or twice seen. The compression which may be made of the extremity of the divided chord against the os pubis, on which some stress seems to be laid, will, whether it be made by the finger, or by compress and bandage, prove more troublesome to the patient than the very momentary pain of the ligature.

[u] "On demandera, pourquoi je ne fais pas la ligature du cordon immedi-
" atement au dessous de l'anneau, comme les auteurs le prescrivent. Je
" reponds, que, si la ligature s'échappe, on ne peut plus lier l'artere, qui se
" retire au dessus de l'anneau, ou elle peut donner du sang dans le tissu
" cellulaire du peritoine, et faire *perir le malade, comme l'on a vu arriver.*"

LE DRAN.

" Si le cordon spermatique est gonflé jusque' aupres de l'anneau, on ne
" peut suivre cette methode; et il faut *absolument* faire la ligature du cordon,
" immediatement au dessous de l'anneau." The remainder of this paragraph does indeed seem a kind of contradiction of the preceding. " S'il est tres
" gonflé meme un plus haut que l'anneau, et qu'on ne puisse se dispenser de
" faire l'operation, il n'y a point de ligature à faire; il faut fendre un peu
" l'anneau, puis couper le cordon, et l'artere ne donnera pas de sang." Set aside all considerations of the propriety or impropriety of performing the operation, when the spermatic chord is diseased above the ring, (as it is called,) what can be the reason why the artery should not be expected to bleed, after being divided within the abdomen? when the same gentleman allows it to have produced a fatal hæmorrhage, upon retiring into that cavity, or into the cellular membrane of the peritioneum, after having been cut off without the said ring.

The last circumstance in which I have ventured to differ from the commonly prescribed rules, is, that I have not advised the removal of any part of the scrotum.[x]

My reason is, that I never found it necessary, in any case, when the scrotum was not adherent to the testicle.

Let the size of the scirrhus be what it may, the scrotum will corrugate to its natural form, when the wound is healed; and if in the operation it fairly be divided to the bottom, will neither lodge matter during the cure, nor produce any inconvenience afterward.

When it is adherent to the testicle, and the cellular structure of the dartos is thereby destroyed, all such adherent part should certainly be removed; not only because it is diseased, but because it will give the patient a great deal of unnecessary pain to dissect it: but then it should always be removed along with the testicle, in the manner directed by Mr. Samuel Sharpe, and not be dissected off first, and removed afterwards.

By the latter method, the patient's pain is increased, prolonged, and even renewed, without the least necessity.

In every operation in which a considerable portion of skin is to be divided, and particularly in this, and the amputation of womens' breasts, it should always be remembered, that, as the division of the skin (the general organ of sensation) is the most acute and painful part of what is done by the knife, it cannot be done too quick, and should always be done at once: the scrotum should always be divided to the bottom, and the circular incision in the skin of a breast always made quite round, before any thing else be thought of.[y] If this be not executed properly and perfectly,

x "Si quelque portion membraneuse a de la peine à se detacher, je la "coupe avec des ciseaux; *et quand le testicule est oté*, j'enleve une partie de "la peau du scrotum, si cette peau s'est trop étendue par le volume de la "tumeur."

LE DRAN.

The same direction is given by Laur. Heister. "Cutis scroti quæ *exempto* "*testiculo* supervacanea ut resecari forfice debet." By which means (that is, by not removing the skin along with the testicle, but afterward) the patient suffers almost as much pain as the whole operation, properly performed, would occasion; and that without any necessity.

y This passage has been quoted as a proof that Mr. Pott's usual practice was to remove the whole skin covering a cancerous breast; but it could only

the operation will be attended with a great deal of pain which might be avoided, and the operator will be justly blameable.

Before I take my leave of this operation, I think it right to give the young practitioner a caution, *viz.* that if the tumor be of a pyriform figure, perfectly smooth, and equal in its surface, and free from pain, notwithstanding the degree of hardness may be great, and he may, in his own opinion, be clear that the tumor is not produced by water, but is a true scirrhus, I would advise him, immediately previous to the operation, to pierce the anterior part with a trocar, in order to be certain. My reason for giving this advice is, that I was once so deceived by every apparent circumstance of a true, equal, indolent scirrhus, that I removed a testicle, which proved, upon examination, to be so little diseased, that, had I pierced it with a trocar previous to the operation, I could, and certainly should have preserved it.

Having, in the immediately preceding pages, given my opinion very explicitly concerning the expediency and propriety of removing, by the operation of castration, a scirrhous testicle, when fairly characterised, and properly circumstanced, it cannot be necessary to relate any such cases. Every man, who is at all conversant with this kind of business, knows, that the operation on proper subjects, and in proper instances, is very frequently successful; and that many people have been by it rescued from immediately impending misery, and have passed many years in health and ease, and in a state to propagate their species.

Particular accounts of such, would appear like mere boastings of success.

Those, therefore, which follow, are selected, either because the fortunate event was not very probable; and they may therefore serve to prove, that we should not too hastily or inadvertently despair:

Or, because their true nature was mistaken; and, therefore, they were improperly treated:

relate to those cases in which the skin was fixed to the gland, and partook of the disease. When it was sound and unaffected, Mr. P. by his doctrine and practice inculcated the preservation of it; and I have many times seen him remove large tumors by means of a simple line, so as to preserve the skin entire. E.

Or, that they were attended with circumstances not to be foreseen or prevented:

Or, that the case was too long neglected, and the operation too long deferred; or performed when success from it was not at all likely:

Or, that they were combined with other complaints, either general or local, by which the best calculated attempts must be frustrated:

Or, that they contain something in their nature which appears to be singular. From each, or all of which, I apprehend the practitioner may reap full as much, if not more, beneficial instruction, than from the most pompous histories of success.

CASE XXXIX.

A MAN about forty-seven years old, who had been, for the space of three or four years, afflicted with a truly scirrhous testicle, applied to me. He had been more than once, during that time, advised to part with it, but was afraid of the operation. He was now alarmed by an alteration which it had lately undergone, and from some circumstances in his general health which were new. The tumor, from its first appearance, had been indolent and equal, the spermatic chord in a natural state, and he had no other complaints of any kind. The testicle was now very unequal in its surface; it had increased considerably within the last three months; and the spermatic chord was enlarged; that is, become varicose, more than half way from the testicle to the groin. He had also a colicky disorder, which recurred frequently, without any purging.

The case was unfavourable, and there appeared to me to be no chance, but from castration. The state of the spermatic vessels rendered that dubious; but the improbability of the disease remaining in its present state, made it still worth embracing. The general state of the patient's health was also an alarming circumstance; but neither could that be amended, while the local disease remained.

Having apprised him of all these circumstances, he willingly submitted to the operation; which was performed the next day. The state of the process just admitted of making the ligature between the enlarged part and the abdominal muscles. Nothing particular attended the cure: the sore healed very kindly, and the man has enjoyed a good state of health ever since; which is now between four and five years.

CASE XL.

A GENTLEMAN from America applied to me, on account of a complaint in one of his testicles. It had, while he was abroad, been supposed to be, and had been treated as, venereal; by which means, what was, at first, a simple, equal, indolent scirrhous, with a spermatic chord unaltered from a natural state, was, when I saw it, unequal, at times painful, and dependent from spermatic vessels, considerably enlarged and swollen, though still soft, and free from knot or induration. He was otherwise in perfect health, his age thirty-three, and his constitution unhurt by debauchery or intemperance.

With regard to the testicle, there could be no doubt, either of the nature of the disease, or the propriety of its being removed; but the state of the spermatic vessels was such, as made the prospect of success from castration very uncertain. Two or three consultations were had, the result of all which were nearly the same; that is, the surgeons were very apprehensive of the operaration, from the state of the chord, and therefore would not press it; and the physicians prescribed internal remedies; and among these the cicuta, which luckily happened to disagree so much with the patient, that he would not go on with it:—I say luckily, because it thereby prevented the loss of more time in the use of it.

The patient was single, a sensible man, and had a great deal of courage and resolution in his natural constitution.

Having maturely weighed all that had been said to him, and finding that no relief was likely to accrue from medicine, and that his disease was as little likely to stand still, he determined rather

to take the chance which the operation would give him, either of sudden destruction, or a cure, than live in that state of anxiety, which must arise from a constant meditation on the nature of his disease.

The operation was performed; and in the execution of it, I was particularly attentive to the state of the vessels. The whole process was, I may venture to say, full double the size it ought to be, and the veins very tortuous, by their being distended; but there was no induration, nor any inequality, save that proceeding from the varicose state of them.

When the testicle was removed, I examined that also very carefully. The cavity of the tunica vaginalis was, in a great measure, abolished by an almost general adhesion of that membrane with the albuginea; the epididymis was tolerably sound; but the whole compages of the testis hard and diseased; and in the very centre of it was a putrid slough, and a very small quantity of ill-coloured sanies.

It is now above five years since the operation. The patient has enjoyed perfect health ever since, and finds no one inconvenience from the loss of the part.

In these two cases, the event was fortunate beyond expectation. In such circumstances, every thing is to be feared: the operation is seldom advisable, because seldom successful. However, they may stand as instances to prove that where there is even a small foundation for hope, it is better to embrace such opportunity, than to leave the patient to his fate. Neither himself nor his friends should, in such case, be flattered or deceived; but the uncertainty should be laid before them, and the operation should be their own choice.

CASE XLI.

A YOUNG man, about twenty-four years old, desired my opinion concerning a testicle, which was beginning to enlarge, and was already become very hard.

The account he gave was as follows:—

That, about seven or eight months before, he had a common

hernia humoralis, in consequence of the suppression of a gonorrhœa by hard riding. That the inflammatory symptoms were soon removed by rest, evacuation, and proper application; but that neither the testicle, nor the epididymis, had ever returned to their natural size. That the surgeon, whose care he had been under, had, since the inflammation was gone off, given him a considerable quantity of mercurial medicine internally, and had rubbed on a good deal of the ointment externally; by which his mouth had been made sore; and that he had also taken two or three mercurial vomits.

The tumor was perfectly indolent, even upon being handled; it had a stony, incompressible kind of hardness; and the spermatic vessels were in a sound natural state.

I told him, that whatever might have given rise to his disease, it was my opinion that it was a true scirrhus; that it would never be cured by medicine; that, although it was quiet, and free from pain now, no man would pretend to say how long it might continue so; and that I should, by all means, advise him to part with it in its present state, rather than stay till such alteration should be made in it, as, though it might induce him to comply, might render the operation unsuccessful. He disapproved my advice, and I saw no more of him for near four months; at the end of which time he called upon me again.

His testicle was a good deal increased in size, but the spermatic chord still unaffected.

I repeated my former advice, and he again refused to comply.

At the distance of two months from this time, I saw him again. His testicle was still more enlarged, and the cavity of the tunica vaginalis palpably contained a fluid. He said, he had showed it to two other surgeons; both of whom had promised him much relief, if not a cure, by letting out that water, which they told him made the principal part of his disease. I answered, that I had no manner of doubt that there was a fluid; but I apprehended it to be much less, in quantity than either he, or they who had promised a cure by letting it out, took it to be; that it appeared to me to make so small a part of the swelling, that I was sure that the decrease of size, upon its discharge, would bear no proportion to

to his expectation; that this fluid made no part of the original disease, but was an accidental consequence; that an opening made into a testicle so circumstanced might excite very disagreeable symptoms, from which he was at present free; and that my opinion was still, that it ought to be totally removed, or not meddled with.

He left me with much dissatisfaction. He said, that I was too tenacious of my own opinion, and too regardless of that of others. But I had seen too many of these cases to be in any doubt concerning its nature; and I knew the people, under whose direction he then was, too well to suppose, either that they knew any thing of the matter, or that they would leave any thing unattempted, while he had either credulity or money. Soon after this I heard that he had submitted to have a puncture made, by which a very small quantity of bloody serum was discharged; but the size of the tumor so little lessened, that his operator would fain have thrust a lancet in again, and deeper; but this the patient would not permit.

Being vexed at what had happened, he came not again to me, till at the distance of near two months more. He was now in a very different state. His complexion was wan and pale, his flesh and appetite gone, his testicle very large, unequal and painful; and the spermatic chord diseased quite up to his groin. I was very sory to be obliged to tell him, that I could do him no good; and that the operation was by no means advisable.

He now, of course, fell into the hands of those who only wanted a little ready money; and having tried two or three of these, he was advised to take the cicuta; which he did for some time, and in large doses, but (as usual) without any real or permanent good effect.

His state, soon after this, became truly deplorable; his testicle was of an amazing size; the spermatic chord, quite up to his belly, so large as hardly to be capable of being grasped by the hand; a very large, hard tumor within that side of the belly; his pain acute and constant; and his flesh, strength, and appetite, totally gone.

In these circumstances, a believer in the omnipotence of the sublimate solution, prescribed it for him; from which he received the advantage of having his death hastened.

CASE XLII.

A MAN about thirty, of a full plethoric habit, showed me a tumor in the spermatic process, about the midway between the groin and testicle: it was hard, circumscribed, indolent when not meddled with, but painful for a long time after having been handled, and the pain of such kind, as to indicate the disease not to have a very benign character; the testicle was perfectly free.

I advised the loosing some blood, gentle evacuation by stool, the use of a suspensory to take off the weight, and desired the patient to let me see him again in about ten days. At the distance of somewhat more than a month, he came to me again; and told me, that from me he had gone to a rupture-doctor, who put a truss on him, and giving him an external application, bade him come to him again in a week; that the pressure of the truss, joined to the irritating quality of the ointment, greatly increased the pain and the swelling; that his doctor then applied an adhesive plaster, and when he had worn that a few days, he thrust a lancet into the body of the tumor; that nothing followed the lancet but blood; that he enlarged the opening, and filled it with lint; and that for several days after, he had dressed the sore with red powder (precipitate). He had now as truly malignant a cancerous sore as I ever saw; and all the spermatic process above it was so diseased, as to prohibit all thought of an operation. Nothing palliated the fury with which it proceeded; he lived several months in great and constant pain, having a large hard body within the belly (on that side,) extending from the groin quite up to the region of the kidney; and which I make no doubt, consisted of the diseased spermatic vessels.

CASE XLIII.

A MAN, about forty-eight years old, who lived at some considerable distance from London, perceived one of his testicles becoming

hard; larger in size than it used to be; and when he was on horseback, somewhat painful.

Having several times had a gonorrhœa, and twice been confined with a hernia humoralis, he thought that this swelling was of the same kind, and applied to the apothecary of the town where he lived; who, not being much accustomed to surgery, and being misled by the patient's opinion and account, looked on it in the same light, and gave him several doses of calomel: these not succeeding to his wish, he confined the patient to his bed, applied a poultice to the scrotum, and vomited him twice or thrice, with the mercurius emet. flavus. By this process the man became feverish; lost his appetite, sleep, and flesh; and the testicle increased, both in size and hardness.

I was now consulted by letter, and gave my opinion, that the case was not venereal; that mercurial medicines, or whatever was likely to increase the circulation, were wrong, and would be found prejudicial; that whatever might become necessary hereafter, the present intentions ought to be, to procure ease, to remove the fever, to keep the body (which had always been costive) gently open, and to acquire strength by the administration of soft, light nourishment; and I recommended the decoct. sarsaparillæ, with milk, for his common drink.

In another letter, which I received at about three weeks' distance from the first, my opinion was asked concerning the cicuta: to which I replied, that in scirrhous and cancerous cases (one of which I took this to be) I had never yet seen it do any good, though taken for a considerable time, and in large doses; but, on the other hand, as I had never seen it do any harm, I could have no objection to its being tried.

In about two months, or a little more, I had another letter, giving me an account that the cicuta had been taken freely, and had also been constantly applied as a cataplasm; that, in about a month after its first application, the pains, both in the part and in the patient's back, were remarkably increased; that he now and then complained of being chilly; and that there had been, from about that time, a palpable fluctuation of a fluid, near to the surface of the tumor; that this fluid had been let out by the point of a lancet, and proved to be only a small quantity of a

bloody serum; that, from the time this opening had been made, the pain as well as the side of the tumor had increased; that, by continuing the cicuta poultice, with the addition of some Burgundy pitch, a collection of matter, or imposthumation, was now produced, plainly to be felt, though deep in the body of the testicle; and I was desired to say what I thought would be the properest manner of giving discharge to it.

I returned answer, that it was a very disagreeable thing to be obliged to give a positive opinion on a case by relation only; and that from those who I was sure thought not of it as I did. That as it was by no means unlikely that I might be mistaken, I desired, that what I should now say might not be understood or applied to any other case, than what *I took this to be;* that I took it to be a scirrhus, which was becoming cancerous apace, and would very soon show more of its malignant disposition; especially if irritated. That the fluid, which had been let out, was nothing more than the water of the tunica vaginalis, whose absorption was prevented; and whose colour was produced by the diseased state of the testicle. That I should not have advised the letting it out at all; much less in that small quantity. That it was my opinion, that the fluid, which was now supposed to be felt to fluctuate deep in the body of the testicle, was by no means matter, or the effect of a kindly suppuration; but a malignant sanies, the consequence of the very diseased state of the testis. That I did verily believe they would find, that the quantity of it bore small proportion to the size of the general tumor. That the letting it out would more probably occasion an aggravation than an alleviation of symptoms, and render the disease still more painful and more hazardous than it was already. And that I should not be surprised to hear, that there was no fluid at all.

To this I received a short reply, signifying that it was apprehended I had mistaken the case. That another gentleman in London had been consulted, who (from the account given of the state of the spermatic chord, of the preceding herniæ humorales, and, most probably, from a misrepresentation of the case) had advised the making an opening by knife; which had been done; but the writer of the letter did not say a word about what was let out.

I heard no more of the case, or patient, for near another month; and then was sent for, one evening, to an inn in this town, where I found him in a situation truly deplorable. The testicle was amazingly large, and one half of it covered by a prodigious fungus, which was intolerably painful, gleeted largely, and at times bled profusely; the spermatic process was also very large, and a tumor plainly to be felt within the belly, caused by the diseased state of the seminal vessels. The man's strength and flesh were exhausted; in short he was dying, and did not live above a week or ten days from this time.

I believe it must be unnecessary for me to observe, that the misconception of the nature, and the method of treating the three preceding cases, had no small share in contributing to the sufferings of the patients, and to the fatality of their events. I believe also, that most practitioners who have been conversant with this kind of business, will be of opinion that the operation, performed in due time, would certainly have contributed to the ease, and perhaps to the preservation of them.

A cancerous disposition in the habit will certainly render a patient liable to be destroyed, by the diseased state of parts out of our reach; and thereby render the operation, although performed in due time, in the best manner, and under the most favourable apparent circumstances, unsuccessful; but as this very often cannot be foreseen, or foreknown, surely it must be very wrong to omit doing what may preserve health and life, only because it may also happen, that it may do neither. In all these cases, a guarded prognostic should be made; and it should be considered, that though we are sometimes deceived and frustrated by sinister events, yet, on the other hand, it happens, and that not infrequently, that cases which have even an unfavourable and threatening aspect at first, come to a very happy issue.

CASE XLIV.

A MAN, about fifty years old, desired my advice concerning a diseased testicle. It was about the size of a small pomegranate, very hard, perfectly free from pain, and the spermatic process

free from all appearance of disease. Castration, he said, he was determined not to submit to; and only wanted to know, whether I could put him into any other method of getting rid of his disease. I gave him my opinion very freely, on the great improbability of his being served by any other means; and though I did, in some degree, advise him to submit to the operation, yet there were some circumstances in his general health, which induced me not to press it; and made me rather pleased, that he was previously determined against it. He had a very sallow diseased complexion, a general want of muscular flesh and firmness; a very frequent colic, sometimes attended with a threatening diarrhœa, and sometimes with an obstinate constipation. In the space of two or three years, he took a great variety of medicines, and saw a great number of practitioners, both regular and irregular, but found no benefit; neither did the testicle in all that space of time suffer any material alteration, or the process become at all affected. He died of an obstinate and painful dysentery; and when he was opened, his mesentery was found full of large, hard, scirrhous knots; all the lymphatic glands about the receptaculum chyli, and beginning of the thoracic duct, remarkably diseased; and the liver much enlarged and hardened.

The want of an healthy appearance, the pains, and other complaints which attended the man, might have been owing to causes independent of his scirrhus testicle; and upon such supposition, the removal of the said testicle by the operation might have been vindicable; but if it had been done, it should have been under a very guarded and doubtful prognostic.

CASE XLV.

A MAN about fifty, showed me a large, diseased testicle, which he said had been gradually, for near four years, getting to that size and state; and was produced, as he thought, by the kick of a child.

The surgeon who attended his family had often seen it, while it was small, equal, and free from pain; and had as often pressed

him to part with it; but while it was easy, he would never think of it.

It was now large, and unequally hard; it had, in some parts of it, a quantity of fluid, in others none; it was very painful to the touch; it gave him great uneasiness in his back, from its weight; and even while it was suspended, or he was in bed, he had such and so frequent darting pains in it, as to render him very unhappy, and to deprive him very much of his natural rest. The spermatic chord was perfectly free; but the frequency of his pain, and the disturbance of his sleep, gave him a very unhealthy appearance. I told him, that I thought he had missed the most favourable opportunity, by not submitting to the operation while the testicle was small, smooth, and indolent; that some circumstances in his general state and habit were unfavourable; but still, as the spermatic process was free, and as there was no great probability that the testicle would ever again be easy, or cease to increase in size until the spermatics should become diseased also, I thought it was better to take the chance of the operation, than submit to that certain misery which must attend the further progress of the disease.

The patient consented; the operation was performed; and every thing went on in the most favourable manner, till the sore was reduced to the size of a sixpence; he was then seized with a pain in his belly, the sore changed its aspect, and from appearing to be almost healed, it fretted, became foul, spongy, and spread so considerably, that in a fortnight's time it was as broad as a hand; it bled frequently, gleeted largely, was extremely painful, and very offensive; nothing that was done had any good effect on it; and, having languished some months, he died.

Some of the circumstances in this case were undoubtedly unfavourable; but I have seen people do very well under similar ones; and I still think, that the patient chose the lesser of the two evils, and embraced the more probable chance.

CASE XLVI.

A POOR man, who was in St. Bartholomew's hospital for a hurt in one of his legs, desired me to look at his scrotum, which was of a very large size.

The tumor was principally formed by water in the tunica vaginalis testis; but, through the fluid, it was easy to distinguish a diseased testicle. He complained of uneasiness from the weight, and had, he said, now and then a pain shot up from the testicle into his back; he had also, now and then, a colic, with nausea and inclination to vomit; and was very subject to a sort of strangury. I drew off near a wine quart of a yellow thin fluid, by means of a trocar; and when that was done, was so satisfied that the testis was diseased, that I would have immediately removed it; but the man would not consent. He soon got well of his leg, and was discharged from the hospital.

He was a bricklayer's labourer; and in about a fortnight or three weeks' time from his discharge, fell from a high scaffold, and was so much hurt that he died, after he had been again in the hospital two days; and I gladly embraced the opportunity of examining his dead body. The tunica vaginalis was not only much distended, but considerably thickened. The testicle was a great deal too large and too hard; but, upon division, did not show any considerable mark of disease, except in its very centre, where there was a small quantity of discoloured sanies, and a putrid slough. The spermatic vessels were not at all altered from a natural state, except that the vein was varicose. Immediately below the emulgent vessels, on the right side, was an irregular tumor, near as big as the kidney itself, perfectly scirrhous, and firmly attached both to the renal blood-vessels, and to the aorta. The external part of this tumor was rough and unequal, and of a whitish colour; and in the centre of it were exactly the same appearances as within the testicle, *viz.* a small quantity of matter, and a slough.

Where the ureter was crossed by this tumor, it was much compressed and straitened in its diameter; but below this stricture it

was considerably dilated. The kidney was not quite healthy in its appearance.

Had this man been castrated, I make no doubt that his internal scirrhus would have destroyed him; but that was a circumstance not to be collected from his general state, or from his complaints; and therefore not to be foreknown. The operation would therefore have been vindicable, though unsuccessful.

CASE XLVII.

A MIDDLE-AGED man, was brought into St. Bartholomew's hospital for an accidental hurt of which he soon got well; and when he was going to be discharged, he desired Mr. Freke, whose patient he had been, to look at one of his testicles. It was large, and unequally hard; gave him a great deal of pain at short intervals; and seemed to contain a quantity of fluid in its middle part: the spermatic chord was pretty free, just at its exit from the abdomen; but all between that point and the testicle was much diseased.

Some of the gentlemen present expressed their apprehensions, that the *state* of the process was such, that the operation would most probably be unsuccessful, and therefore they were rather inclined that the man should be discharged without any attempt of that kind; but Mr. Freke thought otherwise, and performed it immediately. The vessels of the diseased process were varicous to a great degree, and very knotty and hard; the connecting membrane was much thickened; the epididymis and testicle quite confounded together; and in the body of the latter was a quantity of bloody sanies, contained in two or three large cells.

The man got no rest after the operation, the vessels of the dartos bled through all the dressings more than once, and in a few hours he became very hot and restless, with a pulse quick and hard.

The next day he bled again, not from the chord, but from the whole dartos; his scrotum became much swelled, and loaded with a lymphatic kind of tumefaction, but was very little inflamed; his pulse was inconceivably rapid, but small; he complained of acute pains in his back, a burning heat within it, an intolerable thirst,

and an anxiety that was more terrible to bear than all the rest; towards night (of the second day) his pulse faultered, he became easy, and his extremities cold; and early on the third morning he died.

CASE XLVIII.

A HEALTHY man, under forty, came to me with a complaint in one of his testicles, the epididymis of which was much enlarged and hardened, while the body of the testis seemed to be in a natural state.

His age, his general appearance, and the particular state of the part, induced me to believe it to be venereal; but, upon asking him a few questions, he asserted, that he had never received any taint of that kind in his life. He said, that the first time he had ever taken notice of this complaint, was about six weeks before, after riding hard in the day, and dancing all night; that it was very small at first, had increased gradually, and now began to be very troublesome to him, either in riding or walking; and that not only from its mere weight, but from frequent pain in it.

I am obliged to acknowledge, that I was at this time so prejudiced by the general prevailing doctrine, that a true scirrhus or cancer never began in the epididymis, that I thought, either that my patient was deceived himself, or had a mind to deceive me.

I therefore gave him a mercurial pill to take every night, consisting of a small dose of calomel, with some kermes mineral, and directed a small portion of ung. mercur. to be rubbed every evening into the spermatic process.

By pursuing this method for about ten days, his mouth became sore, and he was much displeased thereby. I gave him some gentle cathartics, but his spitting kept at above a pint a day, for more than a fortnight; at the end of which time, the hardness, as well as size and inequality of the epididymis and vas deferens were manifestly increased; and his uneasiness in these parts was greater.

The death of a near relation now called him into the country, where he staid about a month. At his return he sent for me. The

disease was increased, but still confined to the epididymis; which was now in that state, which I suppose constituted the caro adnata of the ancients: it was hard, craggy, painful, and in size nearly equal to the testicle itself; the darting pains were frequent; and the uneasiness from its weight was constant and tiresome.

I was now satisfied of the true nature of the case, and let drop a hint of the propriety of removing the part; but having a very delicate and timorous man to deal with, I desired him to take the opinions of some other gentlemen.

He saw Mr. Middleton and Mr. Nourse as surgeons, and a third gentleman as a physician.

The two former advised immediate castration; the last seemed to wish him to take the cicuta, or the solanum, medicines then in fashion. The thought of castration shocked him so much, that he willingly embraced any hints concerning specifics.

He took the cicuta for more than two months, beginning with a small dose, and increasing it gradually to very large ones. It now and then made him a little sick and giddy; but the disease increased under it so manifestly, that I was apprehensive that we were doing much worse than merely losing time. I signified my suspicion, and pressed the operation; but he would not hear of it.

The solanum was now tried under the direction of the doctor; but it disagreed so much, even in the smallest quantity, that there was no possibility of persisting in it.

Upon this, as upon most occasions of this kind, every acquaintance recommended either a specific or a quack; most of which were tried, and I saw no more of my patient for above four months.

He then sent for me again. The whole testicle and spermatic process, quite within the belly, were thoroughly diseased, hard, and knotty; his pain was acute, and almost constant; and his whole appearance truly pitiable.

He was much displeased that I, who had often pressed him to submit to the operation, would not now perform it; but it was too late. In a few days after this visit, he applied to an operator, who required a very considerable fee before-hand, and laid the whole spermatic process open. A very terrible hæmorrhage ensued, and he died the next day in inexpressible agony.

I visited a patient with Mr. Markland, whose first local complaint was a hardened, enlarged, epididymis, and vas deferens; and upon whom the whole power of mercury, and other supposed deobstruent medicines, together with cataplasm, fomentation, &c. were tried, during a long space of time, in absolute confinement, but to no good purpose; the part became so large, so diseased, and so painful, and the habit of the patient so much affected by it, that extirpation was absolutely necessary. When the part was removed, I examined it very carefully; and never saw a more true and perfect scirrhus in my life. The epididymis was thrice the size it ought to have been; its external surface was very unequal, and very hard; and in the centre of it was a putrid slough, with a small quantity of matter, just as it is found very often in the middle of a scirrhous and cancerous testicle. The testicle was hardly, if at all, altered from a natural state, except that the tunica vaginalis was generally adherent to the albuginea. Its internal texture was soft, and bore very little mark of distemper.

I have, at this instant, a lad in St. Bartholomew's hospital, both whose testicles are so truly diseased, that they must of necessity be removed. I have seen him from the first of the attack. The disease for several months occupied only the epididymis; and had no connexion with, or dependence on, any venereal mischief. Every thing that the art of surgery could do (or at least every thing that I am acquainted with in it) has been tried, but without any effect; and nothing but the operation can save him.

CASE XLIX.

Mr. William Sharp desired me to visit a patient with him. The case was a scirrhous testicle. It was large, and very hard; but smooth, equal, and no other way painful, than from its weight. There was nothing in the testicle which forbade the operation; on the contrary, it was in such state, as to promise very fair for success; but the spermatic process, from the testis quite up to, and apparently within, the opening in the abdominal tendon, was so large and full, that it was impossible to feel the vessels. This fulness, and increase of size, if it could be supposed to proceed from

a diseased state of these vessels and their membranes, was such a bar to castration, that nobody could possibly think of it in such circumstances; but, on the other hand, if it could be supposed to be owing to an extravasated fluid, the withdrawing such fluid might make a very material alteration in the state of all the parts. Mr. Sharp said, that he had seen this patient some months before, and had let out (as he thought from the tunica vaginalis) a quantity of water; and that he then found the testicle a great deal too large; and was very sure that he then distinctly felt the spermatic vessels. The tumid process, though large, full, and tight, yet was smooth and equal throughout; and I thought, that I could very plainly feel a fluctuation through the whole of it; that is, from the opening in the oblique muscle, to the upper part of the testicle. The patient was young and healthy, the weight and size of the testicle very troubelesome; and nothing but this state of the process in the case, to make it necessary to defer the operation a moment. A puncture was made with a large lancet into the tumor just above the testicle; near a pint of clear yellow serum was discharged; the swelling subsided; the spermatic vessels, which were in a sound, natural state, became easily distinguishable; the operation was immediately performed, and proved successful.

CASE L.

A POOR sailor, who had been discharged from one of the navy hospitals, applied to St. Bartholomew's.

He had a scirrhous testicle, which was not large but was as hard as marble; very craggy and unequal, and attended with frequent acute pain; the process also was so large, that, upon such examination as I had then time to make, I told the man, that I did not conceive that he could receive any benefit, even from the operation; but one of the governors, prevailed on by the man's solicitation, desired that he might be admitted.

The first time we were all met together, I produced this man for the general opinion; which was, that if the increased size of the spermatic process was the effect of a diseased state of the parts composing it, the operation was improper, as it would only hasten

the man's death, and that in a very painful manner; but if it could be thought to be owing (as in the preceding case) to an extravasation of fluid in the common membrane, it was certainly worth while to try what the discharge of that fluid might produce.

The whole was related to the man; he was informed of our doubts, of what we intended to do, and of the probability that it might be of no service to him; a puncture was made in that part of the process where the fluid was most palpable; a large quantity of lymph was discharged, the tumor subsided, the spermatic vessels became very distinguishable; the operation of castration was immediately performed, and the man went out from the hospital well.

CASE LI.

A POOR man was taken into St. Bartholomew's hospital, for a complication of complaints; but particularly for a frequent and acute pain in his back and belly.

When he had been there a day or two, he told the nurse that he had a complaint in his scrotum; and the next day I was desired to look at him.

He had a diseased testicle of the scirrhous kind, which was not very large, but was hard and unequal; the spermatic process was not in a natural state, nor very much diseased; and he had a large and very troublesome omental hernia. The man had also a very morbid aspect; had his rest frequently disturbed by pain, and was near to fifty years old.

He was very solicitous to have something done for him, and willing to submit to any thing for that purpose; but his case was such, as to render it not an easy matter to determine what to do.

His rupture was large, and very troublesome; it was merely omental, and could not be kept up a moment, while he was in an erect posture, without a truss; a truss he could not wear to any good purpose, without the pad of it pressing on the spermatic chord, and aggravating a greater evil than his rupture; *viz.* his scirrhous testicle. The weight of his rupture, added to that of

his scirrhous, rendered it impossible for him to get his bread by labour.

The only method whereby he could be made capable of wearing a proper bandage for keeping up his rupture, or even of suspending it with ease, was, by submitting to have the scirrhous testicle removed by castration; and then, his rupture being returned, he might be enabled to wear a truss. But to this there were some objections. In the first place, the hernial sac came so low, that the process could not be tied, or cut off, without the sac having been first either laid open, or dissected off from it. In the next place, I did not like the state of the spermatic process, which was both too large and too hard; and in the third place, I thought the general circumstances of his morbid appearance, and bad state of health, were great objections to operations of such consequence, as either the laying open, or dissecting of the hernial sac from the spermatic process, or castration.

All this was related to the man in the fairest manner possible; and he desired to have such, or any operation performed, which I should think right.

Having been confined to his bed for more than a week previous to the operation, the omentum had hardly ever been down during that time, and was now perfectly up. This, though it might prove a circumstance in the man's favour, was none in mine as an operator; for the hernial sac being empty and flaccid, gave me thereby more trouble. The hernia was of the congenial kind; and, consequently, when I had divided the sac to the bottom, the state of the spermatic chord and testicle was manifest; and I had only to pass my needle and ligature round the upper part of the former, without paying any more or particular regard to the hernial sac. Upon a nearer view of the state of the process, I liked it still less than I had done before; but there was nothing now could be done, but to go through with the operation, and to take the chance of it. I did so; the man bore it well, and was better for the first two or three days, than I could have expected. After the first week was past, I was daily surprised at the good state of my patient. He was easy, free from pain or fever, slept well, took nourishment; and it was impossible for any sore to be or to look better.

At the end of three weeks, when he was to all appearance well, and his sore almost healed, he was suddenly seized with pain all over him, and died on the second or third day from this attack.

I had him opened. The portion of omentum, which had formed the hernia, had an attachment to the peritoneum, just within the mouth of the hernial sac; which, I suppose, was the reason why it could not be kept up while he was erect. The lymphatic glands about the lumbral vertebræ were all diseased; the liver was scirrhous throughout, and had a large collection of matter in its lower part.

AN ACCOUNT

OF THE

METHOD OF OBTAINING

A PERFECT OR RADICAL CURE

OF

THE HYDROCELE,

BY MEANS OF A SETON.

CURE OF HYDROCELE

BY A SETON.

An hydrocele is so irksome a disease to the indigent and laborious, furnishes even the easy and opulent with such disagreeable ideas and apprehensions, and is to all who are afflicted with it so troublesome and inconvenient, that every rational attempt toward relieving mankind from such an evil, will, I make no doubt, be favourably received.

It is now some years since I first began to make particular inquiry into the nature of this and some other diseases of the testicle, and the usual methods of treating them; an inquiry, which they appeared to me for many reasons, both to deserve and require. The result I communicated to the public, under the title of "A "Treatise on the Hydrocele, or Watery Rupture, and other Dis- "eases of the Testicle, its Coats, and Vessels;" in which I endeavoured to be as precise and as explicit as I could.

One part of this tract contains an examination of the various means, which, at different times, have either accidentally produced a radical cure, or have been professedly proposed and practised for such purpose.

Among other means used to obtain this end, I mentioned the seton; and spake of it as that which for many reasons, appeared to me to be preferable to all others; as a method which I had for some time practised with great success; and as that which, if nothing should occur to induce me to change my opinion, I should continue to make use of.

Since that time I have had frequent opportunities of repeating the experiment; and it has so constantly and uniformly answered my expectation, that my opinion concerning it is determined; and I am convinced, that it is the most successfully efficacious of any.

This might be urged, and would perhaps be admitted, as a good

reason for laying my thoughts on the subject again before the public; but I have others also to plead in vindication of the few following pages.

In the first place, I think that I have considerably and materially improved the operation and process; and have rendered it less painful and more certain.

In the second, I find, that what I said of it in the general treatise, has not been so clearly and perfectly understood as I could have wished, and in consequence either of brevity and obscurity on my part, or misunderstanding on the part of some of my readers, my true meaning has not been received; and I have been subjected to the frequent interruption of troublesome correspondences on the subject.

And, in the third place, I might add, that some few gentlemen of consequence, who have by this means been cured, have requested this publication.

A minute account of the nature and circumstances of the disease, would be a mere repetition of what I have already said at large in the book referred to; would be therefore unnecessary, and beside my present purpose: a short and cursory one may perhaps throw just as much light on the subject, as may serve to render the description of the operation, and the treatment after it, more easily intelligible.

The common bag in which both the testicles are included, is called the scrotum, and consists of epidermis, skin, and that loose cellular membrane, which is here called the dartos; to which might perhaps be added the expanded fibres of the cremaster muscle on each side. The proper coats of the testicle are, the tunica albuginea, and the tunica vaginalis. The former of these immediately invests the vascular compages of the testis, and is that coat with which it is covered while within the cavity of the abdomen, before birth. The latter is formed on the outside of the said cavity, is a process of the peritoneum, and is placed ready for the reception of the testicle when it shall be thrust forth through the groin into the scrotum. Between the vascular structure of the testicle, and the tunica albuginea, there is no vacuity; but the external surface of the gland is in every part firmly adherent to, and connected with, the internal one of the investing coat: the tu-

nica vaginalis forms a hollow cavity, or bag, which loosely and unconnectedly envelops the testicle, covered by its albuginea.

When I say loosely and unconnectedly, I would wish to be understood aright. I do not mean that the testicle hangs in the middle of the tunica vaginalis (like a clapper within a bell,) and has no connexion with it—I mean that all the superior, anterior, and lateral parts of the tunica vaginalis are loose from, and unconnected with, the testicle, which is at the same time firmly united to its posterior part, in such manner, that if the cavity of the tunica vaginalis was to be distended with wind, such wind would occupy or fill all the loose and unconnected part, and produce a tumefaction not unlike to a hydrocele, while the testicle would be found firmly and immoveably attached to the hinder part of the said cavity so distended.

To prevent the accretion of these coats in those parts where they ought to be unconnected, and perhaps for some other purposes, the cavity of the tunica vaginalis is furnished with a fine lymph constantly exsuding into it; which lymph is as constantly absorbed by proper vessels; so that, in a healthy and natural state there never is any more of this fluid within the bag at a time, than may just serve (beside what other purpose it may be intended for) to keep the two membranes from coming into immediate dry contact and cohesion with each other. This small quantity is sufficient to preserve the proper and natural cavity of the tunic; but never occasions any degree of intumescence, or any unnatural or diseased appearance of the part.

A deficiency, or total failure of the secretion of this fluid, will be followed by a partial or total coalescence of the two coats with each other; and consequently a total or partial abolition of the cavity. A superabundance, or a secretion of more than the absorbent vessels can take up, must, on the other hand, enlarge and distend the said cavity, by carrying all the loose unconnected part of the bag further and further from the testicle, in proportion to the quantity accumulated. The former, I do know to be sometimes, and I verily believe most frequently is, the consequence of a severe hernia humoralis, as well as of other inflammations of the testicle. The latter, among other diseases, produces the hydrocele or watery rupture.

This being the case, that is, the intumescence of the scrotal bag being caused by the gradual accumulation of a fluid, which ought to have been absorbed, it is almost always produced gradually; and therefore has, in most instances, made some progress before it is taken notice of; especially by careless and inattentive people. For the same reason it will be found, that as it depends upon the circumstances of secretion and absorption, it will, in different people, make quicker or slower progress, according as the deposition shall happen to be quicker or slower, and the absorbent faculty only more or less impaired, or totally obstructed. As this disease is confined to the cavity of the tunica vaginalis testis, and as this bag has no communication with the cavity of the belly, the tumefaction can never be lessened by any attempt toward reducing or returning it into the abdomen. For the same reason, it never is, nor can be liable to any alteration of size, or temporary distention, from the efforts or actions of coughing, sneezing, expulsion of fæces, &c. For the same reason, (I mean the confinement of the fluid within the cavity of the tunica vaginalis,) the intumescence, when early attended to, will always be found in the lower part, and does not rise above the upper part of the testicle, until the disease has made some progress, and the quantity is become considerable; therefore the spermatic process will always, in the early stage of this distemper, be capable of being felt perfectly and distinctly; although when the tumor has arrived to any considerable degree of size, the fluid does so conceal the testicle, as to render it not a very easy matter to find it. The three last circumstances, well attended to, will always serve to distinguish the hydrocele from the intestinal hernia or common rupture, at least in the beginning. To these might be added, several other characteristical marks of this distemper, such as: That being neither accompanied by, nor occasioning any inflammation or irritation, it never gives pain, unless it be very rudely handled, or be permitted to attain such size as to be troublesome from its weight, or to be subject to excoriation from its magnitude; which may serve to distinguish it from the hernia humoralis, an inflammatory and often a very painful disorder. That if the fluid be thin and limpid, and the vaginal coat and membranes of the scrotum not thick, the tumor is often in some degree transparent; that is, the light of a candle or

lamp may be seen through it. That constipation of the belly does not render it at all more tense, or produce any uneasiness in it while it lasts; neither does the removal of such obstruction or constipation at all lessen its volume, or make any alteration in it, either to the eye or to the finger. To all which ought always to be added, the *fluctuation of the fluid.*

The size and figure of the tumor, caused by this disease, are liable to considerable variety, dependent upon the quantity and consistence of the fluid accumulated; the time such accumulation may have taken up; the thickness or thinness of the vaginal bag and membranes of the scrotum; and the equal or unequal manner in which these parts may have given way to the distention. Hence the tumor will be larger or smaller, round, flattish, pyriform, or globular; will be firm, tense, and resistent, or lax, soft, and easily compressible; smooth and regular in its surface, making one uniform figure, or divided by a kind of depression or stricture, which will make it appear as if the water was in two distinct sacculi or bags; it will also be more or less tense, as well as regular in its surface, as the contractile power of the scrotum, by means of the cremaster muscles, shall be more or less.

The qualities of consistence and colour in the contained fluid is also various: it is thin, aqueous, ropy, viscid, limpid, citrine, greenish, brown, bloody, clear, or turbid; from each of which some small differences in the aspect, feel, weight, transparency, or obscurity of the tumor will arise; but are of no consequence with regard to any method of treatment, palliative or radical.

The methods of cure of a hydrocele are said to be two, one called the palliative, the other the radical; the latter of which alone deserves the name of cure.

The former consists merely in letting out the water occasionally, and is so simple and so trifling an operation, that I shall say nothing more of it, than that I think a small trocar a much preferable instrument for this purpose, on all accounts, to the lancet, or any other.

The radical cures, as they are called, may be collected from the writings of several of our predecessors. The general means they made use of were cautery, caustic, ligature, and tent. For the particulars relative to each of these, I must beg leave to refer

my reader to the writers themselves, a minute detail of them not being consistent with the plan of these few sheets. But without entering into such disquisition, I believe I may venture to say, that whoever will give himself this trouble, will find, that all the means which were either professedly used to obtain a radical cure, or which ultimately and accidentally produced such event, were put in practice for three general reasons, or under the influence of three general opinions; the first of which was, that the fluid found in the sac of a hydrocele was always originally formed in the cavity of the belly, and descended from thence into the scrotum; the second, that it was a disease of the habit, as well as of the particular part, that is, that it was general, as well as local; the third, that the collection of liquor found in it was either the necessary cause, or the consequence of a diseased state of the testis.

From these flow the applications of cautery and caustics to the groin, and of ligatures on the spermatic process. From these are derived all the cautions to undertake the cure guardedly, to conduct it slowly, and to attend rigidly to the patient's general state by cathartics, alteratives, specifics, issues, &c. &c. &c.; and to these we owe the experiments made to induce suppuration from the parts affected.

Not being acquainted with the anatomical structure and disposition of the parts concerned in the disease, they had very terrible as well as very erroneous notions concerning it. They supposed that the fluid contained in the cyst was thrown off from the habit as a kind of crisis; that the general constitution of the patient was, by such deposition, much relieved; that it prevented many other and those worse disorders; and, either that a morbid state of the testicle and epididymis concurred in producing the fluid, or that the same parts necessarily became diseased from lying in it. They therefore concluded, that although a radical or perfect cure might be obtained by certain means, or that certain means having been found now and then to have produced such event, they might with probability be expected to answer such purpose, yet the attempt ought never to be made without a strict attention to the general evils which might ensue, as well as to the particular ones proceeding from the supposed morbid state of the parts.

Inquiry and experiment have taught us better; have given us truer notions of the nature of the complaint; have induced us totally to lay aside many of the means used by our forefathers; and although we do still in some sort continue some of them, yet it is upon different principles, and with very different views.

The noxious quality of the fluid; the diseased state of the parts whence it proceeds, or wherein it is deposited; the critical, or depuratory nature of the deposition; the necessity of drawing off the water partially, and at short intervals; and the fear of curing it locally, lest the general habit should suffer, are all now known to be groundless apprehensions; and it being also known, that the collection of fluid is originally made in the tunica vaginalis only, and that it does not descend from the belly, all attempts towards preventing such descent are become equally absurd.

The testicle, although frequently somewhat enlarged in its dimensions, and relaxed in its texture, is known to be sound, to be otherwise unaffected and unaltered, and to be fit for, and capable of performing the functions it was designed to execute; the fluid is acknowledged to be innoxious in its nature, neither proceeding from parts in a diseased state, nor causing any disease in the parts in which it is deposited, and with which it is in contact; but being accumulated in consequence of constant secretion, and deficient or non-executed absorption, the intention of every rational practitioner, when he aims at a radical cure, is, to abolish the cavity of the tunica vaginalis, and thereby to prevent any future collection.

Whatever means can accomplish this end with the least fatigue, pain, or hazard, are certainly the best.

Of the incision, I shall in this place say nothing, except that it lies under so many restraints from a variety of circumstances, is so improper for the majority of persons afflicted with the disease, and requires such nice attention, and such judicious management, that it never can be recommended as fit for general practice.

The caustic, upon the rational principle of which I am now speaking, *viz.* that of abolishing the cavity of the tunica vaginalis, has been practised by many, and that with such success, as to induce some to think it the best and most eligible method. Among

these is Mr. Else, who has lately published his opinion on the subject.

The introduction of suppurative medicines, by means of a tent, was practised by some of even our remote predecessors; and, as they tell us, with success, even in complicated cases; that is, in cases where a diseased state of the testicle has been added to the hydrocele. But whoever will attentively consider their accounts of this matter, will see, that this method, whatever might be its accidental consequence, was not intended for the purpose which I am now speaking of.

Perhaps there is no part of surgery which was less understood by our ancestors, or concerning which they expressed themselves with so little precision, as the subject of diseases of the testicle: they have multiplied and confounded them in such manner, and speak of them in such a jargon of unintelligible terms, that it is next to impossible to understand often what they really mean.

For a particular elucidation of this subject, the chirurgic world are much obliged to the late professor Munro of Edinburgh, and Mr. Samuel Sharp, late of Guy's Hospital, now of Bath.

The accounts which many of the best among the writers in surgery, even quite into our own time, have given of the diseases of these parts under the terms sarcocele, fungus attached to the spermatic vessels, fungus arising from the testis, hydrocele, and hydro-sarcocele, are error itself; and the operations which they describe and recommend are many of them coarse, and either impracticable or very unfit for practice. But, however, from these accounts, strange and irrational as they are, we may collect that they conceived the diseases which they call the hydro-sarcocele, and the caro adnata ad vasa spermatica, to be (in contra-distinction from the sarcocele, and the fungus springing from the testicle) curable diseases, the one by extirpation of the fungus, the other by suppuration.

No precise definition of what they have thought proper to call the hydro-sarcocele has been given by them, and therefore we have no better method of forming a judgment concerning it, than by considering the event and success of their method of treating what they have so called, with what we know concerning the structure of the testicle, its disorders, the means which we now find to be

successful in them, and the disappointments and disagreeable circumstances which sometimes occur in them.

Fabritius ab Aquapendente has been particular on what he calls the hydro-sarcocele, and has given an account of his method of curing it; but whoever is acquainted with diseases of the testicle, and will compare with such knowledge what Fabritius has said concerning his method and its success,[a] will, I am inclined to believe, think on this subject as I do; that the disease which he gave this hard complex name to, is nothing more than true, simple hydrocele, in which the testis is somewhat enlarged beyond its natural size, and perhaps somewhat relaxed in its texture, in consequence of such enlargement; but still sound, and free from disease; still fit for, and capable of, executing its office.

That by his method he obtained a radical cure I make no doubt: his 'turunda digestivo et pus movente medicamento imbuta,' would most probably occasion a sloughing of the tunica vaginalis, and consequently an abolition of the bag or cavity. But whoever knows any thing of these matters, must know, that a testicle really and truly diseased would not bear such treatment; and therefore, that his success was owing to the state of the testicle *not being* what he supposed it to be, and what the term he makes use of implies.

The method of Fabritius was within a few years past adopted and practised by Ruysch.[b]

The means and conduct were nearly the same, and I have no doubt that the success was equal. But the same objection still

[a] "Si carnosa simul et aquosa sit hernia, ego talem adhibeo curam. Seco "cutem et incisionem facio et exiguam, et in loco potius ultiori quam in "fundo, inde turunda imposita, cum digestivo et pus movente medicamento "procedo, neque unquam totum pus extraho, sed perpetuo bonam partem "intus relinquo, quod sensim carnem corrodat et ita sanat."

FAB. AB AQUAPENDENTE.

[b] "Sanara quidem valet id mali pertuso scroto ope instrumenti trochert "dicti, vel lanceola phlebotomica, ut aqua vulnere exeat, sed cito plerumque "recrudescit *malum*.

"Si *autem* curationem aggrederis aperiendo scrotum a parte superiori, ad "latus, tumque vulnus turunda oblonga, unguento rosaceo mercurio præci-"pitato rubro inuncto oppleveris, donec lenis inflammatio, eique succedens "suppuratio parva, membranules stillantes putrescerit, tuncque eas tenaculo, "eduxeris," &c.

RUYSCH.

remained; which was, that not only a suppuration was brought on, but the whole tunica vaginalis was so irritated and inflamed, that it necessarily became sloughy, and was entirely destroyed; an objection which had been made to the method by caustic; and which, I must acknowledge, is, in my opinion, an objection to it still.

The late professor Monro, whose observations on the diseases of the testicle are very pertinent and very ingenious, seemed to think that it was by no means impracticable, by means of a slight degree of irritation, to excite such an inflammation both in the tunica vaginalis and albuginea, as might occasion a coalescence of them with each other, and thereby answer the end of abolishing the cavity, without destroying any part of either tunic.

I made the experiment proposed by him, and found it sometimes successful; never hazardous or prejudicial, but by no means certainly efficacious, or to be depended upon. The cannula, by its hardness and resistance, was a very unpleasant guest within the vaginal coat; and from its inflexibility, upon any unguarded motion of the patient, injured the testicle, and gave very acute pain; and the tent and bougie, which I occasionally substituted in its place, although they did not give so much pain, were liable to a considerable degree of uncertainty.

Uncertainty and hazard are certainly very different things, and the latter much preferable to the former: not to have injured a man by an experiment, affords some degree of consolation under a disappointment; but yet, when it is considered, that an operation and process of this kind are submitted to from choice, and not from necessity, if it fails of success, although no real harm be done either to the part, or to the constitution of the patient, both the loss of time and the confinement will become doubly irksome, as they will be found not only not to have answered the end proposed, but not to have brought the patient at all nearer to a cure than he was before the attempts. The reflection is unpleasant to both parties.

Being, from the effects both of the cannula and tent, satisfied that there was no kind of hazard in the introduction of a foreign body into the cavity of the tunica vaginalis, nor from its remain-

ing there; and having many opportunities of meeting with this disease in St. Bartholomew's, I determined to try what a seton would do toward raising such a degree of inflammation as might occasion a coalition of the two membranes, and effect the purpose proposed by professor Monro.[c] The success fully answered my expectation.

In my general treatise on the diseases of the testicle, I mentioned and recommended it; but as I could not be certain what a greater length of time might produce to make me change my opinion, I mentioned it with some degree of caution.

Since that time I have embraced every opportunity, both in the hospital and out, of practising it, and that under some improvements; and as I can now speak positively to its success, I thought it right to give it to the public, who are always intituled to every benefit arising from the labours of every man whom they have honoured with any degree of confidence; and this as well on a principle of humanity as of gratitude.

What I have said of it in the general treatise is in the following words, " The point to be aimed at is, to excite such a " degree of inflammation, both in the tunica vaginalis and tunica " albuginea, as shall occasion a general and perfect cohesion " between them; and this, if possible, without the production of " slough or abscess; without the hazard of gangrene; and without " that degree of symptomatic fever which now and then attend

[c] His words are, " Considering how readily contiguous inflamed parts " grow together, and how many instances there are of people having a radi- " cal cure made of this hydrocele by inflammations coming on the part, it " would seem no unreasonable practice to endeavour a concretion of the two " coats of the testicle when they are brought contiguous, after letting out " the water through the cannula of a trocar, by artfully raising a sufficient " degree of inflammation.

" This to be sure must be done cautiously, and so that the surgeon can " reasonably expect to be master of the inflammation; and therefore the ap- " plication of all irritating medicines, the operation of which he could not " immediately stop, or any single mechanical effort, the effect of which he " could not be sure of, are not to be employed.

" Suppose the cannula of the trocar was to be left, by the extremity of it " rubbing against the testicle, an inflammation might be artfully raised, the " cause of which might be taken away as soon as the surgeon thought fit."

MEDICAL ESSAYS.

" both the caustic and the incision; and which, when they do hap-
" pen, are so alarming both to patient and surgeon.

" These ends I have frequently obtained by the use of a seton.

" It is a method of cure mentioned by Aquapendens from Guido,
" and others before him, though their process was somewhat dif-
" ferent from mine. I have several times tried it on subjects of very
" different ages, some of them more than fifty years old. It re-
" quires confinement to bed only for a few days, after which the
" patient may lie upon a couch to the end of the attendance,
" which is generally finished in about three weeks or a month at
" furthest, and during all that time no other process or regi-
" men is necessary, than what an inflammation of the same part
" from any other cause, (for example a hernia humoralis) would
" require.

" The manner of performing it is as follows: Choose a time
" when the vaginal coat is moderately distended, and having
" pierced it with a trocar of tolerable size, draw off the water;
" when that is done, introduce into the cannula a probe armed
" with a seton consisting of ten or twelve strings of candle-wick
" cotton; pass the probe as high to the upper part of the vaginal
" coat as you can, and on the end of that probe make an incision
" of such size as to enable you to pull it out easily, together with
" a part of its annexed seton; then cut off the probe, and tie the
" cotton very loosely, covering the orifices with pledgets. By the
" next day the seton will be found to have contracted such an
" adhesion to the tunica albuginea as would cause a great deal of
" pain to detach; but this it is perfectly unnecessary to do, and it
" should be suffered to remain without molestation. In about
" forty-eight hours the scrotum and testicle begin to swell and
" inflame; the patient should then lose some blood, and have a
" stool or two, and the whole tumefied part should be wrapped
" in a soft poultice, and suspended in a bag-truss. The disease
" from this time bears the appearance of a large hernia humora-
" lis, and must be treated in the same manner, by fomentation,
" cataplasm, &c.

" The adhesion of the seton to the albuginea generally continues
" firm, and I never meddle with, or move it, till it becomes perfectly

"loose, which it seldom does for the first fortnight, or until the "inflammation is going, and the tumor subsiding. By the time "the seton becomes loose, the coalition of parts is universally "and firmly accomplished: I then withdraw it, and heal the ori-"fices with a superficial pledget, &c."

This method was, as I said, in general very successful; but repeated trials furnished me with objections to some parts of it, and induced me to think that such parts might be amended.

I found that cutting upon the end of the probe was troublesome, both from its smallness and from its flexibility, and also that it was sometimes difficult to keep it steady for the same reasons, and that it always required the assistance of another person's hand besides that of the operator—a circumstance one would always wish to avoid, when possible. I found also, sometimes, that the seton of a candle-wick cotton did not pass so easily as I could wish, and by rubbing the tunica albuginea too rudely, gave more pain than I liked. The seton, as made of cotton, adhered, in some instances, too long and too firmly. From the intimate connexion of the parts of the wet cotton with each other, it could never be brought away but entire; which in some cases occasioned an unnecessary waste of time; and, what was still worse, in two instances it adhered so firmly, that I was obliged to make a small incision to get it away at all.

All these inconveniences and objections I have now obviated and removed.

The instruments I now make use of are in the annexed plate, and are—

A trocar, the diameter of whose cannula is very nearly, but not quite, one fourth of an inch; another cannula, which I call the seton-cannula, which is made of silver, and is of such diameter as just easily to pass through the cannula of the trocar, its length five inches; and a probe of six inches one half long, having at one extremity a fine steel trocar-point, and at the other an eye which carries the seton; which seton consists of just so much strong, coarse, white sewing-silk as will without difficulty pass through the latter cannula, but at the same time will fill it.

With the trocar, the inferior and anterior part of the tumor is to be pierced, as in common palliative tapping. As soon as the

water is discharged, and the perforator withdrawn, the seton-cannula is to be passed through that of the trocar, until it reaches the upper part of the tunica vaginalis, and is to be felt in the very upper part of the scrotum. This done, the probe, armed with its seton, is to be conveyed through the latter cannula, the vaginal coat and integuments to be pierced by its point, and the seton to be drawn through the cannula, until a sufficient quantity is brought out by the upper orifice. The two cannulæ are then to be withdrawn, and the operation is finished. It is executed in two or three seconds of time, and with little more pain than is felt in common tapping.

By this method, every advantage which attended the former operation is obtained, and every inconvenience which it was liable to is obviated and provided against.

The seton-cannula, by its firmness, bears tight against the place where the seton should be brought out; the trocar-point of the probe is kept from deviating by its confinement, and its point pierces through the skin immediately and exactly in the place intended; while the seton, by passing through the cannula, is prevented from rubbing rudely over the testicle.

As soon as the operation is finished, I put the patient into bed, and immediately give him twenty or twenty-five drops of tinctura thebaica, which I repeat or not, pro re nata.

About the third day the testicle and scrotum begin to inflame and swell, and to put on the appearance of a hernia humoralis, or the swelled testicle which now and then attends a gonorrhœa, and requires the same, and no other kind of treatment; that is, fomentation, poultice, a suspensory bag, a cool, temperate regimen, and an open belly.

By these means the inflammation is soon and easily appeased. As soon as this end is accomplished, I permit the patient to get out of bed, and lie on a couch, or sit in a great chair, with his legs up; and I generally give the cortex, in some form or other, twice or thrice a day.

The soreness and tumefaction now diminish apace; and as soon as the parts are quite easy, which is generally about the tenth or twelfth day, I begin to withdraw the seton, taking out four, five, six, or seven threads of it at each dressing; which dressing con-

sists of nothing more than a superficial pledget upon each of the orifices while they continue open, and a discutient cerate (such as the ceratum saturnin.) to cover the scrotum.

The discharge of matter from the orifices is small and trifling, no more than might be expected; the tunica vaginalis does not become sloughy, but is preserved entire; and the cure is accomplished merely by the coalescence or cohesion of the tunica vaginalis with the tunica albuginea—an event, which, from what has fallen within my observation, I am inclined to believe is most frequently the consequence of a severe hernia humoralis.

In this circumstance, *viz.* the accomplishment of the cure, by adhesion of the two coats together, without any destruction of parts, consists the material difference between the method of cure by seton, and that by caustic.

All the practitioners who make use of the latter allow, that it produces a slough of the whole tunica vaginalis; that it destroys the whole bag or cyst; and that it is used with intention so to do.

In the cure by seton no slough is produced, (at least I have never seen one,) nor is the vaginal coat destroyed in any part of it; a firm cohesion is made between the two membranes, occasioned by the inflammation; and the cure is effected solely thereby.

I shall always most gladly embrace any opportunity to improve so noble and so really useful an art as surgery; but, at the same time, should be very sorry to have it supposed, that any partiality to my own opinion would make me misrepresent, or deviate from truth.

Since this pamphlet first appeared, Mr. Else has published a second edition of his account of the cure by caustic.

In this he has recited two attempts by the seton, which were under the conduct of Mr. Martin, in St. Thomas's hospital.

I make no doubt that the circumstances were as Mr. Else has related them; but I must take the liberty of saying, that although I have practised the method of cure by seton on a very considerable number of people, both in the hospital of St. Bartholomew, and out of it, of all ages and in all circumstances, I have never yet met with that trouble, or those disagreeable symptoms, which Mr. Else has related as happening to Mr. Martin's two patients:

on the contrary, I am, from very frequently repeated experience, convinced, that the cure by the seton is by much the least hazardous, painful, or fatiguing, as well as the most expeditious and certain of any yet proposed.[d]

[d] Although I am as much a friend to simplicity in chirurgic operations as any man can be, and think that whatever can be well done by means of one instrument, is most frequently better done than by means of several, yet, in this instance, I cannot help thinking otherwise.

The intent of the seton-cannula is to defend the tunica albuginea testis from the rude passage of the silk over it. From the pain and other disagreeable circumstances which I have seen attend the omission of it, I must again recommend its use, though it does add to the instrumental apparatus. From frequent and repeated experience, I must also advise the using a skein of white silk instead of ribband or tape.

Whatever is used will necessarily contract some degree of adhesion to the testicle during its inflamed state; and this adhesion will unavoidably create some little trouble and uneasiness whenever the seton is withdrawn; but this pain and trouble will necessarily be least when the seton is composed of such materials as are capable of being taken away at different times, instead of all at once.

When a seton of any kind is used for the purpose of making, or of continuing, a drain of matter, it is right to move it daily, and frequently to shift it; but in this case, as the intention is different, so should our conduct be. The intention is merely, by the residence of the seton, to excite such a slight degree of inflammation as shall occasion an adhesion of the tunica albuginea testis to the tunica vaginalis, and not a suppuration: the moving it daily, or even at all, until the proper time of taking it quite away, can do no good, and must, by exciting unnecessary pain, do harm.

I therefore must repeat my advice, to let it remain unmoved for a week or ten days, at the end of which time it will have accomplished its end, and then had better be removed than not.

Suppuration is not only not intended, but should, as much as it may be in our power, be guarded against.

RADICAL CURE

OF

THE HYDROCELE,

BY

MEANS OF AN INJECTION.

BY THE EDITOR.

CURE OF HYDROCELE

BY INJECTION.

THE inconveniences attending the usual methods of treating the hydrocele are well known to those who are engaged in the practice of surgery. The disease itself is attended with little pain and no danger: many of the remedies now in use for it are productive of considerable pain, and are not totally destitute of hazard.

The proper object of all operations for the radical cure of the hydrocele, is to produce such an adhesion of the distended vaginal coat of the testis with the gland, or such a consolidation of the contiguous parts, as shall annihilate the cavity in which the water constituting this disease is contained. We know that this effect may be produced by a certain degree of inflammation, and are unacquainted with any other process, either natural or artificial, by which it can be brought about. Before the method by the seton was recommended by our author, the necessary inflammation was excited by dividing the scrotum and the vaginal coat, or by destroying a part of them by the knife or caustic.

Mr. Pott took no small pains to mitigate the severity of this operation, and to raise inflammation in a more simple manner, by the introduction of a foreign body, without destruction of parts. With this view he preferred the seton. This he soon discovered to be productive of more inflammation than was necessary; and, after a series of trials, he suggested many very ingenious directions for performing and conducting this operation, in such a manner as to produce the least possible irritation. We must allow that he carried the process he recommends to a great degree of perfection; and if the operation be performed without deviating from the directions he has laid down, I am convinced it will be found preferable

to any of the methods which have been usually practised in this country; yet it must be observed, that even this remedy goes beyond the proper intention, as the seton not only excites adhesive inflammation, but is necessarily attended with some degree of suppuration, at least in the track of it, before it can be removed: add to this, an objection of much more practical consequence, that even in its present state the inflammation produced by the seton sometimes runs much higher than is intended, and demands the attentive administration of antiphlogistic remedies.

The late Mr Else's method, by the application of a small caustic, has the same inconveniences, and is liable to a much greater objection; as it is not only attended with more inflammation than is necessary, but also unnecessarily causes a painful, offensive sore, producing a slough of part, if not the whole, of the tunica vaginalis testis.

The human frame is liable to few diseases which have more frequently exercised the ingenuity of practitioners, to find an easy and effectual cure for them, than this. Among the various methods which have been proposed, an external discutient has of late been strongly recommended. It would certainly be a most desirable plan, to get rid of the disease without any operation; but we know too well how confined our powers are in dispersing collections of fluids within sacculi mucosi, and some kinds of encysted tumors, whose integuments are comparatively thin, and, therefore, must conceive that much greater power would be requisite to act through the scrotum and thickened tunica vaginalis, so as to produce absorption of the fluid and cohesion of the tunics.

Hydroceles have been accidentally dispersed by various means, particularly by a blow, by a fever, and by sickness at sea. I do not entertain the smallest doubt, that the above remedy, which has been proposed by an ingenious and able practitioner, has produced the same effect; but I cannot help doubting its capability of frequently producing it, having myself tried it, and known it tried by others, several times, without success.

The proportional merit, however, of different remedies, can never be exactly determined: few men have opportunities of seeing a variety of remedies repeatedly tried, and perhaps still fewer possess a sufficient share of candour, to weigh the merits and defects

of each in an equal balance; consequently medical practice is never settled in any case till it be nearly perfect, or at least till some one proposed remedy bears no comparison, in point of excellence, with the rest. Thus, in regard to the treatment of the hydrocele, though the methods of Mr. Pott and Mr. Else are certainly great improvements; yet, as some objections may be made to them, there are at this time surgeons, who have returned to the old painful practice of incision, and cutting away a part of the scrotum and vaginal coat.

In this unsettled state of practice it will not, I hope, be thought improper to subjoin some observations of my own, on this subject, to those of Mr. Pott; which, however, I should not take the liberty of intruding into this work, had not Mr. Pott himself so far approved of the method which I am going to recommend, as to declare to me, not long before his death, his intention of giving it a fair trial.

It is well known that our forefathers made use of injections for the cure of hydroceles, and this method is now not out of practice on the continent; but it is wonderful that a remedy, which may be made to answer the intention of exciting inflammation to any degree, and is attended with no inconvenience, present or future, should have fallen almost into total disuse in this country: some of the later English writers on the hydrocele do not mention it; and if it be noticed by others, it is only to show their disapprobation of it.

Injections introduced within the tunica vaginalis testis, into the urethra, or into any cavity of the body, natural or formed by disease, are certainly capable of doing mischief; but the mischief must arise from the nature of the injection: if it be violent and irritating, it may produce too great inflammation. It is very probable that the caustic, and highly stimulating ingredients, which have been sometimes most injudiciously injected, and confined an unreasonable and an unnecessary length of time, have done harm, and have been the cause of bringing injections in general, and for the cure of the hydrocle in particular, into discredit; but it is extremely absurd to infer, from such instances, that all kinds of injection must be pernicious: in the use of them we are not limited

to any degree of stimulus. Injections may be found so bland, as not to offend the most sensible membrane or surface in the human body; on the other hand, they may be prepared so corrosive as to inflame, and even to dissolve the most indolent parts; and they be made to produce any intermediate effect. There is no kind of stimulus which admits of such various modifications.

Another great advantage of injections is, that they apply themselves equally and universally over the whole cavity into which they are thrown, which no solid body can do.

As I had frequently succeeded in procuring an adhesion and consolidation of parts in sinuses and other large cavities, by injections of various kinds, without causing great inflammation, and had by those means avoided the necessity of extensive divisions of the skin and integuments, which should be avoided as much as possible in every part, I conceived that the cure of hydroceles might be effected by the same gentle means, without deranging, more than is necessary, the economy of those tender and sensible organs which are the seat of the disease, and I determined to make the experiment.

The injection I employed for this purpose is wine, which I made choice of for several reasons: it had been used with success in France; the strength of it is never so great as to render it an unsafe remedy, and it may be readily lowered, according to the different sensibility of the parts. Thus a vinous injection appeared capable of producing all the good effects which could be desired, with scarce a possibility of doing harm. The success which has attended it has more than answered my expectation; and, from every trial I have made, I have no reason to wish for a different one: the pain which is produced by it is incomparably less than by any other operation: it does nothing more than is intended, and the curative effect is equally certain.

In my last edition of these works I inserted a circumstantial account of my method of using the injection, which was then in its infancy, and of which I then had doubts; but I have since experienced such success, that I thought proper to publish a se-

parate account of it, which has been repeated in several editions, and is now so well known and so universally practised in all parts of the world, that I think it unnecessary to swell this work with a repetition of it—I must therefore beg leave to refer whoever wishes to be further informed of the cure of the hydrocele by injection, to my treatise on that subject.

A TREATISE

ON THE

FISTULA IN ANO.

PREFACE.

It has been said, that when a man thinks that he can, by publishing his opinion, derive any benefit to his fellow-creatures, he has no reason to be anxious about making an apology for such publication.

This, within a certain limitation, is true; but, taken in its full extent, may be urged as an excuse for obtruding that on the world which may not be worth its acceptance.

Possibly the following sheets may be thought to come within that predicament.

The only defence I have to make for them is, that from the most diligent and most frequent inquiry into the general method of treating the disease in question, I am convinced, that such method may be considerably improved; that is, may be rendered less painful, more expeditious, and more successful.

I should be very sorry to have it thought, that I meant, by this, to signify, that my opinion on this subject is different from that of all my brethren: I know it is not; I know that there are some gentlemen of the profession who think of it as I do; but I also know, that a very different doctrine is inculcated, and a very different method followed, by the majority of writers, practitioners, and teachers.

The number of those who have had frequent opportunities of seeing this kind of disease, is not large, compared to that of those who are daily liable to be called to the care of it: the number of

those who reflect on what they see or read, and who take the liberty of thinking for themselves, is still smaller; so that the precepts delivered by such as have obtained any degree of reputation, do almost necessarily become rules of practice to the multitude.

I have, on this occasion, carefully perused almost every writer of character on the subject; and think, that I may venture to say, that they are all either defective or erroneous: they either pass the disease over slightly, and without that regard which it certainly requires and deserves, or subject it to a method of cure, which is operose, painful, tedious, and unnecessarily productive of future evil.

The term Cutting for a Fistula, conveys to a patient a terrible idea; and this terror is not a little increased by his incapacity of seeing the part diseased. The majority of writers have greatly increased, rather than lessened this dread; and as the operation is (under their directions) sometimes performed, it is, indeed, a very severe one. A great part of this severity appears to me to be unnecessary; and I cannot help thinking, that a more serious reflexion on the parts concerned in the disease, and on its different nature, in different states and circumstances, would lead us to a more rational method of treating it, and to a more easy and expeditious cure.

To point such method out is the intention of the following Tract.

In the execution of it, I have sometimes found myself under a necessity of controverting the opinion of some gentlemen of deserved eminence: if I have done this with decency and good manners, no apology is necessary. The honour of our art, and the moral characters of its professors suffer, whenever we pay so blind deference to any one, as prevents us from using our own judgments, and from declaring freely the results of our inquiries or

experiments. Truth, as Lord Bacon has said, is not the child of authority, but of time. And were we to allow ourselves to suppose (let the subject be what it may, provided it be liable to experiment) that nothing more or new could be taught, it is pretty clear, that nothing more or new would be learned.

I therefore hope, that the freedom which I have used, either in relating the opinions, or in objecting to the practice of others, will not be attributed to an invidious disposition to find fault; but merely to a desire of being serviceable to mankind in that way, in which, I flatter myself, that I may be in some degree capable; and of improving, as much as in me lies, the very necessary and universally useful Science of SURGERY.

FISTULA IN ANO.

SECT. I.

Clear and precise definitions of diseases, and the application of such names to them as are expressive of their true and real nature, are of more consequence than they are generally imagined to be: untrue or imperfect ones occasion false ideas; and false ideas are generally followed by erroneous practice.

It would be no difficult matter to produce instances of disorders, whose treatment has, for a great length of time, been accommodated more to the titles imposed upon them, than to their true and real character: among these my present subject is a most glaring proof.

The custom of giving the appellation of Fistula to every imposthumation, and to every collection of matter formed near to the anus, has, by conveying a false notion of them, been productive of such methods of treating them, as (though, perhaps, suited to such idea) are diametrically opposite to those which ought to be pursued: such as have often rendered those cases tedious and painful, which might have been cured easily and expeditiously; and consequently such as have brought disgrace on our art, and unnecessary trouble on mankind.

A small orifice or outlet from a large or deep cavity, discharging a thin gleet or sanies, made a considerable part of the idea, which our ancestors had of a fistulous sore, wherever seated. With the term fistulous, they always connected a notion of callosity; and therefore, whenever they found such a kind of opening yielding such sort of discharge, and attended with any degree of induration, they called the complaint a Fistula. Imagining this calosity to be a diseased alteration made in the very structure of the

parts, they had no conception that it could be cured by any means, but by removal with a cutting instrument, or by destruction with escharotics; and therefore they immediately attacked it with knife or caustic, in order to accomplish one of these ends; and very terrible work, by their own accounts, they often made before they did accomplish it.

Several of the above mentioned circumstances do frequently attend collections of matter near to the rectum; and therefore, for want of proper attention to the true nature of the case, the custom of calling them all Fistulæ has generally prevailed, though without any foundation in truth or nature.

That abscesses, formed near the fundament, do sometimes, from bad habits, from extreme neglect, or from gross mistreatment, become fistulous, is certain; but the majority of them have not, at first, any one character or mark of a true fistula; nor can, without the most supine neglect on the side of the patient, or the most ignorant mismanagement on the part of the surgeon, degenerate, or be converted into one.

Collections of matter from inflammation (wherever formed), if they be not opened in time, and in a proper manner, do often burst. The hole, through which the matter finds vent, is generally small, and not often situated in the most convenient, or most dependent part of the tumor; it therefore is unfit for the discharge of all the contents of the abscess; and, instead of closing, contracts itself to a smaller size; and, becoming hard at its edges, continues to drain off what is furnished by the undigested sides of the cavity.

This is often the case in the most muscular or fleshy parts of the body, where the cellular and adipose membrane does not abound; but is more particularly so in the neighbourhood of the anus, where that membrane is large in quantity, well stocked with fat, and not compressed by the action of any large or strong muscles.

Why critical defluxions and abscesses are frequently formed in this part, is so obvious to every one who considers its natural structure, that it must be quite unnecessary to enter into an explanation of it: I shall therefore only observe, that when it becomes the seat of such kind of defluxion, it can make little or no resist-

ance, but immediately swells, and becomes hard to a considerable extent; and although imposthumation is very frequently the consequence, yet the induration extending itself a good way beyond the bounds of the abscess, the first suppuration is by no means equal to the dissolution of such hardness; especially, if, instead of being opened properly, the skin has been suffered to burst.

The smallness of this accidental orifice, the hardness of its edges, its being found to be the outlet from a deep cavity, the daily discharge of a thin, gleety, discoloured kind of matter, and the induration of the parts round about, have all contributed to raise and confirm the idea of a true fistula.

To this idea, the general treatment of these cases has therefore been made to accord: upon this has been built the prevailing doctrine of free excision, or as free destruction, without any regard to the original production of the complaint, its particular seat, its date, or any other attendant circumstances; and without examining, whether it would not admit a more easy and a more expeditious method of cure. In short, this notion, that all sinuses near the rectum are necessarily fistulous, has occasioned the prescription of such a manner of treating them, from their very first appearance, as they can hardly ever stand in need of at any time; and a mere ill founded supposition, that the induration of the parts about may be owing to a diseased callosity, is urged as a reason for using them with more severity than even such state would require.

SECT. II.

Whoever would obtain a true notion of the disease in question, must consider it under all the forms in which it makes its appearance. These, which are many and various, (both with regard to aspect, situation, and symptoms,) are what show the different nature of the complaint in different states, and are the circumstances which ought to regulate a surgeon's conduct in the care of it.

Sometimes the attack is made with symptoms of high inflammation; with pain, fever, rigor, &c. and the abscess proves truly critical; that is, it becomes a solution of the fever.

In this case, a part of the buttock near to the anus is considerably swollen, and has a large circumscribed hardness. In a short time, the middle of this hardness becomes red and inflamed; and in the centre of it matter is formed.

This (in the language of our ancestors) is called in general a Phlegmon; but when it appears in this particular part, a Phyma.

The pain is sometimes great, the fever high, the tumor large, and exquisitely tender; but however disagreeable the appearances may have been, or however high the symptoms may have risen, before suppuration, yet when that end is fairly and fully accomplished, the patient generally becomes easy and cool; and the matter formed under such circumstances, though it may be plentiful, yet is good.

On the other hand, the external parts, after much pain, attended with fever, sickness, &c. are sometimes attacked with considerable inflammation, but without any of that circumscribed hardness, which characterised the preceding tumor; instead of which the inflammation is extended largely, and the skin wears an erysipelatous kind of an appearance. In this the disease is more superficial, the quantity of matter small, and the cellular membrane sloughy to a considerable extent.

Sometimes, instead of either of the preceding appearances, there is formed in this part what the French call *une suppuration gangreneuse;* in which the cellular and adipose membrane is affected in the same manner, as it is in the disease called a Carbuncle.

In this case the skin is of a dusky red or purple kind of colour; and although harder than when in a natural state, yet it has by no means that degree of tension or resistance, which it has either in the phlegmon, or in the erysipelas.

The patient has generally, at first, a hard, full, jarring pulse, with great thirst, and very fatiguing restlessness. If the progress of the disease be not stopped, or the patient relieved by medicine, the pulse soon changes into an unequal, low, faltering one; and the strength and the spirits sink in such manner, as to imply

great and immediately impending mischief. The matter formed under the skin, so altered, is small in quantity, and bad in quality; and the adipose membrane is gangrenous and sloughy throughout the extent of the discoloration. This generally happens to persons, whose habit is either naturally bad, or rendered so by intemperance.

In each of these different affections, the whole malady is often confined to the skin and cellular membrane underneath it; and no other symptoms attend than the usual general ones, or such as arise from the formation of matter or sloughs in the part immediately affected. But it also often happens, that, added to these, the patient is made unhappy by complaints arising from an influence, which such mischief has on parts in the neighbourhood of the disease; such as the urinary bladder, the vagina, the urethra, the hæmorrhoidal vessels, and the rectum; producing retention of urine, strangury, dysury, bearing down, tenesmus, piles, diarrhœa, or obstinate costiveness; which complaints are sometimes so pressing, as to claim all our attention. On the other hand, large quantities of matter and deep sloughs are sometimes formed, and great devastation committed on the parts about the rectum, with little or no previous pain, tumor, or inflammation.

Sometimes the disease makes its first appearance in an induration of the skin, near to the verge of the anus, but without pain or alteration of colour; which hardness gradually softens and suppurates. The matter, when let out, in this case, is small in quantity, good in quality; and the sore is superficial, clean, and well conditioned. On the contrary, it now and then happens, that although the pain is but little, and the inflammation apparently slight, yet the matter is large in quantity, bad in quality, extremely offensive, and proceeds from a deep crude hollow, which bears an ill-natured aspect.

The place also where the abscess points, and where the matter, if let alone, would burst its way out, is various and uncertain. Sometimes it is in the buttock, at a distance from the anus; at other times near its verge, or in the perineum; and this discharge is made sometimes from one orifice only, sometimes from several. In some cases, there is not only an opening through the skin ex-

ternally, but another through the intestine into its cavity; in others, there is only one orifice, and that either external or internal.

Sometimes the matter is formed at a considerable distance from the rectum, which is not even laid bare by it; at others, it is laid bare only, and not perforated. It is also sometimes not only denuded, but pierced; and that in more places than one. The original seat of the mischief is, in some cases, high up in the pelvis, near the lower vertebræ of the loins, and the os sacrum; and the matter comes from parts so diseased, and so out of reach, that the case is hopeless from the first. These discharges are to some persons salutary, and prove solutions of general diseases, which have long infested the habit; to others, they often prove fatal, by exhausting the small remains of strength. If the disease has its foundation in the lues venerea, (which is not a very uncommon case,) it frequently communicates with the urethra and neck of the bladder, producing great disturbance and misery to the patient. And sometimes it happens, that fistulous openings, near the anus, give discharge to a sanies, proceeding from a cancerous state of some of the parts within the pelvis.

Whoever attends to this variety of states and circumstances, must be convinced, that no one particular method can suit them all; but that in this, as in many other cases, the surgeon's conduct must be varied occasionally, and adapted to the exigencies of each individual.

SECT. III.

It very seldom happens, when inflammatory defluxions are made on the cellular membrane surrounding the intestine rectum, that it is in our power to prevent the formation of matter; nor, if it was, would it often be right so to do; as these abscesses seldom happen to any body, to whom they are not, at least, a temporary relief.

All consideration, therefore, of that kind is generally out of the

question; and our business, if called to it at the beginning, must be to moderate the symptoms; to forward the suppuration; when the matter is formed, to let it out; and to treat the sore in such a manner, as shall be most likely to produce a speedy and lasting cure.

When there are no symptoms which require particular attention, and all that we have to do is to assist the maturation of the tumor, a soft poultice is the best application. When the disease is fairly of the phlegmonoid kind, the thinner the skin is suffered to become, before the abscess be opened, the better; as the induration of the parts about will thereby be the more dissolved, and, consequently, there will be the less to do after such opening has been made. This kind of tumor is generally found in people of full, sanguine habits; and who, therefore, if the pain be great, and the fever high, will bear evacuation, both by phlebotomy and gentle cathartics; which is not often the case of those who are said to be of bilious constitutions; in whom the inflammation is of larger extent, and in which the skin wears the yellowish tint of the erysipelas; persons of such kind of habit, and in such circumstances, being in general seldom capable of bearing large evacuation.

The observation is general with regard to erysipelatous inflammations in any part of the body, and is by no means confined to this.

I may possibly be censured, for stepping out of my way to mention it; but it is a truth of so much importance to many, and I have seen such melancholy instances from its being not known, or not attended to, that my intention must plead my excuse.

This kind of inflammation (I mean the erysipelatous) generally makes its attack with nausea, vomiting, slight rigor, heat, thirst, and restlessness.

The quickness of pulse, and heat of skin, are indications for some degree of evacuation, and indeed sometimes render it requisite; but it is a very prevailing opinion with many practitioners, that these evacuations should be freely made, and frequently repeated: in short, that the cure of this kind of inflammation is safely to be affected by them; which is so far from being true, that

the practice has proved fatal to many. If, for instance, blood be drawn off in such quantity as the patient's pulse sinks suddenly, or if his strength be considerably reduced by purging, it is no very uncommon thing for the inflammation to leave the part first affected, and for such complaints to come on immediately, as soon prove destructive, and afford no opportunity to repair the mischief which the evacuation has produced.

When the inflammation is of this kind the quantity of matter formed is small, compared to the size and extent of the tumor; the disease is rather a sloughy, putrid state of the cellular membrane, than an imposthumation; and, therefore, the sooner it is opened, the better. If we wait for the matter to make a point, we shall wait for what will not happen; at least not till after a considerable length of time; during which, the disease in the membrane will extend itself, and, consequently, the cavity of the sinus, or abscess, be thereby greatly increased.

When, instead of either of the preceding appearances, the skin wears a dusky, purplish-red colour; has a doughy, unresisting kind of feel, and is very little sensible; when these circumstances are joined with an unequal, faltering kind of pulse, irregular shiverings, a great failure of strength and spirits, and inclination to dose, the case is formidable, and the event generally fatal.

The habit, in these circumstances, is always bad; sometimes from nature, but much more frequently from gluttony and intemperance. What assistance art can lend, must be administered speedily; every minute is of consequence; and if the disease be not stopped, the patient will sink. Here is no need for evacuation of any kind; recourse must be immediately had to medical assistance; the part affected should be frequently fomented with hot spirituous fomentations; a large and deep incision should be made into the diseased part; and the applications made to it should be of the warmest, most antiseptic kind.

This also is a general kind of observation, and equally applicable to the same sort of disease in any part of the body. Our ancestors have thought fit to call it in some a carbuncle, and in others by other names; but it is (wherever seated) really and truly a gangrene of the cellular and adipose membrane: it always implies great degeneracy of habit, and, most commonly, ends ill.

Strangury, dysury, and even total retention of urine, are no very uncommon attendants upon abscesses forming in the neighbourhood of the rectum and bladder; more especially, if the seat of them be near the neck of the latter.

They sometimes continue from the first attack of the inflammation, until the matter is formed, and has made its way outward; and sometimes last a few hours only.

The two former most commonly are easily relieved by the loss of blood, and the use of gum arabic, with nitre, &c. But the last, the total retention, is, while it continues, both fatiguing and alarming. They who have not often seen this case, generally have immediate recourse to the catheter; and for this they plead the authority of precept: but the practice is so essentially wrong, and I have seen such terrible consequences from it, that I cannot help entering my protest against it.

The neck of the bladder, from its vicinity to the parts where the inflammation is seated, and from its being involved in the same common membrane, does certainly participate, in some degree, of the said inflammation. This will, in some measure, account for the complaint: but whoever considers the extremely irritable state of the parts composing that part of the urethra, (if I may be allowed so to call it,) and will, at the same time, reflect on the amazing and well known effects of irritation, will be convinced that the principal part of this complaint arises from that cause; and that the disease is, strictly speaking, spasmodic. The manner in which an attack of this kind is generally made, the very little distention which the bladder often suffers, the small quantity of urine sometimes contained in it even when the symptoms are most pressing, and the most certain as well as safe method of relieving it, all tend to strengthen such opinion.[a]

But whether we attribute the evil to inflammation, or to spas-

[a] Great and acute as the pain is in the neck of the bladder, and about the pubes, in a retention of urine, it is not greater, nor more acute than is sometimes felt in the same parts by those in whose bladder no urine is to be found, and in whom the catheter may be passed with very little trouble or resistance. This complaint, which I have more than two or three times seen, is truly spasmodic; and, accordingly, always gives way to opium, more especially if used in the form of a clyster.

modic irritation, whatever can, in any degree, contribute to the exasperation of either, must be palpably and manifestly wrong. The violent passage of the catheter through the neck of the bladder (for violent in such circumstances it must be) can never be right. I will not say that it never succeeds; but I will say, that it can hardly ever be proper to make the attempt.

If the instrument be successfully introduced, it must either be withdrawn as soon as the bladder is emptied, or it must be left in it: if the former be done, the same cause of retention remaining, the same effect returns; the same pain and violence must again be submitted to, under (most likely) increased difficulties. On the other hand, if the catheter be left in the bladder, it will often, while its neck is in this state, occasion such disturbance, that the remedy (as it is called) will prove an exasperation of the disease, and add to the evil it is designed to alleviate. Nor is this all; for the resistance which the parts, while in this state, make, is sometimes so great, that if any violence be used, the instrument will make for itself a new route in the neighbouring parts, and lay the foundation of such mischief as frequently baffles all our art—an accident, which I have known happen to those whose judgment and dexterity have never been doubted.

The true, safe, and rational method of relieving this complaint is by evacuation and anodyne relaxation: this not only procures immediate ease, but does, at the same time, serve another very material purpose; which is that of maturating the abscess. Loss of blood is necessary; the quantity to be determined by the strength and state of the patient. The intestines should also be emptied, if there be time for so doing, by a gentle cathartic: but the most effectual relief will be from the warm bath, or semicupium, the application of bladders with hot water to the pubes and perineum, and, above all other remedies, the injection of clysters, consisting of warm water, oil, and opium. There may have been cases which have resisted and baffled this method of treatment; but I have never met with them.

On the other hand, I have seen so great and permanent mischief from the premature use of the catheter, that it would have been better for the patient to have sunk under the first evil, than to have lived to experience that variety of misery, to which all

they are subject who are afflicted with a diseased or injured neck of the bladder.

A painful tenesmus is no uncommon attendant upon an inflammatory defluxion on the parts about the rectum. The frequent use of the muscles, whose office it is to expel from the gut whatever is troublesome to it, and by whose action the parts, which make the seat of the disease, must be continually compressed, make this, while it lasts, a very disagreeable complaint.

If a dose of rhubarb, joined with a warm anodyne, such as the conf. mithrid. or such like, does not remove it, the injection of thin starch and opium, or tinctura thebaic. is almost infallible.

The bearing down, as it is called, in females, as it proceeds, in this case, from the same kind of cause, (*viz.* irritation,) admits relief from the same means as the tenesmus.

In some habits, an obstinate costiveness attends this kind of inflammation, accompanied, not unfrequently, with a painful distention and enlargement of the hæmorrhoidal vessels, both internally and externally. While a quantity of hard fæces are detained within the large intestines, the whole habit must be disordered; and the symptomatic fever, which necessarily accompanies the formation of matter, must be considerably heightened. And while the vessels surrounding the rectum (which are large and numerous) are distended, all the ills proceeding from pressure, inflammation, and irritation, must be increased. This is too obvious to need any explanation; and it must be as obvious, that phlebotomy, laxative clysters, and a low, cool regimen, must be the remedies; while a soft cataplasm, applied externally, serves to relax and mollify the swollen, indurated piles, at the same time that it hastens the suppuration.

These are, I think, the most material of the complaints which attend inflammatory deductions and formations of matter about the anus and rectum. They are indeed most of them symptomatic, or accessory to the original disease: but they are frequently of such immediate consequence to the ease, and sometimes even to the safety of the person afflicted, that they require all our attention. Whoever neglects or mis-treats them, will cause his patient to suffer a great deal of unnecessary pain, fatigue, and even hazard:

whoever attends to, and treats them properly, will find that, by relieving and appeasing these accidental ills, he will assist the cure of the principal complaint, and gain time, instead of losing it.

SECT. IV.

Let us now consider this disease, when the first symptoms attending the inflammation are gone off, and matter is either formed and collected, in such manner as to be fit for a surgeon to give discharge to it: or (that opportunity having been avoided or neglected) it has burst through the parts containing it, and has made its own way out.

The different states and circumstances produced, either by the collection of this matter, or by the manner in which it has made its escape, will necessarily occasion a difference in the manner of treating the case; and may, for method sake, as well as for the more perfectly understanding the true nature of the disease, be reduced to two general heads; *viz.*

1. Those in which the intestine is not at all interested; and,
2. Those in which it is either laid bare, or perforated.

Let us first suppose the matter to be fairly formed; to have made its point, as it is called; and to be fit to be let out.

Where such point is, that is, where the skin is most thin, and the fluctuation most palpable, there the opening most certainly ought to be made.

Some of our predecessors, either from a fear which almost necessarily accompanies the want of anatomical knowledge, or from an awkwardness attending the disuse of a cutting instrument, adopted the method of opening these (as well as most other abscesses) by caustic.

With all due deference to authority, I will venture to say, that it is in general wrong; and particularly so in the present case.

It often gives unnecessary pain; and it produces a loss of substance, and a kind of cicatrix, which is not only unseemly, but frequently proves a lasting inconvenience.

Some of the patrons of potential fire do, indeed, give a specious kind of reason for its use; *viz.* that it makes a more large and free opening for the discharge; and that, by the time the eschar is separated, the hollow underneath is generally more than half filled up.

In a few (very few) particular cases, where the destruction of glandular parts may become necessary, after the eschar is thrown off, (as in the case of venereal buboes,) there may be some force in this argument, and caustics may be found useful; but in the present case, and in most others, in which they are freely and frequently applied, they appear to me to be highly improper; as they necessarily occasion a loss of parts, and a kind of eschar, which is, in general, an indelible blemish, to say no worse. And with regard to the particular circumstance of the hollow being filled almost up, by the time the eschar is separated, if the surgeon will dress an abscess, opened by incision, in the same easy, superficial manner he does one opened by caustic, he will find the consequence to be the same. But (I know not why) a notion has long prevailed, that an abscess opened by a knife must be immediately crammed and stuffed with dressings, while that on which a caustic has been applied must be let alone until the eschar casts off. Let the one be treated as the other is, (and as they both ought to be,) and the event will be found to be alike in each; excepting this material difference in favour of the knife, that it will not necessarily occasion any destruction of parts, loss of substance, nor any deformity which is at all comparable with what must follow the use of the caustic.

In making the opening, the knife or lancet should be passed in deep enough to reach the fluid, and, when it is in, the incision should be continued upward and downward,[b] in such a manner as to divide all the skin covering the matter. By these means, the contents of the abscess will be discharged at once; future lodgement of matter will be prevented; convenient room will be made for the application of proper dressings; and there will be no

[b] When I say upward and downward, I suppose the patient to stand on his feet, with his legs and thighs straight, and his body leaning forward over a table, or a bed; which posture gives the fairest view of the parts; and puts them into the best position for the operation, as well as for the operator.

necessity for making the incision in different directions, or for removing any part of the skin composing the verge of the anus.

Notwithstanding that all these collections of matter are generally called by the name of Fistulæ, and are all supposed to affect the intestinum rectum, yet it is very certain that the seat of the abscess (the place where the matter is formed) is sometimes at such distance from the gut, that it is not at all interested by it; and that none of these cases either are, or can be, originally fistulæ.

In this state of the disease, we have no more necessarily to do with the intestine, than if it was not there; the case is to be considered merely as an abscess in the cellular membrane, which will require (in the usual phrase) to be digested, incarned, and (if practicable) healed without meddling with the rectum in any manner.

As this is a matter of some importance to the patient, it is worth a little consideration.

Suppose an abscess formed in the neighbourhood of the rectum, which, after a certain degree of swelling and inflammation, ripens, or comes to a point, somewhere near to the verge of the anus. Suppose also a large and convenient opening to have been made by a simple incision; the contents of the abscess to have been thereby discharged; and a sore or cavity produced, which is, perhaps, considerable in size; this cavity is to be filled up in such manner, as to produce a firm and lasting cure.

The frequent use of the term filling up, and the generally received opinion, that the induration of the parts about is a diseased callosity, appear to me to have been the two principal sources of error and misconduct in these cases.

Wherever matter is formed in consequence of inflammation, it always leaves, upon being let out, a proportional hollow, and some degree of induration. The former of these is of different size, according to the quantity of matter; and the latter depends both on the degree of previous inflammation and the more or less perfect suppuration of the abscess.

The generally received opinion, with regard to these two circumstances, (hollow and hardness,) is, that the former is caused entirely by loss of substance; and the latter (as I have already observed) by diseased alteration in the structure of the parts.

The consequence of which opinion is, that as soon as the matter is discharged, the cavity is filled and distended, in order to procure a gradual regeneration of flesh, and the dressings, with which it is so filled, are most commonly of the escharotic kind, intended for the dissolution of hardness.

The practice is a necessary consequence of the theory. Whoever supposes diseased callosity, and great loss of substance, will necessarily think himself obliged to destroy the former, and to prevent the cavity, formed by the latter, from filling up too hastily. On the other hand, he who considers this matter as it really is; that is, he who regards the cavity of the abscess as being principally the effect of the gradual distraction and separation of its sides, with very little loss of substance, compared with the size of the said cavity; and who looks upon the induration round about, as nothing more than a circumstance which necessarily accompanies every inflammation in membranous parts, more especially in those which tend to suppuration; will, upon the smallest reflexion, perceive, that the dressings applied to such cavity ought to be so small in quantity, as to permit nature to accomplish that end which she always aims at as soon as the matter is let out (I mean, the approach of the sides of the cavity toward each other); and that such small quantity of dressings ought to consist of materials proper only to encourage easy and gradual suppuration.

This is a fact so obvious to common sense, that it must appear to every one who will coolly and impartially consider it.

What is the part in which the disease is seated? and what are the alterations which such disease produces? The part is mere cellular membrane; and the alteration is obstruction and inflammation, ending in the formation of matter. But do these create any new body? do not the sides of the abscess still remain cellular and adipose membrane, only inflamed, thickened, hardened, and rendered purulent? can such alteration require any thing more toward restoring the parts to a natural state, than a free suppuration from the parts so altered? or can it make extirpation or destruction necessary? Most certainly it cannot. How then is suppuration to be produced and maintained? Not by thrusting in such applications, as by their quantity distend, and by their quality

irritate and destroy; but by dressing lightly and easily with such as appease, relax, and soften.

The fact is capable of experiment; and every man who will make it, that is, who will try the different methods, and attend to the consequences, must be able to determine it; unless blinded by prejudice, or influenced by a worse motive.

A moment's attention to the conduct of nature, when left to herself, and not interrupted by art, will, perhaps, set this matter in a clearer light.

When an abscess of this kind is opened by a surgeon, the cavity is found proportioned to the contents; and, consequently, if the quantity of matter be large, the hollow is considerable. If this hollow be immediately filled with dressings (of any kind,) the sides of it will be kept from approaching toward each other, or may even be further separated. But if this cavity be not filled, or have little or no dressings of any kind introduced into it, the sides immediately collapse; and coming nearer and nearer, do, in a very short space of time, convert a large hollow into a small sinus. And this is also constantly the case, when the matter, instead of being let out by an artificial opening, escapes through one made by the bursting of the containing parts.

It is indeed true, that this sinus will not always (and particularly in the disease I am now speaking of) become perfectly close, and heal; but the aim and conduct of nature is not, therefore, the less evident; nor the hint, which art ought to borrow from her, the less palpable.

In this, as in most other cases where there are large sores, or considerable cavities, a great deal will depend on the patient's habit, and the care that is taken of it; if that be good, or if it be properly corrected, the surgeon will have very little trouble in his choice of dressings; all that he will have to do will be, to take care that they do not offend either in quantity or quality; but if the habit be bad, or injudiciously treated, he may use the whole farrago of externals, and only waste his own and his patient's time.

In short, all these cases are, at first, mere abscesses; the consequences of inflammation, and require no other treatment than what would be proper in the same kind of case in all other parts.

Some few of them are so circumstanced, with regard to the intestine, that it is quite unnecessary to meddle with it at all; but whether that be the case or not; whether the division of the rectum become a necessary part in the cure, or not; they, most certainly, do not deserve the name of fistulæ, nor require that sort of treatment which fistulæ are said and thought to stand in need of; though by being, from their very first appearance, supposed to be such, they are frequently, by mismanagement, rendered truly fistulous.

By this (that is, by light, easy treatment,) large abscesses formed in the neighbourhood of the rectum will sometimes be cured without any necessity occurring of meddling with the said gut. But it much more frequently happens, that the intestine, although it may not have been pierced or eroded by the matter, has yet been so stript or denuded, that no consolidation of the sinus can be obtained, but by a division; that is, by laying the two cavities, *viz.* that of the abscess and that of the intestine, into one.

The necessity of doing this, may, in many cases, be known by the surgeon at first; that is, when he opens the abscess he may find the intestine so bare, and in such state, as plainly to prove that he will not be able to effect a cure without the operation; in other instances, he may have reason at first to flatter himself with success, and be disappointed.

When the former is the case; when the gut is found to be in such state, that there is no reason to expect a cure, without its being divided; that operation had better (on many accounts) be performed at the time the abscess is first opened, than be deferred to a future one. For if it be done in the manner in which I will venture to say that it always may, it will add so little to the pain which the patient must feel by opening the abscess, that he will seldom be able to distinguish the one from the other, either with regard to time or sensation; whereas, if it be deferred, he must either be in continual expectation of a second cutting, or feel one at a time when he does not expect it.

The intention in this operation is to divide the intestine rectum from the verge of the anus, up as high as the top of the hollow in which the matter was formed; thereby to lay the two cavities of the gut and abscess into one; and by means of an open, instead of a hollow or sinuous sore, to obtain a firm and lasting cure.

Ingenious, mechanical, and whimsical people,[c] have often busied themselves in inventing instruments for this purpose: the syringotomy, the cultellus falcatus, the probe-razor, &c. have all at times been in use; scissors also of various kinds, both straight and crooked, have been employed in this operation; the three first may be made to serve the purpose very well; but for the last (the scissors,) there is in this, as well as in almost every operation in which they are frequently used, a palpable objection; *viz.* that by pinching at the same time that they cut, they occasion a great deal of unnecessary pain. They are, I know, in great use with many, who, if they were deprived of their probe-scissors, would think themselves incapacitated from doing business; but they are, upon all occasions, where mere division is required, a very bad instrument; they may assist an aukward or an unsteady hand, but are more fit for a farrier than for a surgeon.

In all chirurgic operations, the instrument made use of cannot be too simple, nor too keen; and, if possible, should never be out of the sight or the direction of the finger of the operator; and, whenever it is (as must sometimes necessarily be the case), it is liable to some degree of uncertainty. Scissors introduced into the rectum are always in this predicament; and are, therefore, (as well as on account of their pinching quality,) bad.

The curved, probe-pointed knife, with a narrow blade, I have always found to be the most useful and handy instrument of any. This, introduced into the sinus, while the surgeon's fore-finger is in the intestine, will enable him to divide all that can ever require division; and that with less pain to the patient, with more facility to the operator, as well as with more certainty and expedition, than any other instrument whatever. If there be no opening in the intestine, the smallest degree of force will thrust the point of the knife through, and thereby make one; if there be one already, the same point will find and pass through it. In either case, it will be received by the finger in ano; will thereby be prevented from deviating; and, being brought out by the same finger, must necessarily divide all that is between the edge of the knife and

[c] The late Mr. Freke invented an instrument for this purpose; but it was, upon trial, found to cut the operator's finger with so much more certainty than the patient's intestine, that it has long been laid aside.

the verge of the anus; that is, must by one simple incision (which is made in the smallest space of time imaginable) lay the two cavities of the sinus and of the intestine into one.

Authors make a very formal distinction between those cases in which the intestine is pierced by the matter, and those in which it is not; but although this distinction may be useful when the different states of the disease are to be described, yet in practice, when the operation of dividing the gut becomes necessary, such distinction is of no consequence at all; it makes no alteration in the degree, kind, or quantity of pain which the patient is to feel; the force required to push the knife through the tender gut is next to none; and when its point is in the cavity, the cases are exactly similar.

This is the only operation which (in the circumstances under our present consideration) ever can be necessary; and this appears to me to be the safest, easiest, and most expeditious method of performing it.

I know that it is contrary to the opinion and practice of many who think that the removal of some part, both of the intestine and of the verge of the anus, is necessary in these cases; but long and repeated experience has convinced me of the contrary; and I shall, in the next section, have occasion to speak more particularly to that point.

Immediately after the operation, a soft dossil of fine lint should be introduced (from the rectum) between the divided lips of the incision, as well to repress any slight hæmorrhage, as to prevent the immediate re-union of the said lips; and the rest of the sore should be lightly dressed with the same. This first dressing should be permitted to continue, until a beginning suppuration renders it loose enough to come away easily; and all the future ones should be as light, soft, and easy as possible; consisting only of such materials as are likely to promote kindly and gradual suppuration. The sides of the abscess are large; the incision must necessarily, for a few days, be inflamed; and the discharge will, for some time, be discoloured and gleety. This induration, and this sort of discharge; are often mistaken for signs of diseased callosity, and undiscovered sinuses; upon which presumptions, escharotics are freely applied, and diligent search is made for new hollows: the

former of these most commonly increase both the hardness and the gleet; and by the latter new sinuses are sometimes really produced. These occasion a repetition of escharotics, and, perhaps, of incisions; by which means, cases which at first, and in their own nature, were simple and easy of cure, are rendered complex and tedious.

That this is the truth, without exaggeration is well known to many; and whoever will look over the writings of some of our immediate predecessors, or even of some of our contemporaries, will find that immediately after pinching and snipping the gut with scissors, we are directed to fill the incisions with lint; and, after having distended the cavity by such means, to dress in future with such medicines as, though used under the specious names of digestives, detergents, &c. do really inflame and irritate the parts to which they are applied, and retard, instead of encouraging, a kindly suppuration.

Among these, the mercurius præcipitatus ruber stands principal: this seems to have been the great external specific of most of our immediate predecessors, and to have been used by them for the very different purposes of destruction and restoration. With this, either in dry powder, or mixed with unguent, the tents, pledgets, &c. with which they dressed these sores were spread or embued; with this they dressed the recently divided lips of the wound in the intestine, and with this they filled the whole cavity of the abscess.

That the same practice still too much prevails, they who please may be convinced.[d]

I would beg leave to ask any patron of this method of dressing, what he would say to a man, who shall order a large tent, well charged with precipitate, to be thrust up the undivided, unwounded rectum of a person, who, from any cause whatever, had an inflammatory defluxion on the hæmorrhoidal vessels and inside of the said gut? Would he not say that such tent would prove a

d Mr. De la Faye says: "Si les chairs s'elevent trop, on les consumera avec la pierre infernale;" and in many books of reputation, the butyrum antimonii, the trochisci e minio, the pulvis angelicus, &c. are prescribed for frequent use.

fatiguing, inflammatory suppository? and would he not be right in saying so? Is then the rectum rendered less sensible, and less irritable, by being wounded? Or can that very application, which proves a painful stimulus to a gut not divided, become an easy digestive to one that is? If any man thinks that it will, I would advise him to make the experiment on himself; and I would then appeal to the testimony of his own unprejudiced sensations.

In short, to quit reasoning, and speak to fact only: In the great number of these cases, which must have been in St. Bartholomew's hospital, within these ten or twelve years, I do aver, that I have not met with one in the circumstances before described, that has not been cured by mere simple division, together with light, easy dressings; and that I have not, in all that time, used, for this purpose, a single grain of precipitate, or of any other escharotic.

Why is it that we hear so much of miracles performed by the paste of one quack? and by the injections, oils, and balsams of others? when we all know, that there is nothing specific for the cure of this disease in their compositions; and when we also know that the venders of these remedies are people whose ignorance in matters of physic and surgery is below all notice.

That these cures are much more frequently talked of than made, I well know; but that some few people, who have been long and unsuccessfully treated by surgeons, have got either well, or better, under the very negligent management of some of these quacks, is an incontestible truth; and very strange it is, that we do not see why.

Fas est et ab hoste doceri.

The truth is, that, while we are looking for what these people do, we (if I may be allowed the phrase) overlook what they do not do. It is true, we cannot find any specific quality in the strange jumble of ingredients which they put into their internal remedies; nor any particularly sanative one in their injections, balsams, &c. and therefore are surprized at even the few instances of their success; but still overlook the one single circumstance by which the good is produced.

It is, and ever must be, a first principle in quackery, to disap-

prove and condemn whatever has been done before, be it right or be it wrong; and it is also necessary for quacks, to avoid all connexion with those who are called Regular Practitioners; as well in order to have the sole management of the patient, as to avoid inspection.

For these reasons, they always order all former dressings to be immediately thrown aside and disused; and not having in general ingenuity enough, even to seem to apply others with any degree of judgment or dexterity, they make use of a mere superficial plaster, ointment, or injection; that is, without intending any such thing, upon an honest or a rational principle; they, for want of knowing what to do properly, leave the conduct of the sore to nature; who, when the impediment of dressings (which often offend either in quantity or quality) are removed, will do much more than her too officious assistants believe.

That the very few cures, which we have heard so much of, are produced in this manner, I am convinced; and so I am, that many of those which are thought by several practitioners to have been brought about by a multiplicity of dressings crammed in tight, and endeavoured to be kept so, by all the caution of compress and bandage, are very frequently effected by the constant and generally successful endeavours of nature to thrust them forth again; or, at least, so to displace them, that she gradually gets opportunities of doing her own business, in spite of the impediments of art. The business of good surgery is to assist nature; but she will, sometimes, get the better even of the worst.

Usque recurret,
Et mala perrumpet, furtim fastidia victrix.

SECT. V.

In the preceding section, I have supposed the matter of the abscess to have been formed and collected; but still to have been

contained within the cavity, until let out from thence by an incision.

I am now to consider it, as having made its own way out, without the help of art.

This state of the disease is also subject to some variety of appearance; and these different appearances have produced, not only a multiplicity of appellations, but a groundless supposition also of a variety of essentially different circumstances.

When a discharge of the matter by incision is too long delayed or neglected, it makes its own way out, by bursting the external parts somewhere near to the fundament, or by eroding and making a hole through the intestine into its cavity, or sometimes by both. In either case, the discharge is made sometimes by one orifice only, and sometimes by more. Those, in which the matter has made its escape by one or more openings, through the skin only, are called blind, external fistulæ; those in which the discharge has been made into the cavity of the intestine, without any orifice in the skin, are named blind, internal; and those which have an opening both through the skin and into the gut, are called complete fistulæ.

This is the language of all writers, as I have already observed; and thus, all these cases are deemed fistulous, when hardly any of them ever are so; and none of them necessarily. They are still mere abscesses, which are burst without the help of art; and, if taken proper and timely care of, will require no such treatment as a true fistula may possibly stand in need of.

The most frequent of all are what are called the blind external, and the complete. The method whereby each of these states may be known, is, by introducing a probe into the sinus by the orifice in the skin, while the fore-finger is within the rectum: this will give the examiner an opportunity of knowing exactly the true state of the case, with all its circumstances.

Whether the case be, what is called a complete fistula, or not; that is, whether there be an opening in the skin only, or one there, and another in the intestine, the appearance to the eye is much the same. Upon discharge of the matter, the external swelling subsides, and the inflamed colour of the skin disappears; the orifice, which at first was sloughy and foul, after a day or two are

past, becomes clean, and contracts in size; but the discharge, by fretting the parts about, renders the patient still uneasy.

As this kind of opening seldom proves sufficient for a cure, (though it sometimes does,) the induration, in some degree, remains; and if the orifice happens not to be a depending one, some part of the matter lodges, and is discharged by intervals, or may be pressed out by the fingers of an examiner. The disease, in this state, is not very painful; but it is troublesome, nasty, and offensive: the continual discharge of a thin kind of fluid from it, creates heat, and causes excoriation in the parts about; it daubs the linen of the patient; and is, at times, very fetid: the orifice also sometimes contracts, so as not to be sufficient for the discharge; and the lodgement of the matter then occasions fresh disturbance.

The means of cure proposed and practised by our ancestors were three; *viz.* caustic, ligature, and incision.

The intention in each of these is the same; *viz.* to form one cavity of the sinus and intestine, by laying the former into the latter.

Fear of hæmorrhage, in making a large division of parts, and a design to destroy callosity, gave rise to the use of caustics for this purpose. By the introduction of them in different forms and manners into the sinus, that part of the intestine which divides its cavity from that of the abcess is intended to be destroyed; and thereby the proposed end of making one cavity of two is to be accomplished; while at the same time the supposed callosity is to be wasted. For this purpose, some of the most fatiguing and painful escharotics have been prescribed and used; the pulvis angelicus, the lapis infernalis, and troches and pastes made with sublimate, arsenic, &c. But the method is so cruel, so tedious, and so inexpert, that I hope it is by this time totally out of use: it was founded in error, tends only to mischief, and I will not waste the reader's time in saying any thing more about it.[f]

[f] Dr. Daniel Turner, who practised surgery within these few years, used this method in its full extent. In his works may be found an account of his forming tents of the trochisci e minio, and thrusting them into the sinus, there to remain till they had produced a sufficient eschar. In the same writer are accounts of strong probe-scissors, made to cut through parts of a considerable thickness, and where the external orifice was at a great distance from the anus; and of an iron scoop, made (to use the doctor's own words) like a

The terror which a cutting instrument necessarily carries with it, the fear of a flux of blood from some considerable vessels, together with a strange, nonsensical opinion, that a gradual division of the parts was followed by a more sound cure, than an immediate one by cutting, produced the coarse, unhandy method by ligature. The manner of using it was this: A probe, or needle, (according to the complete or incomplete state of the supposed fistula,) armed with a strong ligature, was introduced, either naked or in a cannula, by the orifice in the buttock, and brought out at the anus, by the operator's finger: when that was done, the two ends of the said ligature were tied together, in such manner, and at such repeated times, as by degrees to cut through all that was between its loop and its knot; that is, all that part of the intestine which was next to the sinus.

Among writers on this subject will be found very formal directions about the proper time of the year for performing this operation, as well as concerning the proper materials wherewith to make the ligature. But as the whole operation is, on every principle of ease, expedition, safety, or certainty, unfit for practice, it would be an abuse of the reader's patience to dwell any longer upon it.[g]

The third method is that by incision.

cheese-monger's taster, to be thrust up the rectum, and assist in the division of it. What ideas this gentleman had of the disease, or of human sensation, I cannot imagine. The same gentleman, speaking of the use of this iron scoop, tells us, that when he used it on one particular patient, the man thought that the Doctor was only thrusting up the dressings. It is no difficult matter to conceive what kind of dressings this man must have been accustomed to, who could not distinguish between the application of them and the thrusting up an iron scoop.

[g] See Celsus, whose account of the method by ligature has been followed by most of the writers since. "In has demisso specillo, ad ultimum ejus ca-"put incidi cutis debet; dein novo foramine specillum educi lino sequente; "quod in aliam ejus partem, ob id ipsum perforatam, conjectum sit: ibi "linum apprehendendum, ligandumque cum altero capite est; ut laxe cutem, "quæ super fistulam est, teneat: idque linum debet esse crudum, et du-"plex, triplexve, sic tortum ut unitas in eo facta sit. Interim autem licet "negotia agere, ambulare, lavare, cibum capere, perinde atque sanissi-"mo," &c.

I have already given my opinion on what appears to me to be the best and most proper method of dividing the intestine, in the case of a collection of matter formed juxta anum.

The intention to be aimed at by incision in the present case is exactly the same, and (I think) ought to be executed in the same manner. I never saw that another kind of operation was necessary; I have not for many years performed any other; and I do not recollect a single instance in which it has failed to produce a cure, in such cases as were curable by any means.

If, therefore, I intended to give my own opinion merely on this subject, I should say, the same division of the intestine, and with the same instrument, is all that is required; and, referring my reader back to the preceding section, should give him no further trouble on this head. But as I find my sentiments in this matter are somewhat different from those of many, I must beg leave to be indulged in the use of a few words.

I have said, that in whatever manner, or with whatever instrument, the intestine be divided, the intention is the same; *viz.* to lay the cavity of the abscess into that of the gut, and thereby to convert a hollow sinus sore into an open one; preventing, by the same means, the future lodgement of matter, and giving room for the application of proper dressings.

The two cases (a collection of matter and a sinus,) seem to me to require exactly the same treatment; and I have never found it fail of being equally successful in both; that is, I never found that the matter, having found its own way out, made any other operation on the gut, except the mere simple division, at all necessary.

But it is said, and that by authors to whom great regard is due, that this is not all that is requisite, especially in the present circumstances; that this will not produce a cure, or assure success; that mere division of the intestine is not sufficient; and that, unless we cut out, remove, and extirpate a portion both of the said intestine, and the skin constituting what is called the verge of the anus, a firm and lasting cure will not follow. This is the doctrine of writers of eminence, and the practice of a large body of surgeons.

When I have mentioned the names of Cheselden, De la Faye,

and Le Dran, I need not cite any others of less note. The first of these was a gentleman whose reputation in his profession was great; the two latter are in as high character now in France. The influence of these upon their readers must be considerable; and therefore it becomes a matter of the more importance that their doctrine be just and defensible.

The methods which these gentlemen have proposed, and which have been by many adopted, are somewhat different from each other, but do all tend to the same purpose, are all calculated to prevent imaginary evils, and are all productive of real ones.

Mr. Cheselden, in the last edition of his Anatomy, says—"The true fistula runs between the muscular and inner coat of "the rectum: it is cured by opening it the whole length into the "cavity of the gut; but it is yet better, if it can be done, to extir-"pate all that is fistulous and scirrhous; for that is a sure way to "make one operation perfect the cure."

In his observations, published at the end of Mr. Gataker's translation of Le Dran's Surgery, Mr. Cheselden describes a method of his own inventing, by the introduction of one blade of a pair of polypus-forceps into the sinus, and of the other into the rectum; by which means a certain portion of the intestine is held fast between the chops of the instrument, in order to be cut out with the scissors.

After having given an explanation of a plate, designed to represent the forceps introduced in such a manner as to hold the piece of intestine fast, he adds—"I formerly cut out a pyramidal piece "in the manner here described; but I find this way with the "forceps much more convenient, and more easy to be executed."

How much this method may be preferable to that which Mr. Cheselden used to practise, I know not; but I will venture to say, that this more easy method is horridly painful, is operose, and absolutely unnecessary towards obtaining a cure.

The wound, that is, the orifice of the sinus in the buttock, is, by Mr. Cheselden's direction, to be first dilated with a sponge tent; then one of the blades of a pair of large polypus forceps is to be thrust up the sinus, while the other within the intestine pinches it between them; and then this piece, so pinched, is to be snipped out by the repeated attacks of a pair of scissors. A very

tedious and very painful operation this must necessarily be; and, by Mr. Cheselden's own account, not always successful: for although he does say—" The operation being thus performed, I have never " found wanting a second cutting;" yet he immediately adds— " If, after this operation, there is still an internal discharge into " the gut, it may be an useful issue; and continue the benefit which " nature designed by the disease.[h] We should also be very care- " ful not to perform it when the patient is troubled with the piles; " for I have known one in that case bleed to death."

It would be no difficult matter to make great objections to this method of operating, even if the one thing intended by it was necessary; I mean the extirpation of a portion of the rectum. This end might certainly be obtained by easier means; but as that is not the case, as such extirpation appears to me to be totally unnecessary, I shall not enter into it.

Mr. De la Faye, a practitioner and writer of eminence in France, and a gentleman to whom the chirurgic world is much indebted, is a warm patron of the practice of cutting away both a part of the intestine and of the skin composing the verge of the anus. After the external incision, necessary for letting out the matter, has been made, he says—" Si les pus a fait " un progrès considerable du coté de la fesse, on y fera une autre " incision, qui tombera perpendiculairement sur l'incision longitu- " dinale; on coupera les angles formé par ces incisions, pour ren- " dre l'exterieur de la playe plus large que le fond, et pour panser ' plus aisement." ' If the matter has extended itself considerably ' toward the buttock, another incision should be made, in such ' manner as to cross the former; the angles formed by which inci- ' sions should be cut away, as well to render the external part of ' the wound larger than the internal, as to give room for the more ' convenient application of dressings to the sore.'

[h] This is a method of making an issue to which few people would (I believe) choose to submit; especially if they consider that they might have enjoyed all the benefit of it, without any operation at all, merely by leaving their disease to nature. The same gentleman, speaking of the intestine rectum, tells us, that he once applied a caustic lengthways on the inside of the inverted gut, to cure a prolapsus; and adds, that it proved successful. This I am almost sorry for, lest Mr. Cheselden's authority should tempt any other person to make the same attempt.

If M. De la Faye had ever, in his own person, had the misfortune to experience the inconvenience arising from the loss of skin near to the fundament; or had he attended to that which it produces to those, who, either from choice or necessity, ride or walk much, I am inclined to believe he would have been more sparing of it.

For the first three or four days, this kind of incision does, certainly, render the applications of dressings more convenient; because the wound is thereby considerably enlarged: but as soon as digestion has softened the edges of the single perpendicular incision, that difference ceases; and the dressings may be applied with equal facility to the one as to the other.

After this period is past, the difference between the two is, indeed, much more considerable; the cutting away the angles, adding not a little to the length of time requisite for a cure, rendering the sore much larger and more troublesome, and subjecting the patient, very often, to great inconvenience, arising from the kind of cicatrix which it necessarily produces.

Mr. De la Faye, after having described the manner of passing the probe, or the sulcated director, in order to make a simple longitudinal division of the intestine, adds—" On ne se contente pas " aujourd'hui de couper la fistule entre les deux extremités du " stilet: on fait une incision qui renferme dans son circuit ces " deux extremités; et par le moyen de laquelle, en les tirant en " meme temps, on emporte toute la fistule, qui se trouve comme " embrochée dans l'anse formée par cette instrument:[i] on fait " ensuite, à la partie inferieure de la playe, une incision, qui sert " comme de goutiere à la suppuration." The present practitioners ' do not content themselves with merely dividing the

[i] It might be supposed, from the manner in which this is delivered, that the method was a modern invention; whereas it is, on the contrary, a very old one. Guido's description of it is as follows:—" Penetrantes fistulæ (se- " cundum Rhazin) non sananter, nisi cum ligatione, et extractione cum " falce.

" Modus incisionis cum falce est, quod extrahatur cum chordula immissa " extra quantum possibile erit intestinum comprehensum per ipsam chordu- " lam; et post intromittendum positum ab Albucasi bene scindens; totum " illud, quod comprehensum est cum chordulâ scindatur; ita, quod chor- " dula expediatur."

GUIDO.

'sinus; but making use of the probe as a kind of loop, they pull 'the parts towards them, and then, by a free and almost circular 'incision, cut out the whole fistula; after which they make such 'an incision in the lower part, as may best serve the purpose of 'a free discharge of matter.'

This method, as far as regards the mere operation, is certainly preferable to that with the forceps and scissors; but it produces the same destruction of the parts, and the same future inconveniences: like that, it is built upon a supposition, that such a removal of parts is necessary toward a cure; and, therefore, like that, stands upon a supposition which is not true.

The same gentleman, in another paragraph, admits, that this method of operating is not proper in certain circumstances (which circumstances cannot possibly render the disease easier of cure;) and in such case advises the mere longitudinal section of the gut.—"Neanmoins, le canal fistuleux pourroit être si profond, ou "le trou exterieur de la fistule dans un lieu de la fesse si éloigné "du fondement, qu'en faisant l'operation de la maniere qu'on "vient de décrire, on emporteroit une trop grande portion de la "substance. En ce cas on ouvre sur une fonde canelée la fistule "dans sa longueur," &c. 'Nevertheless, the fistulous hollow may 'be so deep, or the external orifice in the buttock at such distance 'from the anus, that, if the operation be performed in the manner 'just described, it would occasion too large a loss of substance. 'In this case, the sinus must be opened lengthways, by means of

So also Brunus, having described the method by ligature, goes on to that by incision.

"Operatio autem secundi modi est, ut non stringatur spacus [the ligature] "sicut narratum est ad incidendas carnes, sed ligentur tantum ipsius extre-"mitates simul, et ut sit iste spacus fortior et grosior illo qui carnes incidit, "deinde extende spacum cum unâ manuum tuarum versus exteriora, et cum "alterâ manu tuâ incide illas carnes quæ sunt inter illas duas extremitates, "spaci, cum instrumento curvæ extremitatis."

This is exactly what is now by some called cutting upon the wire; and I have seen in the hands of a very ingenious gentleman a single instrument, very capable of executing all this purpose; that is, of cutting out ten times as much as ever can be necessary.

The same account is to be found in Lanfranc, Rogerius, and most of the old writers; who, in this, as in most other instances, have done little more than copy each other.

'a grooved director.' Mr. De la Faye does not indeed say, in express terms, that this longitudinal division will be sufficient for a cure; but I will venture to say for him, that I know, from repeated experience, that it will. The observation, therefore, which this gentleman has made, concerning the loss of substance, is not only just and true in itself; but it is also an observation, which, if properly attended to, will lead to a truth which he does not seem to have been sufficiently apprised of; which is, that every operation of this sort (that is, every extirpation of parts) is unnecessary, and therefore wrong. Large hollows, in which considerable quantities of matter have been formed; whose extent, with regard to the intestine, is deep; and whose orifice is in the buttock, at a distance from the anus, have always more induration about them, and discharge a larger quantity of gleet, than those which are smaller, more shallow, and thinner; and whose matter has burst its way out, by an opening near to the fundament. If the former then are curable by a mere longitudinal division of the intestine, without excision, which Mr. De la Faye, by his prescription, in some measure allows, (and which is a truth beyond contradiction or contest,) surely extirpation must be unnecessary in the latter. It can hardly be supposed, that nature will be able to do more in cases attended with increased difficulties and impediments, than in those where every circumstance is more favourable, every hinderance less. And yet, whoever cuts away a portion of the intestine in the latter, and omitting, or not performing such operation in the former, finds that they will do well without it, must reason in that manner, and shut his eyes against conviction.

Mr. De la Faye is, indeed, sensible of the ill consequences which such treatment produces, and has endeavoured to guard against them as well as he can; but whoever has been so unfortunate as to have been so treated, knows that all these precautions are, in general, ineffectual: his words are—" Lorsqu'on a " coupé dans l'operation une portion considerable du bord de " l'anus, et que les chairs commencent à remplir le vuide, il faut " mettre dans l'ouverture de cette partie une tente, un peu courte, " qui en empechant le retrecissement lui conserve son diametre." 'When a considerable portion of the verge of the anus has been 'cut away in the operation, and new flesh begins to fill up the

'void space, a short tent should be introduced into the part, in 'order to hinder the fundament from contracting in its diameter;' but which it will often do, in spite of all the tents in the world.

Mr. Le Dran, a writer and practitioner of considerable figure in Paris, and whose works have been translated into English by Mr. Gataker, is very particular with regard to this disease, and the method of treating it; and is also an advocate for this exscinding scheme, even more than Mr. De la Faye.

This gentleman uses the term fistula, without any regard to the date of the disease, or any attending circumstances, except the common and almost necessary appearances when an abscess of this kind has been suffered to burst; *viz.* a small orifice, some degree of induration, and a discharge of fæcal matter: all which are circumstances that necessarily accompany every abscess formed in the neighbourhood of, and piercing, the rectum; and this, at the very first hour, full as much as at any time after. So that, according to this manner of using the term, an abscess so circumstanced, and a fistula, are synonymous; which I apprehend cannot be, without confounding together two things materially and essentially different from each other. He says—"Je vois un petit trou "à coté de l'anus, je sens des callosités autour, et je vois sortir "par ce trou une assez grande quantité de pus; je conclus que "c'est une fistule qui peut-être interesse l'intestin rectum. Je vois "sortir par ce trou, un peu de matière stercorale delayée; ou bien "le malade me dit, qu'il en sort quelquefois; je ne doute plus "que le boyau ne soit percé; et je dis que c'est une fistule com-"plète."—'When I see a small orifice by the side of the anus, 'and perceive a hardness round about it, and find that it dis-'charges a large quantity of matter, I conclude that it is a fistula, 'which most probably affects the rectum. When I find something 'like fæces discharged from this orifice, or mixed with what is 'discharged from it, or the patient informs me that such kind of 'discharge is made, I call the disease a complete fistula.'—This is, undoubtedly, the general custom; notwithstanding which, the disease, in the state Mr. Le Dran has described it, may have no one true characteristic of a fistula; nor require any of that treatment which is said to be necessary and proper in such case, a matter of great consequence to the patient.

In the operative part of the treatment of the disease, Mr. Le Dran warmly espouses the free removal, or extirpation of parts. "S'il ne l'est que d'un coté, il faut emporter ce qui est denué; "certain que si l'on le laisse, la playe restera fistuleuse; et que si "l'on se contente de le fendre, les deux lambeaux flottans, dans "la playe, rendront les pansemens très difficiles, et même la "playe fistuleuse."—'If the disease be on one side only, all that 'part of the intestine, which is laid bare by the matter, ought to 'be cut away; because it is certain, that if such part be left in the 'wound, it will become fistulous; and that, if we only make a 'simple division, the divided lips will hang loose and floating in 'the wound, will render the application of dressings difficult, 'and make the sore fistulous.'

These are Mr. Le Dran's words and sentiments; and this the method of practice which is taught and followed by the majority.

That some small part of this process may be necessary in the true, old, callous, fistulous sore, I do not deny (though not even then in any degree equal to the above direction); but that the whole of it is absolutely unnecessary in the recent abscess, I can, from repeated experience, venture to affirm. That mere division of the naked intestine (if such division be dressed properly) will not render a sinus fistulous which was not so before, is a truth as clear as any in Euclid; and, indeed, it is to me matter of wonder how such opinion could ever be embraced. The division of the intestine, by laying the cavity of the sinus open, destroys or removes the principal circumstance which can make such a case resemble a fistula, by converting a hollow sinous ulcer into an open one; and with regard to the other characteristic, induration, certain it is, that if the knife does not find the parts hard, it cannot possibly make them so; on the contrary, it puts them under a necessity of undergoing such a degree of suppuration, as, if properly managed, will prove the cure of that very induration.

Mr. Le Dran says, "That the lips of the wound will hang float-"ing, will render the dressings difficult, and the sore fistulous." I think I understand what Mr. Le Dran means: the tumid lips of the recently made incision will certainly be a hinderance to the cramming in a quantity of dressings; and such attempts will, as certainly, increase the tumefaction and hardness; and, if persisted

in, with the help of a little escharotic, may bid fair for producing a callous sore; but all this lies at the door of the surgeon, and not of the case; all this is unnecessary, improper, and pernicious. I cannot, under such treatment as I would call good surgery, conceive the tumefaction and inflamed state of the lips of the divided gut to remain more than a few days; during which time, it must be the business of art to appease, relax, and produce suppuration; which, if properly executed, will infallibly prevent all tendency towards a fistulous sore, instead of producing one.

That the lips of the wound in the rectum will not separate from each other, in such manner as to admit a large quantity of lint; and that the membranous structure of the part will render such lips large, and subject to inflammation, until some degree of suppuration comes on, is beyond all doubt; but neither of these are reasons for extirpation: for the inflammation will be full as high where a piece is cut out, as where the part is merely divided, and all the symptoms of pain and uneasiness full as great, if not greater; and with regard to the impracticability of putting in a quantity of dressing, I repeat, that it is not at all necessary; but that, on the contrary, it is wrong, and tends only to mischief. A dossil or two of fine lint should, immediately after the incision is made, be placed between the divided lips, by passing them from the cavity of the rectum laterally into the cavity of what before such division was the sinus: these should not be removed, until either the beginning suppuration, or the necessary action of the gut in going to stool, throws them out; when their place should be supplied with others of equal size, imbued with an easy soft digestive.

If the patient be in health, the lips of this wound, like those in all other membranous parts, after they have been crude, tumid, and inflamed, and have for a few days discharged a thin, discoloured kind of gleet, will begin to suppurate: if such suppuration be by proper, that is, by soft, gentle treatment, encouraged, not only the tumefaction and inflammatory hardness brought on by the incision will soon subside and disappear, but also all the induration which attended the sinus before it was laid open.

On the other hand, if the patient's habit be bad, and no such inflammatory tumefaction succeed to the incision, but instead of

it the lips of the wound are soft, flabby, and inclining to be livid, the case has undoubtedly an unpromising appearance; but the remedy is not chirurgical. Removal of parts will not remove or amend this state of the sore, or at all lessen the hazard arising from it; it may indeed render the introduction of dressings somewhat more easy; but it neither will, nor can make such dressings at all more effectual, or more conducive to the one end which ought to be pursued.

In such case, the remedy must be an internal one; and whoever depends upon externals will give his patient much unnecessary trouble, and only waste his time.

The truth is, this doctrine of the necessity of cutting out a portion of the intestine (though it is as old, or perhaps older, than Celsus)[k] is almost a necessary consequence of the manner in which these sores (upon a supposition of their being fistulous) almost always have been, and do still continue to be, generally treated.—I mean, the custom of cramming them full of lint, and of charging that lint with medicines, which, though used under more gentle appellations, are really escharotics.—Upon this plan, I am willing to allow that the lips of the divided intestine will be in the way, and prove a considerable impediment in the introduction of such dressings; and I will also allow, that by means of such medicines, he whole wound will be irritated, inflamed, and hardened; and so far wear the appearance of being fistulous, as neither to yield good matter, nor be disposed to heal; at least, not till nature has got the better of the surgeon.

What Mr. Le Dran says, in another paragraph of the same tract, may serve to strengthen what I have asserted.—" S'il est " denué des deux cotés, il faut, pour le conserver, faire à l'autre " fesse une contreouverture, pres de là, et la faire assez longue " pour pouvoir panser commodement; puis écouter ce que la na- " ture fera pour lui."—' If the gut be denuded on both sides, a ' counter opening should be made on the other side, long enough

k ' In hoc genere demisso specillo, daubus lineis incidenda cutis est, ut ' media inter eas habenula tenuis admodum injiciatur, ne protinus ora coeant, ' sitque locus aliquis linimentis, quæ quam paucissima superinjicienda sunt, ' omniaque eodem modo facienda, quæ in abscessibus posita sunt.

CELSUS.

'to permit, conveniently, the application of dressings; and then 'we should wait, and see what nature will do toward assisting the 'patient.'

A very important piece of advice this; worth all the directions for the extirpation of parts; and which, if timely and duly attended to, will, generally, render all such directions quite unnecessary.

It is, indeed, somewhat remarkable, that the same gentleman should give the above very excellent advice, and, almost in the same breath, add what follows.—" S'il est denué exactement " dans toute sa circonférence, et que son depouillement ne s'étend " pas plus haut que les releveurs de l'anus, il faut emporter tout " ce qui est dénué."—' If the intestine be bared by the matter all 'round, and this denudation does not extend above the levatores 'ani, all that part which is so bared, should be extirpated.' That is, the whole verge of the anus; all that part which is so formed by nature, as by its relaxation to permit the largest and most solid stool to pass out; and by its constriction, to detain and keep in, for a while, the most fluid, sharp, and stimulating one; all that part which, when destroyed or removed, not only never can be renewed, but never can have its place supplied, nor its office properly executed, by what must succeed to it: surely it may, with great justice, be said, that the latter condition of a man in these circumstances is worse than the former; and that his remedy proves a most afflicting disease.[1]

[1] In the Memoirs of the French Academy, is a case of this kind, related by Mr. Faget. The patient had an abscess on each side of the rectum; which, before Mr. Faget saw it, had been opened without meddling with the gut.

The two abscesses communicated by a hollow or sinus under the os coccygis; the depth in all the upper part is described to be about two inches, but in the perineum the skin only was separated; that is, the hollow was quite superficial. After five months' attendance, during which time the rectum was never divided, the patient was brought to Paris; where, in a consultation between the Messieurs Faget and Boudon, it was agreed, that the only method of obtaining a cure must be by extirpating, or cutting away, the whole extremity of the intestine, as deep as it was laid bare; which operation is thus described—" Je perçai d'abord le rectum de droit à gauche, avec un gros " stilet; avec lequel je fis l'anse. Je commençais à couper le lambeau de " peau qui tenoit au coccyx, et je continuai tout le long d'attache des mus- " cles releveurs jusqu' à la parte moyenne du perinée, où il y avoit beau-

Prejudice often prevents us from seeing truth, though it stands before us; for Mr. Le Dran, though he so strongly recommends the extirpation of a portion of the intestine, yet has made the same observation on those fistulæ, which run too high for extirpation, as Mr. De la Faye. He has very justly remarked, that they will do well without such operation; and has given so good and so true an account of the matter, that it is amazing he should not see that the same method, both of reasoning and of acting, was equally applicable to both cases; that is, to those fistulæ which do not extend so high, as well as to those which do. He says—" On " trouve souvent des sinus qui montent fort haut le long du rec- " tum; et même vers la vessie, dans la tissu cellulaire qui entoure " ces parties: sinus qui semblent devoir rendre ces maladies in- " curables, parcequ'ils vont plus haut que le doigt ne peut aller. " Mais l'experience m'appris que ces sinus se remplisserent pres- " que toujours dans les six premiers jours—ou, pour parler plus " justement, que les chairs se rapprocherent, n'ayant étés qu' " écartés par les pus, et non fondues."—' Sometimes we meet ' with sinuses, which run so high in the tela cellulosa, along the ' rectum, and up toward the bladder, that one would be inclined ' to believe them to be incurable, from their being beyond the ' reach of the finger;[m] but I have learned from experience, that

" coup de dureté, et de callosité, que j'emportai; je pansai la playe avec un " gros bourdonnet, et des lambeaux de linge trempés dans l'eau alumineuse, " le tout soutenu par plusieurs compresses et un bandage convenable." &c. Mr. Faget says, that the patient was six months longer in getting well. To which I must take the liberty of adding, that he was much more fortunate than some whom I have seen under the same treatment. The relator, in the rest of the memoir, endeavours to explain the method by which the new anus became capable of executing the office of the old one; and very justly seems to wonder, why the surgeon, who first had the care of the patient, and who first opened the abscesses, did not divide the rectum in each of them. Mr. Faget's surprise, and his censure on the operator, are certainly well founded: but I must own that it seems to me to be full as extraordinary, that he who saw the propriety of its having been done before, should not, at least, try what it would do afterward. If this experiment had been made, and the case properly conducted, I make little doubt that the patient might have been cured without the loss of his fundament—a loss, which, though possibly in youth and health he might not be so sensible of as to alarm him, yet in age, or a state of debility, must prove a very grievous one.

[m] It is hardly decent for a surgeon to say it; but I am much inclined to

'these sinuses fill up within the first six days—or, to speak more 'properly, that the membranes, which have been only separated, 'and not dissolved by the matter, again approach each other.'—

believe that this circumstance of the sinus being out of the reach of the finger is the very individual one on which the expedition of the cure (that is, the shortness of the time in which Mr. Le Dran says that he finds these cavities filled up) depends. For, if they were within the reach of the finger of an operator who thinks as this gentleman writes, he would immediately go to work with his instruments; and if he did nothing worse, must necessarily prolong.—It has always been a very generally received opinion, that if the hollow of the sinus be higher than a finger in ano can reach, all chirurgic operation is fruitless. There is hardly an author ancient or modern who has not inculcated this doctrine, though daily experience might have convinced them of its falsehood.

Among the rest Heister has given us his opinion on this subject, in the most positive manner:—" Et sane nisi digitus, in anum depressus, fistulæ os " attingere valet, verum illud adhuc profundius latet, sine vitæ periculo, ob " metum lædendarum venarum majorum, sectio institui nequit; adeoque tunc " parum plerumque, imo vero nihil omnino chirurgi artificia proficiunt," &c.

This, which, as I have observed before, is the doctrine of all our writers, has always stood upon the same principle; *viz.* the fear of hæmorrhage; and all the propagators of it have always supposed, that nothing but a division of the whole sinus could possibly produce a cure; which supposition is by no means true.

When the case is an abscess formed in the cellular membrane, the length of the sinus must be proportioned to the distance of the seat of such abscess from its external orifice: this is sometimes considerable, quite out of the reach of the finger in ano, but it does by no means follow, that either this sinus must be divided through its whole length, or that the disease cannot be cured; and therefore it is better not to meddle with it at all. Frequent experience proves the contrary. If all that part of it which is within the reach of the finger in ano (that is, all that part of it which is principally affected by the action of the muscles of the anus and rectum) be fairly divided; if the wound so made be dressed in such manner as to produce no inflammatory irritation; if it be not frequently poked into, and examined; and the patient's habit be properly taken care of, the length of the sinus will add very little to the difficulty attending the cure; all that is out of reach will collapse and heal; and the case will very soon be exactly the same, as if the whole hollow was within the finger's length.

The probability of an hæmorrhage from the large vessels about the upper part of the rectum, is a thing which ought by all means to be avoided, as it might give a great deal of trouble, and create some hazard; but the operation which would induce such apprehension being quite unnecessary, this risk is out of the question.

The last mentioned author, (Heister,) although in general a very exact

Can any man give a more rational or more true account of this matter, or produce a stronger argument against cutting out a part of the intestine? The operator's finger cannot reach the upper part of the sinus, and therefore he cannot extirpate; but sinuses, which by being out of reach cannot be extirpated, do well without it, merely by the help of nature; who, when the matter is discharged, and such an opening made as prevents any future lodgement, brings the sides of the cavity together, and endeavours thereby to obliterate it. It is true that she can but seldom accomplish this end entirely; I mean, throughout the whole length of the sinus; the lower part generally remaining open, though contracted to narrow compass: this it is most frequently absolutely necessary to divide, in order to obtain a cure; but that part of the said sinus (if there be any) which is out of the reach of the instrument guided by the finger in ano, is not a matter of that consequence which it is supposed to be. If the lower part, or what is fairly within reach, be divided, such division will, in most cases which are curable at all, be fully sufficient for a cure, as I have often and often experienced. I know that this is contrary to the generally received doctrine, but I know it is true; and am much inclined to believe, that the supposition of the necessity of laying open the whole sinus, however deep it may run, has contributed greatly to the fatigue and hazard which many people have unnecessarily undergone in this disease; it has occasioned such poking with long probes, and such cramming in of tents and dressings, as have proved extremely pernicious; and brought on symptoms and trouble, which would not have attended the same cases under other management.

One word more, and I have done with this part of my subject.

and careful writer, seems, in his observations on this complaint, rather to have copied what our predecessors have written on it, than to have given us what his own experience might have furnished him with: the latter would have convinced him, that all his preparation by bleeding, purging, &c. before the operation, is quite unnecessary; that the blind fistulæ are very little, if at all, more difficult of cure than the open ones; and that the disease in question admits of being treated and cured in pregnant women, as perfectly and as easily as in those who are not so. The contrary doctrines are certainly no rules of good practice, however venerable they may be from their antiquity.

As I have given my opinion so freely concerning the practice of excision, a representation of the inconveniences likely to arise from it, might from me be thought to be an exaggeration; I shall, therefore, take the liberty once more to quote Mr. Le Dran; who, considered as a patron of the practice, cannot be supposed to overcharge it. He says, "Cette grande playe sera dans les commencemens pansée comme les autres; mais quand les chairs commencent à se rapprocher, elle demande des attentions particulieres; sans lesquelles, l'anus deviendroit si étroit que les excremens ne pourroient y passer; pour peu qu'ils ont de consistence. Il faut donc alors mettre jusque dans le rectum une tente de linge, lisse, assez longue, et assez grosse, pour entretenir le passage. Il faut même sur le fin, supplier à cette tente, par une espèce de suppositoire d'yvoire, percé en forme de cannule; et avoir soin de la bien assujetir par la bandage, a fin qu'elle ne sorte pas. La cicatrice étant faite, il faudra que le malade porte cette suppositoire encore pres d'un an; sans quoi la cicatrice serreroit l'anus de plus en plus."—'This large wound should, at the first, be dressed like any other; but when the sides begin to approach each other, it will then demand particular attention, lest the fundament should become so contracted, that the fæces, if they be at all hard, cannot be expelled. Therefore, in order to keep the passage of a proper size, a smooth tent made of linen should be introduced; which tent should be of such a size and length, as to serve the purpose for which it is intended. Toward the close of the cure, in the place of this, an ivory suppository, made in the form of a cannula, must be substituted, and kept constantly in, by means of a proper bandage. Which suppository must be worn for near a year after the sore is perfectly healed; otherwise the cicatrix will contract the anus still more and more every day.'[n]

This is what is called cutting for a fistula: this is the operation which they who have undergone it do so pathetically describe and lament, and what they, who have the misfortune to be afflicted

[n] To which he might have added, that when all this is done, and every precaution of this kind used, the patient will always find it difficult and painful, and sometimes absolutely impossible, to retain a loose stool—an evil still greater than the trouble of expelling a hard one.

with the disease, do (from the account of others) so fearfully dread. It is true, that it has the sanction of several eminent writers; that it is practiced by many surgeons; and that it is recommended and exhibited by anatomico-chirurgical teachers; but notwithstanding these authorities, I shall not scruple to say, that it is cruel, unnecessary, and wrong.

That by these means abscesses juxta anum, and fistulæ in ano, (as they are called,) are cured, I make no doubt; nay, I know that they are; but I also know, from repeated experience, that they are curable by means which are more expeditious, more easy, and neither hazardous in the use, nor productive of evil in the event. I mean by mere simple division of all that part of the sinus which is within reach; by soft, gentle treatment of the sore after such operation; and by proper care of the habit.*

The hæmorrhage (to say nothing of the pain) which now and then attends the extirpation of a large piece of the intestine and fundament, is alarming both to weak minds and to weak bodies; and the inconveniences arising from loss of substance about the

* When the habit is out of order, as it most frequently is in persons afflicted with this disorder, if recourse be not had to internals, the surgeon will gain little ground. This is a circumstance which ought always to be attended to; and it is in some measure owing to a want of due regard to it, that we find such a farrago of different dressings; such remedies for fungous, for foul, for callous sores, &c. These diseased appearances and circumstances most frequently proceeded from disorders in the habit; and if that be not corrected, the same appearances will continue, notwithstanding all our escharotics, detergents, digestives, incarnatives, &c. &c. &c.

In cold, debauched, lax, or sluggish habits, if the patient be not warmed by aromatics, and braced by the bark, these cases will often prove tedious and troublesome.

From the induration of the parts about, from the face and colour of the sore, and from the discoloured gleety discharge, callosity, latent mischief, and undiscovered sinuses, will be suspected; whereas, in truth, neither one nor the other are the cause of such diseased appearances. The administration of proper remedies will, most commonly, in a few days, produce such an alteration, as the whole art of surgery could not (by mere externals) bring about in as many weeks, if at all. Many and many a sore of this kind have I seen brought into the hospital, which has had all these disagreeable appearances, which has long and fruitlessly been treated with all the variety of externals, and which a decoction of the bark and rad. serpentariæ has, in a very short time, put into such a condition as to want only dry lint.

verge of the anus, either in strong exercise, in the retention of loose stools, or the expulsion of hard ones, are so great, that I have known several people who have daily and sincerely wished for their uncut fistulæ again; and who, either from pain or uncleanliness, or both, have been rendered truly unhappy.

In short, I can venture to assert, from many years' experience on a great variety of subjects, that when the disease is curable by chirurgic art, the method which I have proposed, will, with more ease, expedition, and certainty, attain that end, than the method of extirpation; and that without producing any of those very disagreeable circumstances which Mr. Le Dran has so justly described.

And for the truth of this assertion, I appeal to all those (many in number) who have, for these ten or twelve years past, attended St. Bartholomew's hospital.

SECT. VI.

Hitherto I have considered the disease either as an abscess, from which the matter has been let out by an incision, made by a surgeon, or from which the contents have been discharged by one single orifice, formed by the bursting of the skin somewhere about the fundament. I am now to take notice of it, when instead of one such opening there are several.

This state of the case generally happens when the quantity of matter collected has been large, the inflammation of considerable extent, the adipose membrane very sloughy, and the skin worn very thin before it burst. It is, indeed, a circumstance of no real consequence at all; but, from being misunderstood, or not properly attended to, is made one of additional terror to the patient, and additional alarm to the inexperienced practitioner; for it is taught, and frequently believed, that each of these orifices is an outlet from, or leads to, a distinct sinus or hollow; whereas, in truth, the case is most commonly quite otherwise: all these openings are only so many distinct burstings of the skin covering the matter;

and do all, be they few or many, lead and open immediately into the one single cavity of the abscess; they neither indicate, nor lead to, nor are caused by, distinct sinuses; nor would the appearance of twenty of them (if possible) necessarily imply more than one general hollow.

If this account be a true one, it will follow, that the chirurgic treatment of this kind of case ought to be very little, if at all, different from that of the preceding; and that all that can be necessary to be done, must be to divide each of these orifices in such manner as to make one cavity of the whole. This the probe-knife will easily and expeditiously do; and when that is done, if the sore, or more properly its edges, should make a very ragged, uneven appearance, the removal of a small portion of such irregular angular parts will answer all the purposes of making room for the application of dressings, and for producing a smooth even cicatrix after the sore shall be healed.

When a considerable quantity of matter has been recently let out, and the internal parts are not only in a crude, undigested state, but have not yet had time to collapse, and approach each other, the inside of such cavity will appear large; and if a probe be pushed with any degree of force, it will pass in more than one direction into the cellular membrane, by the side of the rectum. But let not the unexperienced practioner be alarmed at this, and immediately fancy that there are so many distinct sinuses; neither let him, if he be of a more hardy disposition, go to work immediately with his director, knife, or scissors; let him enlarge the external wound by making his incision freely; let him lay all the separate orifices open into that cavity; let him divide the intestine lengthwise by means of his finger in ano; let him dress lightly and easily; let him pay proper attention to the habit of the patient; and wait and see what a few days, under such conduct, will produce. By this he will frequently find, that the large cavity of the abscess will become small and clean; that the induration round about will gradually lessen; that the probe will not pass in that manner into the cellular membrane; and consequently, that his fears of a multiplicity of sinuses were groundless. On the contrary, if the sore be crammed or dressed with irritating or escharotic medicines, all the appearances will be different; the hardness will increase, the

lips of the wound will be inverted; the cavity of the sore will remain large, crude, and foul; the discharge will be thin, gleety, and discoloured; the patient will be uneasy and feverish; and, if no new cavities are formed by the irritation of parts, and confinement of matter, yet the original one will have no opportunity of contracting itself; and may, very possibly, become truly fistulous.

I will not say that there never is more than one sinus running along the side of the intestine (I mean on the same side); but I will venture to assert, that for one instance in which the case is really so, forty are supposed and talked of. Distinct and separate openings in the skin, from the same cavity or sinus, are common; but perfectly distinct sinuses, running along the intestine on the same side, are very far from being so: they are very uncommon.

I should be sorry to have such a misconstruction put upon what I have said, as to have it supposed that I made light of a disease which every body knows is sometimes attended with very troublesome circumstances; or that I make pretension to any particular secret method of treating it; or that I think myself more capable of conducting it than the generality of practitioners: as none of these are true, I should be sorry to have them imputed to me. I do allow (what is undoubtedly true) that this disease, in some constitutions, and under some circumstances, will engage the attention, and exercise the judgment, of the best and most able practitioner; but, on the other hand, I must repeat, that a great deal of the trouble which it is sometimes attended with, does not arise from the disease itself, but from misconception, and improper treatment.

I have freely, and without reserve, related that method of treatment which I have found to be most successful; nor do I know any applications which are at all specifice, or more proper for this kind of sore than for all others, in parts of the same structure: the most simple, and they which give least pain, are the best. Neither these nor mere dry lint, should ever be introduced in larger quantity than can be admitted and borne with ease; that the sore may not be distended, but a fair opportunity given to nature to contract it gradually.

This every practitioner may be capable of executing, since it consists more in abstaining from doing mischief, than in doing

any thing which may require particular judgment or dexterity. It is true, that the method which I have proposed will considerably lessen the chirurgic apparatus of instruments and dressings; but it will be attended with success, and produce that which every patient has a right to expect from his surgeon—a firm cure in a short space of time, and with the least possible fatigue.

It sometimes happens, that the matter of an abscess, formed juxta anum, instead of making its way out through the skin, externally near the verge of the anus, or in the buttock, pierces through the intestine only. This is what is called a blind internal fistula—*fistule borgne interne.*

In this case, after the discharge has been made, the greater part of the tumefaction subsides, and the patient becomes easier. If this does not produce a cure, which sometimes, though very seldom, happens, some small degree of induration generally remains in the place where the original tumor was. Upon pressure on this hardness, a small discharge of matter is frequently made per anum; and sometimes the expulsion of air from the cavity of the abscess into that of the intestine may very palpably be felt, and clearly heard: the stools, particularly if hard, and requiring force to be expelled, are sometimes smeared with matter; and although the patient, by the bursting of the abscess, is relieved from the acute pain which the collection occasioned, yet he is seldom perfectly free from a dull kind of uneasiness, especially if he sits for any considerable length of time in one posture. The real difference between this kind of case, and that in which there is an external opening (with regard to method of cure) is very immaterial; for an external opening must be made, and then all difference ceases. In this, as in the former, no cure can reasonably be expected, until the cavity of the abscess, and that of the rectum, are made one; and the only difference is, that in the one case we have an orifice at, or near the verge of the anus, by which we are immediately enabled to perform that necessary operation; in the other we must make one.

Some of the best of the modern writers have, I think, represented this state of the disease in such manner as to make it seem to labour under difficulties, which I cannot say that I ever found

it really did; and have thereby thrown the appearance of obscurity and trouble on what is generally clear and easy.

In Mr. De la Faye's very excellent notes on Dionis, is the following passage. " Lorsque les fistules n'ont pas d'ouverture ex-
" terne, et que rien ne designe le lieu où il faut faire l'operation,
" il y a deux moyens de le decouvrir. Le premier est de l'inven-
" tion de feu Mr. Thibaut, qui portoit le doigt index dans l'anus,
" et le recourboit; ensuite, en le tirant un peu à lui, pour ramener
" à l'exterieur le foyer de la matiere, tandis qu'il pressoit avec
" un autre doigt les environs du fondement, la douleur qu'il cau-
" soit au malade marquoit le lieu où il falloit faire l'incision pour
" rendre la fistule complete. Le second est de Mr. Petit, qui
" met dans l'anus pendant vingt-quatre heures une tente, qui
" touchant l'ouverture de la fistule, empeche le pus de s'écouler,
" et le ramasse en assez grande quantité pour faire à l'exterieur
" une tumeur, qu' indique le lieu où il faut faire l'operation."
' When fistulæ have no external opening, and there is no mark
' whereby to distinguish the place where the operation ought to
' be performed, there are two methods of discovering it; the first
' is that of the late Mr. Thibaut, who put his fore-finger into the
' rectum; and curving it endeavoured to bring the *foyer* (that is,
' the hollow which furnishes the matter,) nearer to the external
' part of the fundament; while, with his other finger, he pressed all
' the parts round about: the pain which he, by these means, gave
' to the patient, marked out the place where the incision ought to
' be made, in order to render the fistula complete. The second
' method is that of Mr. Petit: he put into the anus, for the space
' of twenty-four hours, a tent; which, by stopping up the orifice of
' the fistula, hindered the matter from running out into the cavity
' of the gut; and forced it to be collected in such quantity, as to
' form an external tumefaction, sufficient to indicate the place
' where the operation ought to be performed.'

The former of these, as far as it depends on that single circumstance, that the point where the pain is felt is the exact place where the opening ought to be made, is, by no means, to be depended upon: the latter method is operose, troublesome, and, in general, very insufficient for the purpose. If the orifice, through which the matter has made its way, lies high in the intestine, a tent cannot

be introduced so as to press against it sufficiently, unless it be so long, and so large, as to occupy the whole cavity of the gut. How fatiguing, and how difficult, the retention of this, for twenty-four hours, must be to many people, is easy to imagine: if the orifice be near to the fundament, in the lower part of the intestine, the possibility of closing it may be somewhat greater; but the inconvenience must be nearly the same, as well as the uncertainty.

In short, not to enter further into this totally unnecessary kind of practice, I would advise the man, who thinks to try it, to consider the stricture made by the contraction of the verge of the anus; the expansion of the cavity of the gut, immediately above that stricture; the great dilatability of the membranes of the intestine; and the uneven, wrinkled state in which it must necessarily be; and then to reflect, how very unlikely it is, that he should, without filling the whole cavity, stop or block up a small breach, whose exact situation he cannot know or learn.

It is true, that by discharge of the matter into the cavity of the intestine, the fluctuation of it within the abcess is no more to be felt; the tension ceases; the tumor, in great measure, subsides; and, consequently, all these indications of its situation disappear: but I do not remember ever to have seen a single case of this kind, in which there was not in the buttock, or near to the verge of the anus, either a remaining discoloration of the skin, or a hardness, or something by which the finger of a careful, judicious examiner, could clearly and certainly find where the disease was. Each of the circumstances just mentioned do as certainly point out where the hollow leading to the sinus is, as the fluctuation of the matter did before the cavity burst; and a knife, or lancet, plunged into this (provided it be pushed deep enough), will never fail to enter the said hollow. When this is done, the case becomes what is commonly called complete, and must be treated accordingly.

SECT. VII.

I COME now to that state of the disease, which may truly and properly be called fistulous. This is generally defined, sinus angustus, callosus, profundus; acri sanie diffluens; or, as Dionis translates it, "Un ulcère profond, et caverneux, dont l'entrée "est étroite, et le fond plus large; avec issue d'un pus acre et vi-"rulent; et accompagné de callosités."

Various causes may produce or concur in producing such a state of the parts concerned as will constitute a fistula, in the proper sense of the word; that is, a deep, hollow sore, or sinus, all parts of which are so hardened, or so diseased, as to be absolutely incapable of being healed while in that state; and from which a frequent or daily discharge is made, of a thin, discoloured sanies, or fluid.

These I shall take the liberty of dividing into two classes; *viz.* those which are the effect of neglect, distempered habit, or of bad management, and which may be called, without any great impropriety, local diseases; and those which are the consequence of disorders, whose origin and seat are not in the immediate sinus or fistula, but in parts more or less distant, and which, therefore, are not local complaints.

The natures and characters of these are obviously different by description; but they are still more so in their most frequent event; the former being generally curable by proper treatment, the latter frequently not so by any means whatever.

Under the former, I reckon all such cases as were originally mere collections of matter within the coats of the intestine rectum, or in the cellular membrane surrounding the said gut; but which, by being long neglected, grossly managed, or by happening in habits which were disordered, and for which disorders no proper remedies were administered, suffer such alteration, and get into such state, as to deserve the appellation of fistulæ.

Under the latter are comprised all those cases in which the disease has its origin and first state in the higher and more distant parts of the pelvis, about the os sacrum, lower vertebræ of the loins and parts adjacent thereto; and are either strumous or the consequence of long and much distempered habits; or the effect of, or combined with, other distempers, local or general; such as a diseased neck of the bladder, or prostate gland, or urethra; the lues venerea, cancers, &c. &c.

Among the very low people, who are brought into hospitals, we frequently meet with cases of the former kind; cases which, at first, were mere simple abcesses, but which, from uncleanliness, from intemperance, negligence, and distempered constitutions, become such kind of sores as may be called fistulous.

In these the art of surgery is undoubtedly, in some measure, and at some time, necessary; but it very seldom is the first or principal fountain from whence relief is to be sought: the general effects of intemperance, debauchery, and diseases of the habit, are first to be corrected and removed, before surgery can with propriety, or with reasonable prospect of advantage, be made use of. If the patient be infected with the lues venerea, that must first be cured; if he be anasarcous, or leucophlegmatic, that indisposition must be corrected; if he be feverish, that heat must be calmed; and if he labour under any of the general ill effects arising from foul skin, dirty clothing, unclean and unwholesome lodging, &c. producing pallid countenance, undue secretions, loss of appetite, œdematous legs, intermitting fevers, &c. the state of blood which always accompanies such complaints must be amended before surgery can be administered to any good purpose. If knife, caustic, or whatever other external means are thought proper to be used, be applied before such general evils have been corrected, they will do little or no good; and may do much mischief. On the contrary, when the lues is corrected; when the patient is cool and gets good sleep; when the secretion of urine is so re-established, the general absorbent faculty so restored, and the solids so braced, that the legs cease to swell; and the patient recovers his natural appetite and complexion; we find the local disease, instead of standing still, has almost always made great

advances towards being cured, by being altered in all the principal circumstances of induration, crudity, gleet, &c. Whatever chirurgic operation or treatment may now be necessary, will in all probability succeed immediately; whereas, all our attempts before such care do and must prove fruitless.

The surgery required in these cases consists in laying open and dividing the sinus, or sinuses, in such manner that there may be no possible lodgement for matter, and that such cavities may be fairly opened lengthwise into that of the intestine rectum: if the internal parts of these hollows are hard, and do not yield good matter, which is sometimes the case, more especially where attempts have been made to cure by injecting astringent liquors, such parts should be lightly scratched or scarified with the point of a knife or lancet, but not dressed with escharotics; and if, either from the multiplicity of external orifices, or from the loose, flabby, hardened, or inverted state of the lips and edges of the wound near to the fundament, it seems very improbable that they can be got into such a state as to heal smooth and even, such portion of them should be cut off as may just serve that purpose. The dressings should be soft, easy, and light; and the whole intent of them to produce such suppuration as may soften the parts, and may bring them into a state fit for healing.

If a loose, fungous kind of flesh has taken possession of the inside of the sinus, (a thing much talked of, and very seldom met with,) a slight touch of the lunar caustic will reduce it sooner, and with better effect on the sore, than any other escharotic whatever.

The method and medicines by which the habit of the patient was corrected, must be continued (at least in some degree) through the whole cure; and all those excesses and irregularities, which may have contributed to injure it, must be avoided.

By these means, cases which at first have a most disagreeable and formidable aspect, are frequently brought into such state, as to give very little trouble in the healing.

More trouble must be supposed to attend this kind of case, than does a mere simple, recent abscess; and more time will necessarily be required to bring the parts into a kindly state; but under proper conduct, they will in general be found to do well, without

any of those operations which mankind have such dread of, and which are in general taught and practised.

If the bad state of the sore arises merely from the improper manner in which it may have been treated; I mean, from its having been crammed, irritated, and eroded; the method of obtaining relief is so obvious, as hardly to need recital.

A patient who has been so treated, has generally some degree of fever, has a pulse which is too hard and too quick, is thirsty, and does not get his due quantity of natural rest. A sore which has been so dressed, has generally a considerable degree of inflammatory hardness round about; the lips and edges of it are tumid, full, inflamed, and sometimes inverted; the whole verge of the anus is swollen; the hæmorrhoidal vessels are loaded; the discharge from the sore is large, thin, and discoloured; and all the lower part of the rectum participates of the inflammatory irritation, producing pain, bearing down, tenesmus, &c. *Contraria contrariis* is never more true than in this instance: the painful, uneasy state of the sore and of the rectum, is the great cause of all the mischief, both general and particular; and the first intention must be to alter that. All escharotics must be thrown out, and disused; and, in lieu of them, a soft digestive should be substituted, in such manner as not to cause any distention, or to give any uneasiness from quantity; over which a poultice should be applied: these dressings should be renewed twice a day; and the patient should be enjoined absolute rest. At the same time, attention should be paid to the general disturbance, which the former treatment may have created. Blood should be drawn off from the sanguine; the feverish heat should be calmed by proper medicines; the languid and low should be assisted with the bark and cordials; and ease in the part must, at all events, be obtained by the injection of anodyne clysters of starch and opium.

If the sinus has not yet been laid open, and the bad state of parts is occasioned by the introduction of tents imbued with escharotics, or by the injection of astringent liquors, (the one for the destruction of callosity, the other for the drying up gleet and humidity,) no operation of any kind should be attempted until both the patient and the parts are easy, cool, and quiet: cataplasm, clysters, rest, and proper medicines must procure this; and when that is

accomplished, the operation of dividing the sinus, and (if necessary) of removing a small portion of the ragged edges, may be executed, and will, in all probability, be attended with success. On the contrary, if such operation be performed while the parts are in a state of inflammation, the pain will be great, the sore for several days very troublesome, and the cure prolonged or retarded, instead of being expedited.

Particular individual cases may require little particularities in the treatment; but what I have drawn is the general outline. In this, as in most parts of physic and surgery, the first and great object is, to know what the intention is which ought to be pursued: when that is clear and determined, a man of any degree of knowledge will seldom be at a loss for materials wherewith to execute it.

Abscesses, and collections of diseased fluids, are frequently formed about the lumbal vertebræ, under the psoas muscle, and near to the os sacrum; in which cases, the said bones are sometimes carious, or otherwise diseased. These sometimes form sinuses, which run down by the side of the rectum, and burst near to the fundament.

The discharge from these is generally large, fetid, thin, and sharp: it is therefore no wonder that the sinuses by which they are made, together with the orifices thereof, become hard and callous; that is, truly fistulous. But it must be obvious to every one who will consider it, that the chirurgic treatment of these sores and sinuses can be of very little consequence towards curing the diseases from whence they arise: their seat is generally out of the reach either of our instruments or our applications; and their nature is not frequently found to be capable of being altered by medicine. However that may be, certain it is, that what advantage a person in such circumstances is at all likely to receive, is not derivable from surgery, but must be from medicine, or from more powerful nature.

Persons who have long laboured under what is commonly called a cachectic habit, have sometimes large collections of matter formed in the cellular membrane within the cavity of the pelvis, (which, like the preceding, form sinuses,) and burst their way out near the anus. These sinuses, from the nature of the discharge, from the depth of the seat of the disease, and from the

length of time which the drain continues, do almost necessarily become fistulous. Such collections do sometimes prove salutary crises; though much more frequently they hasten the patient's dissolution: but be the event which it may, although the sore is certainly fistulous, yet can the art of surgery do very little, if any, material service. If the event be good, the crisis must be far advanced, and very nearly determined, before any operation, or even dressing (except what is superficial, and merely for the purpose of cleanliness,) can be of any use; and if the discharge proves too much for the strength of the patient, it is pretty clear, that neither the art of surgery, nor indeed any other, can avail him.

On the other hand, if it so happens, that nature is so powerful, that, by means of this drain, she can free the habit from its former diseased state, or if, by the help of medicine, such alteration can be brought about, the fistula will not prove very troublesome; for the same alteration, at least in some degree, will be found to have been made in that; and if it be not brought thereby absolutely into a healing state, yet it will be found to be so much altered in its principal circumstances, that the common method, already laid down, will be fully sufficient for the completion of a cure.

We are, by authors, very frequently advised not to be too hasty in the cure of these cases; as the continuance of the discharge may prove beneficial to the patient. That these discharges are now and then of great advantage, is beyond all doubt; but very happily for such patients, the healing or not healing these sores is very seldom within our determination. We may, indeed, (and I fear often do,) by indiscreet conduct, prevent a sore from healing when it is nature's intention that it should be healed; but when she finds herself relieved, or benefited by a discharge of this kind, she will generally continue it, in spite of our most officious endeavours to the contrary.

Cancers and cancerous sores are sometimes formed in the cavity, or in the neighbourhood of the rectum and fundament; in which they make most terrible havoc, and afford most melancholy spectacles.

As I do not know what will cure a cancer, I leave the discussion of this to those who say that they do; most sincerely wishing,

that it was in my power to say, that I had, once in my life, known them to have fulfilled their promise.

Fistulous sores, sinuses, and induration about the anus, which are consequences of diseases of the neck of the bladder and urethra, called fistulæ in perineo, require separate and particular consideration.

In these, the external openings, with the sinuses leading from them into the cellular membrane, are the least part of the complaint: the stricture in the urethra, the induration of the whole neck of the bladder, the hardened, fungous, enlarged, or ulcerated state of the prostate gland, the diseases of the verumontanum, of the vesiculæ seminales, and vasa deferentia, are the great and principal objects of consideration.

A very serious consideration they certainly make. Great and manifold are the miseries which are derived to mankind from these causes; and much more diligent inquiry do they deserve, than they have yet met with: but as they do not immediately belong to my present subject, I must omit, or, at least, to another opportunity defer, entering into them.

CHIRURGICAL OBSERVATIONS

RELATIVE TO

THE CATARACT, THE POLYPUS OF THE NOSE, THE CANCER, OF THE SCROTUM,

AND THE

MORTIFICATION OF THE TOES AND FEET.

PREFACE.*

THE FIRST of the following tracts contains some remarks on a disease, to which persons of every rank and condition are liable; and by which they are rendered truly unhappy.

From an unpardonable indolence, or an equally blamable timidity, it has been too much the custom, in this country, to leave the management of this complaint to pretenders and itinerants, some of whom have been, in some degree, acquainted with the organ and its diseases, others most grossly ignorant of both; consequently the benefits and the misfortunes which have attended their undertakings have been various. With these I have nothing to do; but cannot help taking the liberty to observe, that until the profession in general have made themselves capable of being essentially serviceable to mankind in this point, they must not be surprised that the unfortunate and unknowing give credit to fair promises.

What I shall, in the following pages, advance, regarding the cataract, is not the consequence of a mere desire to write, but arises from a conviction founded on frequently repeated experience, that we have, within a few years past, reprobated an operation which, in proper hands, is capable of producing great good; and have substituted in its place another, which, though perhaps right and useful in some particular instances, has, by being too generally practised, occasioned much mischief.

* N. B. This Preface was, through negligence, omitted in the 4to. edition.

I should be sorry to have what I say misunderstood. I do by no means intend either to praise or blame indiscriminately: I think that each operation has its merit; but I also think, and know, that we have almost laid aside one, for reasons which are not founded in truth; and that we have rather hastily patronised and practised the other, without duly attending to its very frequent ill consequences.

The SECOND tract regards a disease which is mentioned, indeed, in most books of surgery, but in general not in such manner as to enable a young practitioner to form a proper judgment of it. By some, it is passed over so slightly, that an ignorant reader might be induced to suppose that it could never occasion much trouble or hazard: by others, it is regarded merely as requiring a chirurgic operation, to the performance of which their whole attention is paid; while, both by the one and the other, the material circumstances of the disease are overlooked, and no rules laid down whereby to determine on the propriety or impropriety of any chirurgic attempt whatever.

The subject of the THIRD has not (at least to my knowledge) been publicly noticed

All who have the care of hospitals in this town know, that the chimney-sweepers' cancer is as real, and as peculiar, a distemper as any of the morbi artificium; and a very melancholy consideration it is to those who are necessarily in the way of being liable to it.

The FOURTH is the result of a custom which I have many years practised; that of making memoranda of whatever appeared to me to be either unusual in itself, or attended with any singularity of circumstances.

The FIFTH is on a disease, which has so generally foiled all the attempts of art, as to be by many reckoned among those which are out of its reach. This truth, though sometimes undeniable, is

always acknowledged with reluctance; and reasons, good or bad, are therefore always sought for, and given for our disappointment. In the present case, a defect of circulation, an ossification of vessels, a want or depravity of the nervous fluid, with some other conjectures, equally ingenious, whimsical, and groundless, are offered. Whatever may be the original cause of the mortification of the toes and feet, certain it is, that acute pain is one of its first and most constant symptoms; and as certain it is, that while such pain continues, no stop is, or can be, put to the progress of the distemper. The ideas of defective circulation, want of sensibility in the nerves, of malignity, putrefaction, &c. have, in my opinion, misled us from a proper consideration of this destructive malady, and have put us on a plan of practice, which, as far as it relates to externals, seems to me to be opposite to that which ought to be pursued, and to render the disease more intractable, and more certainly fatal. Instead of cooling, we endeavour to excite heat; and when the parts which yet retain life and sensation, are in such state as to be most liable to, and susceptible of irritation, we apply to them hot, pungent oils, balsams, and tinctures, and wrap them up in cataplasms made of such ingredients as are more calculated to answer the purpose of stimulating than of appeasing.

In short, I cannot help thinking that we have, in this case, done what our forefathers did in that of wounds made by gun-shot; that is, we have formed conjectures, concerning the nature of the distemper, which are not true, and then have built a practice on these erroneous guesses. The strange notions which our ancestors entertained concerning the effects of fire, the poison of gunpowder, the malignity and the putrefactive disposition of gun-shot wounds, led them to overlook the obvious and necessary effects of a high degree of contusion and laceration, and induced them to have recourse to such means, as, though perfectly agreeable to their theory, necessarily increased the pain, the inflammation,

and the irritation which they should have endeavoured to soothe and appease.

What the consequence of their treatment too frequently was, themselves have told us; what that of attending more to the true nature of the case, and of acting from such consideration has been, our soldiers and sailors have of late years happily experienced.

Perhaps some of the cases which I have related in the FOURTH tract, may not appear to others to be so worthy of notice as they did to me. Some of them, I cannot help thinking, may deserve the attention of the younger part of the profession, to whose information I wish to contribute.

Diseases have, it is true, in general, a sort of regularity and order; a series of causes and events, by which they are known and distinguished; yet we do now and then meet with such odd irregularities, such strange and unusual consequences, as puzzle and alarm even the soundest judgment, and the longest experience; and unless these be noted, the history of distempers will be imperfect.

From writers of systems and institutes, (of surgery at least,) such kind of knowledge is not to be expected. They are most frequently mere compilers, and do little more than copy each other. The information which they convey is, at best, but superficial, and much more calculated to enable man to talk, than either to judge or to act. It must be from a careful attention to the cases of individuals, and from an observation of diseases, in their irregular and infrequent forms, as well as their more customary ones, that true and extensive judgment can be acquired.

If, therefore, a faithful relation of these less usual circumstances and appearances, both in the living and in the dead, were more frequently made, it might be productive of no small improvement: it would not be confined to the adding a few anomalous, eccentric

cases to our books, tending to excite our admiration only, but might be made to serve a much more valuable purpose: it might guard us against too hastily determining in cases of real, or of seeming obscurity, and might prevent us, now and then, from supposing things to be incapable of being accounted for, merely because we have not yet learned how to account for them; it might, perhaps, lessen our faith in general doctrines and theories, but it would render us more attentive to facts, and thereby furnish us with a much more useful kind of knowledge.

Perhaps, also, upon a more close and frequent examination, we might find, that some of these very cases are neither so rare, nor so intractable, as we have hitherto believed them to be. But be that as it may, certain it is, that from such inquiry we should at least get one kind of information—we should be furnished with good and satisfactory reasons, why our best attempts so frequently fail. I say satisfactory, because I cannot help thinking, that next to the pleasure of being able to relieve the distresses of mankind, is the satisfaction of knowing that it was not in our power so to do.

Many and great are the improvements which the chirurgic art has received within these last fifty years; and much thanks are due to those who have contributed to them; but when we reflect how much still remains to be done, it should rather excite our industry than inflame our vanity.

Our fathers thought themselves a great deal nearer to perfection than we have found them to be; and I am much mistaken, if our successors do not, in more instances than one, wonder both at our inattention and our ignorance. Notwithstanding all our late real improvements, there is still ample room to exercise all the powers of many succeeding artists, and to furnish them with large opportunity of acquiring honour to themselves, and of doing much praiseworthy service to mankind: the art is still defective, and the

words of Seneca are still, in some degree, as true as when he wrote them, " Multum adhuc restat operis, multumque restabit; nec " ulli nato post mille secula præcludetur occasio aliquid adhuc " adjiciendi."

REMARKS ON THE CATARACT.

NOTWITHSTANDING the variety of operations and processes which, for the relief or cure of this disease, are to be found in almost all the books of our forefathers, yet it is very certain that until within these last fifty years, neither the state, nature, nor seat of it were truly known; at least not to the practitioners of surgery.

Wild and various were the conjectures concerning it: it was by some said to be a distemper of the vitreous humour; by others of the aqueous: by some it was thought to be a condensation of earthy particles; by others a membranous film: it was said by some to be anterior, by others posterior, to the pupil: it was often confounded with the gutta serena, and sometimes even with an opacity of the cornea

Accident, one great source of many an useful discovery both in physic and surgery, first proved it to be a distemper of the corpus crystallinum; to be in general absolutely confined to it, and to consist of a greater or less degree of opacity; and now, as is usual in all such cases, we are convinced, that all the attempts, and all the operations, which ever were made or practised to any good purpose, either for its relief or its cure, could be successful only as they affected that body.

From the knowledge of its seat, and of one of the principal circumstances of its nature, we have been enabled to direct our attempts more rationally, and to act with a greater degree of precision and satisfaction; but still from all I have been able to collect, either from books or from practitioners, there are some material circumstances relative to the disease, which are not rightly, at least not generally understood; some remains of the old doctrine still

continue to influence both our opinion and practice; some things are taken for granted which are by no means true; and practical inferences are drawn from others, which are not admissible. Whether an attempt to set some of these in a clearer light, will or ought to be attended with any alteration in the treatment of the distemper, must be left to others to determine: I shall content myself with relating, as briefly as I can, some few particulars which appear to me to deserve attention.

One general opinion among our ancestors was, that every cataract had its seasons; was at one time immature or unripe; at another mature or ripe; and that the term unripe, necessarily implied a soft—that of ripe, a hard or firm state of the crystalline.

The opinion was a necessary consequence of the theory then most frequently embraced, and was therefore generally credited; and, as very often happens with regard to preconceived notions, it was thought to be confirmed by facts.

This doctrine has, it is true, been contradicted by some of our best modern practitioners; but still it not only remains the opinion of many, but has a very considerable share in determining the preference supposed to be due to one method of operating over another.

The terms imply, and are generally understood to mean, that every cataract is at first soft through its whole substance; and that by degrees, in more or less time, it becomes hard and firm, or at least harder and firmer than the natural crystalline; which latter circumstance is by no means true, either necessarily or even generally. I will not say that it never is; but I can venture to affirm, that it most frequently is not. Some of our remote ancestors borrowed their ideas on this subject from the kernels of fruits, to which they have indeed compared the cataract; but the notions of ripe and unripe have remained with many who were aware of the exceeding absurdity of the comparison.

If this was a merely speculative point, it would be a matter of very little importance; but as a practical inference is drawn from it, that the early, or supposed unripe state is an improper one for an operation, and that therefore a patient should wait for a later or ripe one, it becomes a matter of considerable consequence to such person, whether he shall or shall not continue blind all that

very uncertain space of time. Neither is this all, material as it may seem; for the same doctrine implies, that the first degree or appearance of obscurity, however soft the crystalline may then be, will certainly be followed by an induration of it; or in other words, that the crystalline is first rendered soft merely, and only to become hard afterwards; that the same first or soft state is not proper for an operation, because it would necessarily render it unsuccessful; and that an increased degree of opacity and obscurity, may in general be regarded as marks of increased firmness: not one of which is true.

The natural, sound, transparent crystalline, is very far from being uniform in its consistence through its whole substance; its external part is much softer, and more gelatinous than its internal; which therefore, although equally transparent, may be said to form a kind of nucleus, and is always of much firmer texture.[a] From this sound and natural state, it is capable of several morbid alterations; it is capable of being dissolved, or of becoming fluid, without losing any thing of its transparency;[b] it is capable of being dissolved into an apparently uniform fluid, of a gelatinous kind of consistence, but which will be more or less opake through the whole; it sometimes becomes opake while it undergoes a partial kind of dissolution, which leaves or renders the different parts of it of very different degrees of consistence; and it now and then,

[a] If this known difference of consistence between the external and internal parts of the crystalline was duly attended to, it would solve many of the appearances in cataracts which, for want of such attention, are either not accounted for, or very absurdly. Among other phenomena, it would account for the very different colour which the different parts of the same cataract frequently bear; and which has furnished the wildest conjectures.

[b] It has been supposed, by very good anatomists, that the human crystalline has sometimes, between its surface and its capsula, a small quantity of fine pellucid lymph; and consequently that there is no immediate connexion between that body and its investing membrane. In many beasts, as well as fishes, this is known to be the case; but whether it be so in the human eye, is not very easy to be known during life; but that this is the case, sometimes from distemper, I have no doubt. I mean, that the whole crystalline is dissolved into a fluid, still preserving its transparency. This kind of alteration, as I take it, forms what is by some called one species of the gutta serena; by others, the black cataract.

though very rarely, becomes opake through its whole substance, and yet preserves its natural degree of firmness.[c]

Whenever the crystalline becomes softer than it should be, or tends towards such state, it is certainly distempered, and unfit for perfect vision, whether it be opake or not, or whatever its degree of opacity may be; but whoever supposes that such softened and opake crystalline will necessarily, or even frequently, acquire firmness, or become hard by time, is exceedingly mistaken. Opacity, though now and then accompanied by what is called induration, is no proof of it, nor of any tendency towards it; so far from it, that some of the most dissolved or fluid cataracts, and which have been so for the greatest length of time, are found full as opake as the most firm ones.

Whoever has an opportunity of observing this distemper, and will embrace it, will find that cataracts which have in a length of time gone through all those alterations of colour, which are said to indicate unripeness and ripeness, are often as perfectly soft as they ever could have been; and, on the other hand, will sometimes find them what is called firm or hard very soon after the first appearance of obscurity. That is, to speak more truly, as well as more properly, the former having been at first dissolved, have remained in the same state of dissolution; and the latter, having been at first only partially softened, have been found in the same unequal state, with a firm nucleus.[d]

When, therefore, I make use of the term induration, I do it in compliance with the common method of speaking; and not because I think it conveys, by any means, an adequate idea of the real alteration made in the state of the crystalline: far from it; it

[c] From this variety of alteration, which the crystalline is capable of undergoing, proceeds that variety of appearance which our ancestors have called so many different kinds of cataracts.

[d] For there is no possibility of accounting rationally, but by having recourse to the natural state of the crystalline, with regard to the different consistence of its different parts. This will account for the alterations to which it is liable from time, accident or distemper: this will show why there is no uniformly and universally hard cataract; why, in all of them, the softest part is always on the surface; why, even in the hardest, the central part is always the most firm; and why the external and internal parts of the same cataract, are so often so different from each other in colour.

neither conveys an idea of the nature, nor of the extent of such alteration. With regard to the former, the term induration can with propriety be used only in opposition to a perfect or general distempered dissolution; by much the majority of what are called firm cataracts, being much less firm than the same crystalline was before such alteration; and with regard to the latter circumstance, the extent of the mischief, it is subject to the greatest degree of uncertainty; being seldom or never an induration of the whole body, but most frequently a firmish kind of nucleus, of greater or less size, contained within more or less of a gelatinous, or softer kind of substance: so that the nucleus is called firm only in opposition to what envelopes it.

In short, if we would think and speak of this matter as it really is, (or as it appears to me to be,) instead of using the terms soft and hard in opposition to each other, and as implying different effects, either of time or of distemper, on the crystalline, we should say, that dissolution or softening, in some degree, is by much the most common effect; that, except in some few instances, where that body retains its natural firmness, while it loses its transparency, the most frequent consequence is a softening of its texture, either partial or total; and that seven times in nine, when the crystalline becomes opake, and tends towards forming a cataract, it is more or less softened; sometimes equally through its whole substance, sometimes partially, having a greater or less portion left undissolved.

This undissolved part, which always makes what is called a hard cataract, may indeed be called firm in opposition to the softer, by which it is surrounded; but even this very part is hardly, if ever, so firm as the centre of the natural and sound crystalline.

I beg the reader's pardon for having been somewhat prolix, but the subject did not appear to me to have been properly attended to.

It would be exceedingly pleasant, as well as advantageous, if we could, previous to an operation, know the true state of an opake crystalline: it would enable a surgeon to determine his mode of operating with more precision, and to explain what his intention by such method was: it would give satisfaction to him-

self as well as to standers by; and make that appear to be judicious and rational, which, under our present uncertainty, has often the appearance of being accidental, and done at random.

It is agreed by all, who have carefully considered this subject, and who are ingenuous enough to speak the truth, that the mere colour of a cataract furnishes no proof, to be by any means depended upon, relative to its consistence; and that they which appear greyish, or bluish, or like whey, are sometimes found to be firm and resistent, while the more equally white ones are perfectly soft.

I do not mean to assert, but merely to propose to the consideration of such as may have leisure and opportunity, whether, when the opake crystalline is quite dissolved, so as to form a soft cataract, it is not, at the same time, somewhat enlarged; and whether, when such dissolution does not take place, and what is called a hard cataract is formed, the crystalline is not, in some degree, lessened or shrunk?

Among the circumstances which have concurred to incline me to be of this opinion, is this; that when the pupil has been observed to be always in a state of dilatation, even when exposed to a strong light, and, although capable of motion, yet never to contract in the usual manner, I have most commonly found the cataract to have been soft; and, on the contrary, when the pupil has been capable of full and perfect contraction over the cataract, I think that it has most commonly proved firm; and this difference I have more than once observed in the different eyes of the same person. The greater degree of facility with which the firm cataract quits its place, and passes through the pupil upon the division of the cornea, does not lessen the probability of this opinion. I could also wish that they who have an opportunity would inquire, whether the cataracts which have been found perfectly soft, have not, in general, become gradually more and more opake by very slow degrees, and, in a length of time, the patient feeling little or no pain; and whether the firm ones do not, in general, become hastily opake; and are not preceded, or accompanied, by severe and deeply seated pain in the head, particularly in the hinder part of it?

What has hitherto been said, as it principally regards the theory of the distemper, may perhaps be thought to be of little importance; but when the influence which these opinions may produce, and indeed have produced on practice, is considered, it will be found to be matter of some consequence: while they are confined to a surgeon's imagination only, they are not of much consideration; but when they are to regulate his judgment, and direct his hand, they become rather serious.

Since the operation of extracting the cataract, instead of depressing it, has been introduced into practice, and made a kind of fashion, it has been the humour to exaggerate all the objections to which the latter has been said to be liable; and that in such a manner, that they who have not had frequent opportunities of seeing business of this kind fall, without reflection, into the prevailing opinion, seem to wonder, that the operation of couching should ever have had any success at all; and at the same time are, from the accounts given, inclined to believe, that the extraction is always safe, easy, and successful.

The objections which are made against the operation of couching, at least those which have any semblance of truth or force, are reducible to four.

The first is, that if the cataract be perfectly soft, the operation will not be successful, from the impossibility of accomplishing the proposed end of it.

The second is, that if it be of the mixed kind, partly soft and partly hard, it will most probably fail of success, not only from the impracticability of depressing the softer parts, but also because the more firm ones will either elude the point of the needle, and, remaining in the posterior chamber, still form a cataract; or getting through the pupil into the anterior chamber, will there bring on pain and inflammation, and induce a necessity of dividing the cornea for their discharge.

The third is, that if the cataract be of the firm, solid kind, and therefore capable of being depressed, yet, in whatever part of the eye it shall happen to be placed, it will there remain undissolved, solid, opake; and although removed from the pupil, yet prove some hinderance to perfect vision.

The fourth objection is, that however successfully the depression may have been accomplished, yet that the operation will necessarily occasion such violation and derangement of the internal parts of the eye, as must cause very considerable mischief.

These objections, if they have any real weight, are of equal force in every species of cataract—and therefore are the more worthy our attention; since, if they be founded on truth, they render the operation unfit for practice; but if they be not, misrepresentation and fashion should never induce us to lay aside any means which have been, and still may be, beneficial to mankind.

The first and second I can, from frequently repeated experience, affirm not to be true. I mean that the operation of couching will not necessarily, or even generally, be unsuccessful, merely because the cataract shall happen to be either totally or partially soft; on the contrary, although these states will prevent perfect depression, yet, by the judicious use of the needle, a recovery of sight (the true end and aim of the operation) will be as certainly and as perfectly obtained, as it would have been, either by depression or by extraction, in the same subject; and that, generally, without any of the many and great inconveniences which most frequently attend the latter operation.

The third objection is specious, and therefore very generally credited. That it never happens I will not take upon me to say, because so many have asserted it; some of whom, one would hope, had some kind of authority for what they have so positively affirmed. But, on the other hand, when we consider how few there are who have written from their own examination and experience, and how many who have taken for granted, and copied, what others have said before them, our faith will not be quite implicit. Certain I am, from repeated experience and examination, that this opinion has not that foundation in truth which it is generally supposed to have; and that it has been embraced and propagated hastily, and without sufficient inquiry and experiment.

As this supposed indissolubility of the opake crystalline is not only so principal an objection to the operation of couching, even when it is capable of being perfectly depressed, as to be said to overbalance all the evils, many and great as they are, which frequently attend the extraction; but is also supposed to be the cause

of the failure of success, when the depression of the softer kinds of cataracts is attempted; it may be worth a little serious examination.

I should be sorry to have it thought, that I had any predilection or partiality to one method of operating more than to another; or that I would wish to give to either any preference, but what its superior excellence or utility might justly demand. But, on the other hand, I cannot possibly pay regard to any authority, however otherwise respectable, when it contradicts what I know to be fact.

Both operations are equally practicable by any man who has a hand and an eye, and is capable of performing either; but it has of late years been so much the humour to depreciate the one, and to extol the other, that it becomes necessary to examine the supposed merits of one, and demerits of the other, and to see whether they be drawn from premises which are true: if one is to be deemed universally preferable to the other, let the circumstances, on which preference is be founded, be drawn from fact, and not from fiction; let them be fairly and faithfully inquired into, and let such inquiry determine.

In order to assist in one part of this inquiry, I beg leave to lay before the reader a few experiments and observations which I have made; or, I believe I shall more properly say, have repeated; they having been often made and observed, but not properly enforced or applied.[e]

When the opake crystalline is in a state of dissolution, or the cataract is what is called perfectly soft, if the capsula of it be freely wounded by the couching-needle, the contents will immediately issue forth, and, mixing with the aqueous humour, will render it more or less turbid; sometimes so much as to conceal the point of the needle and the iris of the eye from the operator.

This is a circumstance which has been observed by most operators, and has been mentioned by many writers; but it has always been regarded and mentioned as an unlucky one, and as being in some degree preventative of success; which is so far from being the fact, that as far as relates to this circumstance merely, all the

[e] When I say experiments and observations which I have made and repeated, I would wish the reader to understand, that I have made them carefully, for the purpose; and so repeatedly, as to be satisfied of their *general* truth.

benefit which can be derived from the most successful depression, or extraction, most frequently attends it; as I have often and often seen.

The aqueous humour, however turbid it may become, will, in a very short space of time, be again perfectly clear; and if no disorder of the capsula of the crystalline, previous or consequential, prevents, the rays of light[f] will pass without obstruction through the pupil, and the patient will be restored to as perfect vision as

[f] The capsula, or investing membrane of the crystalline, has very often an unsuspected share in the apparent opacity of that body; and is thereby the cause of disappointments and inconveniences during some operations, and after others. This is a circumstance which, undoubtedly, has been mentioned; but has not been by any means sufficiently attended to. The capsula is capable of becoming white and opake, while its contents shall be clear and transparent: it becomes so sometimes by being wounded by the couching-needle, used either for the depression of a firm cataract, or for the letting out a soft one; and it will not infrequently be found so, after the operation of extraction, when no instrument has touched it.

Whenever this happens, it is an unpleasant circumstance; but still more so if it continues for any length of time: I have seen it disappear in a week; I have seen it continue two, three, or four, and at last totally disappear; and I have seen it continue so long as to require the re-application of the instrument. When it appears after the depression of a firm crystalline, or after an unsuccessful attempt to depress one which has proved not firm enough, it may easily be, and generally is, mistaken for a portion of the cataract risen again; but from which an attentive observer will always be able to distinguish it. But when such opacity follows what is called a successful extraction, in which the cornea only was divided, the capsula not touched by the instrument, and the cataract came away intire through the pupil, the case is self-evident.

This may truly and properly be called, as it has been by Monsieur Houin, Haller, and others, a membranous cataract, as it consists merely of the membranous capsula of the crystalline.

Writers of credit have mentioned, that a cataract may be formed almost instantaneously, by external violence. There is no doubt of the fact; I have seen it four different times.

Whether this be not an affection of the capsula merely, I much doubt; or rather am much inclined to suspect that it most frequently is. In three of the four, which have fallen under my observation, the opacity has gradually disappeared after the inflammation, in consequence of the blow, had gone off; and the eyes were left as clear as ever—a consequence which, I think, may be accounted for, by supposing the opacity in the capsula only; but cannot, if we suppose it to be in the corpus crystallinum itself.

could have followed the most successful operation of either, or of any kind in the same subject, and under the same circumstances.

When the cataract is of the mixed kind, partly soft, and partly hard, the immediate effects of the needle are somewhat different; the soft part of the cataract being less in quantity, as well as generally less soft, the aqueous humour is less turbid, and the firm part or parts of the crystalline will be very visible. In this state, these firmer parts will very frequently elude the attempts made by the needle to depress them; and will therefore remain in the posterior chamber. This is also reckoned among the unfortunate circumstances; but although to an operator not aware of, nor acquainted with the consequence, it may have all the appearance of being so, yet it really is not; the true end and aim of the operation not being thereby necessarily frustrated. In this case, if the needle has been so used as to have wounded the capsula very slightly, it will sometimes happen, that the firm part of the crystalline will remain in its nidus, and still form a cataract, which may possibly require a future or re-application of the instrument. This is the worst that can happen, and happens indeed very seldom; for if the capsula be properly wounded, so that the aqueous humour be freely let in, the firm part or parts, though very visible at first, and preventing the passage of light through the pupil, will, in due time, in some longer, in others shorter, gradually dissolve, and at last totally disappear; leaving the eye as fair, as clear, and as fit for vision, as any the most successful operation could have rendered it; of which I have seen and exhibited many proofs.[g]

[g] The space of time which the accomplishment of such dissolution will require, is very uncertain; I have seen the eye perfectly fair and clear within a week after the operation; and I have seen it require two months for the dissolution of all the opake parts.

This has been observed by many, even before the nature and seat of a cataract were truly known; among the rest, by Read, who, speaking of one of his own operations, says,

"At the end of nine days, I visited my patient, and found both her and "her friends highly discontented; so that I met with nothing but invec-"tives, &c.

"Within a fortnight after, when art and nature having performed their "mutual operations, and all the cloudy vapours and rags of the cataract were "consumed and dispersed, her eyes grew clear, and her sight became per-"fect, &c.

In order to render the fact still more clear, I have sometimes, when I have found the cataract to be of the mixed kind, not attempted depression; but have contented myself with a free laceration of the capsula; and having turned the needle round and round, between my finger and thumb, within the body of the crystalline, have left all the parts in their natural situation; in which cases I have hardly ever known them fail of dissolving so entirely as not to leave the smallest vestige of a cataract.[h] In a few instances, where I have had fair opportunity, I have pushed the firm part through the pupil into the anterior chamber, where it has always gradually and perfectly dissolved and disappeared, not producing pain or trouble, while such dissolution was accomplishing.[i]

"I would have every patient, though after a cataract be couched, and nine "or ten days expired, he see little or nothing at all, or that he cannot endure "the light for a month or two, or even for a qurater of a year, as I have "known many, not to be discouraged; for their sight may, notwithstanding, "become well and perfect, and continue so ever after. On the other hand, "some come to good and perfect sight within a fortnight or three weeks."
Sir W. Read, p. 7.

[h] The operation of extraction, though said in general to remove the crystalline intire, and calculated for such purpose, does not always do so: but when the cataract is of the mixed kind, does not infrequently leave some of the firmer part behind; which one of the warmest patrons of the operation allows does dissolve and disappear. "Extrahendum statim post operationem est quic-"quid remanet opaci ope Cochlearis Davielis. Hoc quidem facile sit ali-"quando, aliquando vero et imprimis ubi membrana crystallina non satis la-"cerata cochlear in ipsam capsulam lentis, ubi hæret illud opacum corpus-"culum non admittit, tantis difficultatibus circumfusum est, ut quicquid "etiam moliaris extrahere illud non possis, et ne oculum nimis irrites, desis-"tere ab opere, et relinquere illud in oculo cogaris.

"Neque tamen tunc etiam spe optimi successus destituimur. Sæpe enim "observavi, opacum illud remanens, sive sit mucus, sive frustulum lentis crys-"tallinæ, sensim, et sponte, citius vel tardius, penitus disparuisse. An resor-"betur mucus lacteus, an frustula lentis crystallinæ liquescant sensim, et re-"sorbentur, an in fundum oculi sensim, se præcipitant, dubium est. Utrum-"que tamen fieri credo. Quoties lactea materia post depressam cataractam "totum humorem aqueum opacitate sua et albedine inficiens sensim peni-"tus evanuit? Quoties pus in oculo hærens vel sanguis insigni quantitate "in illum effusus, sensim resorptus evanuit? Quoties frustula lentis crys-"tallinæ, post depressionem cataractæ, in pupillâ relicta? &c. immo liques-"cere aliquando et resorberi hæc frustula me ipsum experientia docuit." &c.
Richter de Cataractæ Extract.

[i] I should be sorry to have it inferred from hence, that I would recommend the passing the opaque crystalline through the pupil: far from it; I think it

What I have advanced not being matter of opinion, but matter of fact, capable of being inquired into, and proved by any who will take the trouble of so doing, I do not desire any man to give credit to it upon my mere assertion. But if, upon repeated trial and inquiry, it should be found to be as generally and as frequently true by others, as it has been by me, may it not fairly be inferred, that whatever other reasons there may be for preferring the operation of extraction to that of depression, or the use of the knife to that of the needle, yet those drawn from the supposed indissolubility of the crystalline are by no means conclusive; on the contrary, are very inconclusive. But this is by no means all; for if what I alleged be true, some other consequences, not a little interesting to the afflicted, will necessarily follow.

First, if the soft cataract will, when its capsula is properly wounded, mix with the aqueous humour, and undergo such a perfect dissolution and absorption, as to leave the eye fair, clear, and fit for vision, and which I have so often proved, that I have not the smallest doubt about it; it will then follow that the softness of a cataract is so far from being an unlucky circumstance, that it is rather a fortunate one; as it enables the patient to receive more early assistance; and that from an operation attended with less pain, and a less violation of parts, than a firmer one would necessarily require.

Secondly—When the cataract is of the mixed kind, and which therefore frequently foils all the attempts toward depression, the firmer parts may very safely be left for dissolution; and vision be thereby restored.

And, Thirdly—When the cataract shall happen to be of the firmer kind, and during an unsuccessful attempt to depress, get through the pupil behind the cornea, disappointment will be so far from being the consequence, that if no other injury has been done to the parts within, than what such attempt necessarily required, the displaced crystalline will gradually dissolve and disappear;

wrong, as it is apt to produce one of the most frequent inconveniences attending the operation of extraction—an irregularity of the pupil. I only meant to prove the fact of dissolution of the cataract in such situation; and that it will not cause that pain and trouble which it is so positively said to do.

and the patient will see as well as any operation could have enabled him to have done.

I may perhaps be told, that what I have hitherto alledged only tends to prove, that both the soft and mixed cataract, when mixed with the aqueous humour by the laceration of the capsula, will dissolve; but that the firm one will not, and therefore must remain, wherever placed, a solid opake body.

To which I answer, in the first place, that if what has been said relative to the soft, and to the mixed cataract be true, I cannot help thinking it to be very advantageous. In the second place, that the opinion concerning the indissolubility of the displaced crystalline has, I think, been taken up, and propagated, without proper authority from inquiry and experiment, fairly and deliberately made, and stands merely on a few accidental observations, which are by no means satisfactory. And, in the third place, that, as far as my own inquiry and observation go, I am satisfied that it does dissolve wherever placed, provided it be perfectly freed from its attachment in its natural nidus.[k]

Both men and books talk of firm, hard, intire, uniform cataracts, as if they were as much so as what are found in the eye of a boiled fish. Whence they borrow this idea, I know not, unless it be from boiled fish; certain I am that it is not from nature.

Let any man examine the most firm, opake crystalline, taken from the eye of a living person, and which, from its firmness, passed out through the pupil and the divided cornea with the greatest facility; he will generally find it to be in figure, size, and consistence, exceedingly unlike either to the natural and sound crystalline, or to one rendered opake by heat; and he will also find, that such alteration of shape and size is owing to a partial dissolution of its

k While I was preparing these sheets for the press, an old man was taken into St. Bartholomew's, who had a cataract in one eye, and had, by some accident, lost the sight of the other. I couched him; the cataract was as firm as I had ever felt any, and went down as easily, as immediately, and as intirely as possible. Three days after the operation, he was seized with so bad a small-pox, that he died on the eleventh, and the next day I took his eye home and examined it. The cataract lay just below and behind the uvea, towards the external canthus. It was become small, irregular, and manifestly in a state of dissolution.

surface, particularly its anterior one; in short, if he will examine it carefully, and without prejudice, he will see, that what he calls an intire, firm cataract, is most frequently little more than the nucleus of an opake crystalline.

If a man might be allowed to argue in a case of this kind, *à priori*, he might very reasonably ask, why should the corpus crystallinum, which although opake, is, while in its natural situation, and enveloped in its proper capsula, so prone to dissolve, as we must know that it is, be supposed to be as prone to induration, immediately upon being removed from its place.

The most strenuous advocates for extraction cannot help allowing, that a portion or portions of a firm cataract, which they have been obliged to leave behind in the operation, dissolve and disappear in due time: it is, indeed, a fact not to be contradicted; but the same people say, that the intire cataract will not. What idea they, who argue thus, have of an intire cataract, I know not: they may possibly conceive it to be depressed, still remaining enveloped in a firm capsula, and therefore to remain indissoluble; but if they would reflect on the extreme fineness of the capsular membrane; on the necessary action of the couching-needle, when applied to it; and on the different consistence of the different parts of every, even the most opake and firm cataract, they must see that it is a portion only of any cataract, however firm, which can in general be depressed.

One of the arguments, made use of by some of the late writers, in favour of extraction, is, that as the crystalline *must* be *destroyed*, it had better be removed. Now how can it be said to be destroyed, if it be only displaced, and remain indissoluble? Let them take which side of this argument they please, they must be wrong; for if the diseased crystalline remain, though depressed, a solid body within the eye, how can it be said to be destroyed? and on the other hand, if it be destroyed in the operation of couching, it must be by dissolution; and therefore cannot remain.

The last objection to the operation of couching is, that it must necessarily derange and violate the internal parts of the eye, particularly the vitreous humour.

If what I have said on the subject of the perfectly soft cataract, as well as on that which is partially so, be true, the greatest part,

if not the whole of this objection, will cease, with regard to these two; and it will be principally, if not totally, confined to that which is called firm and hard, and which, by its resistance to the instrument, will admit of being placed in the inferior part of the eye.

In the performance of this operation, the needle may certainly be so used, as to do considerable mischief; but then it must be from the unskilfulness or awkwardness of the operator; and which may be the case of every operation in surgery. But is an operation, justly chargeable with ills, deducible merely from its having been ill executed?—I hope not.

I am very sensible that much mischief has been done by attempts to couch; but, in the first place, they have almost always been the consequence of want of judgment, or want of dexterity in the operator; and, in the next place, even under the most exaggerated representations, they are by no means equal to what has frequently been the consequence of attempts to extract.

It may possibly be supposed, that I have conceived a prejudice against the operation of extraction. Of this I am not conscious. I have sought and embraced every opportunity which a public hospital, and many years practice, have afforded me of operating in both ways, and of comparing the consequences. I have seen many of the patients of others, not only of the gentlemen of the profession, but of most of the itinerant operators; and am thereby convinced, that the greatest part of the objections to the operation of couching are invalid; have not been the result of unprejudiced experience, or a candid regard for truth; that only the fair and prosperous side of the question, regarding the operation of extraction, has been industriously exhibited, while its manifold failures and ill consequences have been as industriously concealed, and that, upon a fair detail and comparison of all the advantages and disadvantages, conveniences and inconveniences, attending each, the preference will be found justly due to the needle.

Inconveniences and disappointments they are both too liable to: I heartily wish they were not. But, from the most cool and candid attention to fact, I am convinced, that the former are much greater, and the latter much more frequent, in the operation of extraction, than in that of depression, executed with the same degree of judgment.

The couching-needle which is commonly in use, has on the face which is applied to the cataract, a flat, highly polished surface, which makes it, as I have experienced, liable to slip, if it meets with any little resistance when in contact with the surface of the cataract; or if the crystalline breaks, it does not readily attach the small portions of it. As the other side, near the point, is necessarily convex, to give a proper degree of strength to the instrument, I conceived that an advantage might be drawn from its form to obviate the inconvenience. I therefore got some needles made with a small cavity on the flat side, the opposite convexity allowing sufficient depth for it, and the surface of this cavity was left rough and unpolished. I have used them many times during several years, and I am of opinion that this alteration gives a considerable advantage in laying hold of that small slippery body, the lens, or any fragment of it, and in conducting it to whatever part of the eye we think proper: by a turn of the instrument it is immediately disengaged, and neither the entrance nor passage of the needle is in any degree impeded by it.

The annexed figures show the difference between the two needles. E.

SOME FEW REMARKS

ON THE

POLYPUS OF THE NOSE.

In these, as in the preceding remarks on the cataract, I do not mean to enter into a circumstantial history of the disease, but merely to offer a few practical observations on such parts of the doctrine concerning it, as appear to me to have been either inadvertently or erroneously delivered.

The polypus is a complaint which is always troublesome, frequently painful, and sometimes hazardous: the first of these is the necessary consequence of the situation of the distemper; the second arises from its peculiar nature in the individual; and the last, sometimes from its particular nature, and sometimes from the manner in which it may have been treated.

Writers tell us, and very truly, that it is a disease of the membrana pituitaria narium; that it has different seats, origins, and attachments; that it springs from the ethmoid bone, from the ossa spongiosa, from the septum narium, and even from the antra maxillaria; that it is hard or soft, pale or deep red, or sometimes purple; that it is equal in its surface, or unequal; large or small, moveable or fixed, single or multiform, painful or indolent; that it makes its appearance forward in the nostrils, or backward in the fauces behind the uvula; and that it may be strumous, venereal, or cancerous. When they have given us these general and merely definitive descriptions, they immediately proceed to the chirurgic treatment, or method of cure; which, they tell us, is either by extraction, or the use of escharotics; to which some have added ligature: they then give a general description of the man-

ner of using the forceps, of applying escharotics, or of passing the string round it; and having provided styptics for the suppression of hæmorrhage, they leave every thing else to the reader's imagination, and to the practitioner's choice and judgment.

From these accounts, those who have not had much opportunity of seeing for themselves, and who are thereby under a sort of necessity of forming their opinions, and regulating their practice, by books, are induced to believe that, except in some few particular instances, where the distemper is palpably cancerous, all others are equally objects of chirurgic treatment; and therefore, that if, in the first instance, they can lay hold of the polypus with the forceps, and, in the second, can provide against the hæmorrhage, which they have heard so much of, they shall have nothing else to do or to fear.

To me I must acknowledge the matter appears very differently. I cannot help thinking, that there are many polypi, which, although they are neither scirrhous nor cancerous, are very unfit for any chirurgic treatment whatever, and that from several circumstances; which circumstances may act in different manners, though equally prohibitory: they may forbid an attempt, merely from the impossibility of its being successful; or they may forbid it, because it is more likely to do harm than good, more likely to exasperate the disease than cure it, to increase the misfortune than to lessen it.

The distinctive marks of the distemper, as laid down by writers, are, in general, just and true; but they only teach a young practitioner to know the disease when he may see it: they give him no warning of the mischief he may incur by attacking it unguardedly, nor inform him of a very serious truth, *viz.* that this is a sort of case, in which, when real mischief has been done, it is sometimes without remedy.

As far as my experience and observation go, the polypi which begin with, or are preceded by, considerable or frequent pain in the forehead and upper part of the nose, and which, as soon as they can be seen, are either highly red, or of a dark purple colour; they, which from the time of their being first noticed, have never been observed to be sometimes bigger, sometimes less, but have constantly rather increased; they in which the common ac-

tions of coughing, sneezing, and blowing the nose, give pain, or produce a very disagreeable sensation in the nostril and forehead; they which, when within reach, are painful to the touch, or which, upon being slightly touched, are apt to bleed; they which seem to be fixed, and not moveable by the action of blowing the nose, or of deriving the air through the affected nostril only (where the polypus is only on one side); they which are incompressibly hard, and which, when pressed, occasion pain in the corner of the eye, and in the forehead, and which, if they shed any thing, shed blood; they which, by adhesion, occupy a very considerable space, and seem to consist of a thickening, or of an enlargement of all the membrane covering the septum narium; they which sometimes shed an ichorous, offensive, discoloured discharge; and they, round whose lower part, within the nose, a probe cannot easily and freely be passed, and that to some height—ought not to be attempted, at least by the forceps, nor indeed by any other means with which I have the good fortune to be acquainted; and this for reasons obviously deducible from the nature and circumstances of the polypus. On the one hand, the very large extent and quantity of adhesion will render extirpation impracticable, even if the disease could be comprehended within the forceps, which it very frequently cannot; and, on the other, the malign nature of the distemper may render all partial removal, all unsuccessful attacks on it, and indeed any degree of irritation, productive of the most disagreeable consequences.

But the polypi which are of a palish or greyish light brown colour, or look like a membrane just going to be sloughy; they which are seldom or never painful, nor become so upon being pressed; they which have appeared to be at one time larger, at another less, as the air has happened to be moist or dry; they which ascend and descend freely by the action of respiration through the nose; they which the patient can make to descend by stopping the nostril which is free, or even most free, and then deriving the air through that which the polypus possesses; they which when pressed give no pain, easily yield to such pressure, become flat thereby, and distil a clear lymph; and they, round whose lower and visible part a probe can easily, and that to some height, be passed—are fair and fit for extraction; the polypus, in

these circumstances, frequently coming away intire; or if it does not, yet it is removeable without pain, hæmorrhage, or hazard of any kind; the second of which circumstances, I can with strict truth affirm I never yet met with, when the disease was at all fit for the operation.[m]

Of the benign kind of polypus, fit for extraction, there are two sorts, whose principal difference from each other consists in their different origin or attachment: that which is most freely moveable within the nostril, upon forcible respiration; which has been found to be most liable to change of size, at different times and seasons; that which has increased the most in the same space of time; that which seems most limpid, and most freely yields lymph upon pressure, has its origin most commonly by a stalk or kind of peduncle, which is very small, compared to the size of the polypus; while that which, although plainly moveable, is still considerably less so than the other; which has been less liable to alteration from air and seasons; and has been rather slow in arriving at a very troublesome size, is most frequently an elongation of the membrane covering one of the ossa spongiosa: they are both capable of being extracted, and that with no kind of hazard, with very little pain, and hardly any hæmorrhage at all: but the former requires the least force, and most frequently comes away intire; while the latter often breaks, comes away piecemeal, and stands in need of the repeated use of the forceps.

From the preceding observations a few practical inferences may be drawn, such as the following:—

[m] They, who are affected with this sort of polypus, generally complain, and that for a considerable time before the polypus becomes visible, that they are perpetually catching cold, more especially in moist or wet weather; though they seldom have any other symptoms of such colds than the stoppage in and discharge from the nose. They also always complain, that these colds always deprive them of the sense of smelling. In moist weather, or in a sudden change from dry to wet, they are also subject to frequent fits of sneezing; and when the relaxed membrane is most affected to very considerable discharge of thin mucus, from the affected nostril. Nor do I remember ever to have seen a polypus of this kind, which was not immediately subject to a change, upon the sudden alteration of the atmosphere, from dry to moist; that is, they always become longer, fall down lower, and look fuller and paler, and generally deprive the patient of all power of smelling.

First, That the polypi, under the first description, very rarely, if ever, admit at attempt toward extraction, and that not merely from the improbability of its being attended with success, but because such attempt may be the cause of very disagreeable consequences.

Second, That in those which do admit an operation, or the use of the forceps, the degree of success will depend principally upon two circumstances; *viz.* the benignity of the disease, and the degree and quantity of attachment; for although the nature of the complaint may be perfectly benign, yet it may happen, that a cure may not be attainable, and that merely from the degree and kind of attachment. And,

Third, That the hæmorrhage so much talked of, so solicitously guarded against by writers, and so much dreaded by young practitioners, will not often, if ever, be met with, in such cases as fairly and properly admit the operation.

The polypus is a disease, which, of all others, is said to be most difficult totally and perfectly to eradicate, and most liable to reproduction. This is, in some degree, true. It is difficult, in many instances, to extirpate it totally, and it often does grow again, more especially that sort which springs from the ossa spongiosa; but yet, that it is not so often the case as it is supposed to be. It not infrequently happens, that there are, at the same time, two, three, or more different polypi, each of which is perfectly distinct from the others, and has a separable distinct attachment. When this is the case, the lowest or most anterior, having the open nostril before it, easily makes its way down, uncompressed; while the other, or others, are not only kept up, and out of sight, but are also considerably compressed.

When the one, which was within sight and reach, has been removed, the next falls downward, and soon becomes visible; if it was large and lax, and merely kept up by what lay before it, it is often to be seen immediately; but if it was small, it may be out of sight, and can only be suspected by the passage of air through the nostril not being free, although the polypus which was removed came away perfect and intire; and when it does appear, it passes for a reproduction from the old stem, though it is really another and perfectly distinct polypus, of which the intire state of the

investing membrane, and the separation of the polypus from its single point of attachment, will upon careful examination appear irrefragable proofs.[n]

It may, perhaps, be remarked, that, in what I have offered concerning this distemper, I have confined myself merely to the operation of extraction only; and have said nothing concerning the various methods and means which have been proposed for its destruction.

I am very sensible that many of our books are furnished with relations of attempts made by escharotics, and by a kind of medicated setons; some of which have been said to be successful. If I had ever found them so, I should have been glad to have related it; but I cannot say that I have: on the contrary, all that I have done of this kind, or have seen done by others, have served more and more to deter me from practising it again. When the polypus is loose, and fairly circumstanced for extraction, it is not only the best method of cure, but is always advisable, and very frequently successful; but when from immobility, largeness of attachment, malignity of nature, or from any other cause, it becomes unfit for the use of the forceps, it is always, as far as I have been able to observe, still more unfit for caustic; nor indeed do I remember a single case, which has been so circumstanced as to render the use of the forceps absolutely unadvisable, where the application of escharotics would not have been much more so, as experi-

[n] Mr. Pott was particularly competent to describe this disease, having been troubled with polypi in his nose during many years: at one time they increased to such a degree as to distend the nostrils, and almost totally to prevent the passage of air. When they were fallen sufficiently low, Mr. Pott took an opportunity, in moist weather, and when they were in a state of relaxation, to extract the most prominent ones for himself, by means of a pair of window forceps, before a mirror. In no great length of time others came in sight and supplied their place, which also Mr. Pott extracted in the same manner, till he had a collection of five or six large polypi: one of them had a single basis, but was branched out into two large lobes; to some of them there adhered a small portion of bone, to which they had been fixed—a sufficient proof that it required no small degree of fortitude and perseverance to perform the operation on his own person. Of late years he had intirely got rid of them; but there remained such a thickness of the whole membrane, that he continued totally deprived of the sense of smelling— a circumstance which he never much regretted. E.

ment, in some of them, has fatally proved. The structure and irritability of parts within the nose, and the impossibility of confining the application or limiting the effects of caustic medicines in such a part, in whatever manner or form applied, are palpable objections *à priori;* and the very disagreeable consequences which have been often found to follow from the inflammation and irritation of what it was impossible totally to destroy, have been too serious to be slighted.[o]

The polypus sometimes, instead of falling down the nostril, makes its appearance backward in the fauces behind the uvula; in which case the general method is, to extract it by introducing the instrument into the mouth instead of by the nose.

This, though sometimes practicable, is much more easily described than executed; and in some people will be found absolutely impracticable. The objection arises from the great difficulty of keeping the tongue down in some, and in others, from their incapability of permitting any thing to touch the root of that part, or any part of the fauces, without immediately producing a spasm: to which might be added, that, in some cases, the polypus is so expanded, as almost to conceal the uvula, which is therefore liable to be laid hold of by the instrument, to the no small detriment of the patient.

However large, pendulous, or expanded such polypus may be, its attachment always is, and must be within the cavity of the nose, and therefore always within the reach of a pair of forceps introduced that way, especially if the forceps be somewhat curved; and which, when the excrescence appears behind the uvula, will have one advantage superior to what it has when the polypus appears in the nose; which is, that it will be applied much nearer to the point of attachment, and therefore most likely to extirpate it perfectly.

[o] The method by ligature, whether of silk or wire, is not attended with the inconveniences of the caustic, and is certainly practicable in some instances; but, as far as I have seen of it, is by no means equal to that by the forceps, either for its general utility, or its capacity of perfectly eradicating the excrescence. I know some ingenious practitioners, who approve of it; but I cannot say, from what has come within my knowledge, that it appears to me in so recommendable a light.

I cannot leave this subject without cautioning the young practitioner to be exceedingly careful in examining and inquiring into all the circumstances previous to his undertaking a cure, lest he should find, too late, that he has gone too far to recede.

For want of such caution, I have seen hæmorrhages which have been frightful, and inflammations which have proved fatal. I have seen a case wherein an untoward looking polypus, and which ought not to have been meddled with, has been so attached to a distempered septum nasi, that it has come away with it: I have seen the same thing happen with regard to almost the whole of the ossa palati; and I have more than once known a polypose thickening of the membrane covering the ossa spongiosa, and septum nasi, which, in all probability, would have remained quiet a great length of time, so irritated by rough treatment and successless attempts, as to render the remainder of the patient's life truly miserable to himself, and offensive to others.

CANCER SCROTI.

Ramazini has written a book De Morbis Artificium.—The colic of Poictou is a well known distemper; and every body is acquainted with the disorders to which painters, plumbers, glaziers, and the workers in white lead, are liable: but there is a disease as peculiar to a certain set of people, which has not, at least to my knowledge, been publicly noticed; I mean the chimney-sweepers' cancer.

It is a disease which always makes its first attack on, and its first appearance in, the inferior part of the scrotum; where it produces a superficial, painful, ragged, ill-looking sore, with hard and rising edges: the trade call it the soot-wart. I never saw it under the age of puberty, which is, I suppose, one reason why it is generally taken, both by patient and surgeon, for venereal; and being treated with mercurials, is thereby soon and much exasperated. In no great length of time, it pervades the skin, dartos, and membranes of the scrotum, and seizes the testicle, which it enlarges, hardens, and renders truly and thoroughly distempered; from whence it makes its way up the spermatic process into the abdomen, most frequently indurating and spoiling the inguinal glands: when arrived within the abdomen, it affects some of the viscera, and then very soon becomes painfully destructive.[a]

[a] From the soot being collected and remaining in the moist rugæ of the scrotum, it is not difficult to conceive why the disease should generally begin in that part; but I have seen the true soot-wart in the face of a chimney-sweeper, just under the left eye, who had never suffered from the disease in any other part, though he said he had sometimes felt little hardnesses in the

The fate of these people seems singularly hard: in their early infancy, they are most frequently treated with great brutality, and almost starved with cold and hunger; they are thrust up narrow, and sometimes hot chimneys, where they are bruised, burned, and almost suffocated; and when they get to puberty, become peculiarly liable to a most noisome, painful, and fatal disease.

Of this last circumstance there is not the least doubt, though perhaps it may not have been sufficiently attended to to make it generally known. Other people have cancers of the same parts; and so have others, besides lead-workers the Poictou colic, and the consequent paralysis: but it is nevertheless a disease to which those persons are peculiarly liable; and so are chimney-sweepers to a peculiar kind of cancer in the scrotum and testicles.

If there be any chance of putting a stop to, or preventing this mischief, it must be by the immediate removal of the part affected; I mean that part of the scrotum where the sore is; for if it be suffered to remain until the virus has seized the testicle, it is generally too late even for castration. I have many times made the experiment; but though the sores, after such operation, have, in some instances, healed kindly, and the patients have gone from the hospital seemingly well, yet, in the space of a few months, it has generally happened, that they have returned, either with the same disease in the other testicle, or in the glands of the groin, or with such wan complexions, such pale leaden countenances, such a total loss of strength, and such frequent and acute internal pains, as have sufficiently proved a diseased state of some of the viscera, and which have soon been followed by a painful death.

If extirpation ever bids fair for the cure of a cancer, it seems

scrotum, which, when they grew troublesome, he picked off; but he had never perceived any sore, ulceration, or considerable hardness in that part.

Mr. Pott has observed that he never saw the disease under the age of puberty; but since the publication of his treatise I saw it in an infant under eight years of age, who was brought into St. Bartholomew's hospital, and was an apprentice to a chimney-sweeper. I showed it to Mr. Pott, who acknowledged it to be the true disease, and that he had not before seen it in so young a subject. It had infected all the lower part of the scrotum; but as the testis had not imbibed the poison, the diseased part being removed, the wound healed, and the boy was discharged perfectly well. E.

to be in this case; but then the operation should be immediate, and before the habit is tainted. The disease, in these people, seems to derive its origin from a lodgement of soot in the rugæ of the scrotum, and at first not to be a disease of the habit. In other cases of a cancerous nature, in which the habit is too frequently concerned, we have not often so fair a prospect of success by the removal of the distempered part; and are obliged to be content with means, which I wish I could say were truly palliative. But here the subjects are young, in general in good health, (at least at first,) the disease brought on them by their occupation, and in all probability local; which last circumstance may, I think, be fairly presumed from its always seizing the same part: all this makes it (at first) a very different case from a cancer which appears in an elderly man, whose fluids are become acrimonious from time, as well as other causes; or from the same kind of complaint in women who have ceased to menstruate. But be all this as it may, the scrotum is no vital organ, nor can the loss of a part of it ever be attended with any the smallest degree of inconvenience; and if a life can be preserved by the removal of all that portion that is distempered, it will be a very good and easy composition; for when the disease has got head, it is rapid in its progress, painful in all its attacks, and most certainly destructive in its event.[b]

[b] This species of cancer, which Mr. Pott has so accurately described, appears to be produced by some peculiar acrimonious quality in soot, when incorporated and fermenting with the secretions on the skin of some persons, whose constitutions are disposed to undergo a certain change, or receive a new modification of their inherent properties. As chimney-sweepers are in the constant habit of being in contact with soot, it follows that they must be most liable to a disease which is evidently caused by it; but, as was before observed, those only whose constitutions are disposed to receive the poison are infected; not one in many hundreds being injured by it. Mr. Pott seemed to suppose that this species of cancer was peculiar to chimney-sweepers; but I have strong grounds for thinking that he was mistaken in that idea. There are instances, though I believe them to be very rare, (as I know no one, either author or practitioner, who has noticed them); yet there are instances of other persons being infected by the contact or effluvia of soot; and as a caution for every one to be careful of handling it, or in any way being exposed to its action, I will relate the case of a man who was attacked with this dreadful disease to a most lamentable degree, and was brought into the hospital. The scrotum and testis, with the spermatic chords, together with the

glands in the groin, were included in a large phagedenic ulcer. The nature of the disease was so marked and evident, that I took for granted that he was a chimney-sweeper, and was much surprised to find that his business was quite of another kind. I could not, however, avoid repeatedly asking him if he had ever had any thing to do with sweeping chimneys: he assured me not. Some time after he told me, that on considering the questions which I had so often urged, he recollected, that not many years before he had lodged at the house of a chimney-sweeper, in the apartments of which soot-bags and soot were deposited. He did not appear very accurate in his account, but thought on recollection that the complaint began in the scrotum soon after he left the chimney-sweeper's house. This goes nearly to prove that soot in substance, or perhaps the volatile parts of it, have the power of producing the disease; and not any thing peculiar to the occupation or manner of life to which chimney-sweepers are subject. Probably the man's body, or his linen, were liable to be daubed with soot, or the dust arising from it; and the scrotum was first affected, as it is among chimney-sweepers, for the reason before given; that of the moist rugæ retaining the poison more readily than other parts.

As a further caution to persons who may be employed in making use of soot, to be careful in washing and cleansing themselves, I will mention another case which I met with, and which in my mind goes pretty clearly to ascertain the fact, that soot is of a dangerous nature, and capable of producing this disease in other people, as well as chimney-sweepers.

Allan Spragg, aged 49, came into St. Bartholomew's hospital, on account of a large cancerous sore, which reached from the bend of the wrist to the knuckles, occupying almost the whole of the back of the left hand. He had been under the care of many persons, and various applications and internal medicines had been given. The circumference of the sore rose in large ulcerated tumors, and seemed inclined to spread. In some parts of the middle it appeared in a healing state—in other parts ulcerated; but he said different parts of it had often healed and broke out again, as we afterward found it inclined to do. There was an indescribable something in the appearance of the complaint, which put me in mind of the sooty-wart, or chimney-sweepers' cancer; for there is a peculiar appearance in that disease, to the eye of any one who has paid attention to it, very different from any other cancerous sore. This led me to make a particular inquiry into this person's life and occupation. He said he was a gardener; that about five years before (in 1800) he was employed in a garden at Lowlayton, in Essex; that in the spring of that year he was engaged about two hours every morning to strew soot on the ground, round the young and tender plants, to preserve them from the slugs; that he carried the soot in an old garden-pot, which hung on his left hand by a handle over the top, while he strewed it with the right. About this time he conceived the wart commenced near the knuckles and continued not very troublesome all that year; the next spring he was again employed to distribute soot; the wart was then increased and ulcerated, and continued growing worse all that year. The spring follow-

ing he again used soot in the same manner: the sore then spread, and grew larger, which made work of any kind very difficult to him.

It is to be remarked that the right hand which strewed the soot was unaffected. Probably from that action it got rid of the effect of the effluvia; but the left, being two hours exposed to the vapours or dust arising from the soot, as it was continually stirred up, a lodgement of it was probably made on the thin skin at the back of the hand. The man said he always washed his hands before he came in to breakfast, but such persons are not always very accurate in their ablutions.

For the last two years he had not used soot, but the sore continued to spread rapidly; however he kept on working till October, 1804, when he was incapable of using the hand. December 27th, he came into the hospital. The various means which were used, both internally and externally, to endeavour to stop the progress of, and cure the disease, it is unnecessary to detail in this place, as unfortunately none of them proved of any very material service; for though sometimes one part appeared healing, another continued to open and spread. In *rerum naturâ* there may probably exist a cure for this dreadful malady, but it has hitherto escaped our researches.

Poor Allan left the hospital several times, and put himself under the care of some *soi-disans* doctors, both male and female, who promised to cure him, but always returned with the disease worse and worse, till at last he submitted to amputation, after which the excruciating pains which he had suffered soon left him, and as a pretty clear proof of the locality of the disease, and that it was not constitutional, the wound from the operation healed kindly, and he got perfectly well. E.

OBSERVATIONS

ON THE

MORTIFICATION OF THE TOES AND FEET.

THE powers and virtues of the Peruvian bark are known to almost every practitioner in physic and surgery. Among the many cases in which its merit is particularly and justly celebrated, are the distempers called gangrene and mortification; its general power of stopping the one, and resisting the other, have made no inconsiderable addition to the success of the chirurgic art: but still there is a particular species even of these, in which this noble medicine most frequently fails; I mean that particular kind, which, beginning at the extremity of one or more of the small toes, does, in more or less time, pass on to the foot and ankle, and sometimes to a part of the leg, and, in spite of all the aid of physic and surgery, most commonly destroys the patient.

It is very unlike to the mortification from inflammation, to that from external cold, from ligature, or bandage, or to that which proceeds from any known and visible cause, and this as well in its attack as in its process. In some few instances it makes its appearance with little or no pain; but in by much the majority of these cases, the patients feel great uneasiness through the whole foot and joint of the ankle, particularly in the night, even before these parts show any mark of distemper, or before there is any other than a small discoloured spot on the end of one of the little toes.

It generally makes its first appearance on the inside, or at the extremity of one of the smaller toes, by a small, black, or bluish spot: from this spot the cuticle is always found to be detached, and the skin under it to be of a dark red colour.

If the patient has very lately cut his nails, or corn, it is most frequently, though very unjustly, set to the account of such operation.

Its progress in different subjects, and under different circumstances, is different; in some it is slow, and long in passing from toe to toe, and from thence to the foot and ankle; in others its progress is rapid, and horridly painful. It generally begins on the inside of each small toe, before it is visible either on its under or upper part; and when it makes its attack on the foot, the upper part of it first shows its distempered state, by tumefaction, change of colour, and sometimes by vesication; but wherever it is, one of the first marks of it is a separation or detachment of the cuticle.

Each sex is liable to it; but for one female in whom I have met with it, I think I may say, that I have seen it in at least twenty males. I think also that I have much more often found it in the rich and voluptuous, than in the labouring poor; more often in great eaters, than free drinkers. It frequently happens to persons advanced in life, but is by no means peculiar to old age. It is not, in general, preceded or accompanied by apparent distemperature either of the part, or of the habit. I do not know any particular kind of constitution which is more liable to it than another; but, as far as my observation goes, I think that I have most frequently observed it to attack those who have been subject to flying, uncertain pains in their feet, which they have called gouty, and but seldom in those who have been accustomed to have the gout regularly and fairly. It has, by some, been supposed to arise from an ossification of vessels; but for this opinion I never could find any foundation but mere conjecture.

The common method of treating this distemper is, by spirituous fomentations, cataplasms actually and potentially warm, by dressings of the digestive kind, as they are called, animated with warm, pungent oils and balsams, &c.; and, internally, by the Peruvian bark.

I wish I could say that this, which, with little alteration, has been the general practice, had been most frequently, or even often successful; but I am, from long and repeated experience, obliged to say, that it has not.

I am sensible that many of my readers will be surprised at my affirming, that the Peruvian bark will not stop a mortification, a distemper in which, for some years, it has been regarded as specific; but I must beg not to be misunderstood; I mean to confine my observation and my objection to this particular species of mortification, which I regard as being *sui generis;* and under this restriction I must repeat, that I have seldom, if ever, seen the bark successful: in all other cases, wherein it is used or recommended, no man has a higher opinion of it; but in this I cannot give it a praise which it does not deserve.

I believe I may venture to say, that I have tried it as fairly, as fully, and as variously, as any man has or can: I have given it in the largest quantity, at the shortest intervals, and for the longest possible space; that is, as long as the patient's life would permit. I have given it by itself, in decoction, extract, and substance. I have combined all these together. I have joined it with nitre, sal. absynth., with snake-root, with confect. cardiac., with volatile salts, and with musk, as different circumstances seemed to require or admit. I have used it as fomentation, as poultice, as dressing. I have assisted it with every thing which has been usually thought capable of procuring, or assisting digestion: still the distemper has continued its course, perhaps a little more slowly, but still it has ended in death.

I am sorry to rob one of our great medicines of any part of its supposed merit; but as, on the one hand, its claim, in this instance, is unjust, and as, on the other, I hope to add as much to the character of another, the *res medica* will be no sufferer.

Some time ago, I had a patient labouring under this complaint, who, from antipathy, obstinacy, or some other cause, could not be prevailed on to take bark in any form whatever. I made use of every argument, but to no purpose. Fomentation, poultice, and the usual dressings were applied in the usual manner; the disease advanced, some days more, some days less, and, at the end of a fortnight, the small toes were all completely mortified, the great

one become blackish, the foot much swollen, altered in colour, and the disease seeming to advance with such hasty strides, that I supposed a very few days would determine the event. The pain in the foot and ankle was so great, and so continual, as totally to deprive the patient of sleep. On this account, and merely to procure some remission, I gave two grains of opium at night, which not having the desired effect, I repeated it in the morning. Finding, during the following day, some advantage, I repeated the same dose night and morning, for three days; at the end of which time the patient became quite easy, and the appearances on the foot and ankle were visibly more favourable. Encouraged by this, I increased the quantity of the medicine, giving one grain every three or four hours, taking care to watch its narcotic effect, and to keep the belly empty by clysters. In nine days from the first administration of the opium, all the tumefaction of the foot and ankle totally subsided, the skin recovered its natural colour, and all the mortified parts plainly began to separate; in another week they were all loose, and casting off, the matter was good, and the incarnation florid. During the whole of this time, I continued the use of the opium, varying its quantity as circumstances required, but never gave less than three or four grains in twenty-four hours.

When the sloughs were all cast off, the bones separated, and I had only a clean sore to dress and heal, I gradually left off the medicine.

I am very willing to acknowledge, that however well pleased I might be with the event of this case, yet I really regarded it as accidental; so much so, that having very soon after another opportunity, I did not care to trust to opium alone, but joined the bark with it. The event was equally fortunate. But although I had joined the cortex with the extractum thebaicum, and did therefore attribute the success to their united powers, yet the effect was so very unlike to what I had ever seen from the bark without opium, that I could not avoid seriously, and often, reflecting on it, and determining to use it by itself, whenever another opportunity should offer. I did so, and succeeded in the same happy manner, though under the very disagreeable circumstances of seventy years of age, a broken, distempered constitution, and the disease making a hasty progress.

To relate cases which are nearly, or at least materially similar, is of no use: I shall therefore only say, that every opportunity, which I have had since of making the experiment, has still more and more convinced me of the great value and utility of this medicine, and of its power of rescuing from destruction persons under this affliction.

I cannot say that it has never failed me: it certainly has; but then it has been under such circumstances, as I think would fairly account for the failure.

I should be exceedingly sorry to be misunderstood; I should be still more so to mislead any body; and therefore I beg it may be noticed, that I do not propose the extractum thebaicum, in this case, as an universal, infallible specific. I know, from experience, that it is not: but as I also know, from repeated experience, that it will, under proper management and direction, do more than any, or than all other medicines; and that I have, by means of it, saved some lives, which, I am very sure, would, under the common and most approved method of treatment, without it, have been lost—I could not answer to myself the not communicating what I had observed.

If this was an experiment, in which the life, or limb, or health of the patient was in any degree endangered, or by which the person, on whom it may be tried, could in any degree be injured, I should have withheld what I now publish, until a greater length of time, and more experience, had rendered it still more absolutely certain; and I should have thought myself strictly vindicable in so doing: but as this is a medicine, whose general effects are well known, and which is at the same time so capable of direction and management, that it is almost impossible for any person, who deserves to be trusted with medicine at all, to do any material harm with it, I thought it would be wrong and unjust to conceal what had occurred to me, lest I might thereby deprive the afflicted of an assistance, which, I verily believe, is not to be obtained from any other quarter.

In short, from what I have seen and done, I am perfectly convinced, that, by its means, and by its means solely, I have saved lives which, without it, must have been lost.

If it preserves a few of those, who are so unfortunate as to labour

under this nasty, painful, lingering, and destructive disorder, to which we are all liable, and which has hitherto, most frequently, foiled all attempts of art, I shall be sincerely glad to have contributed to so good an end: if it should prove in other hands as successful as it has with me, I shall be still more so: but on the other hand, if after several times giving me reason to believe and hope that it would prove an instrument for the preservation of many, it should, upon more repeated trial, be found to fail, I shall be sorry for the event, but shall still think, that I did right in communicating what I had seen, and thereby endeavouring to be useful to mankind.

Hoc opus, hoc studium, parvi properemus et ampli,
Si patriæ volumus, si nobis vivere cari.

If I am right in my conjecture concerning this hazardous and destructive malady; and if the method which I have proposed and practised, should prove as successful in the hands of others, as it has in mine, I cannot help thinking, that the external or chirurgic treatment of the disorder might be amended; that is, might be made to coincide more than it does at present with such soothing kind of plan.

Since I have had reason to embrace this opinion, and to act in conformity to it, I have found more advantage from frequently soaking the foot and ankle in warm milk, than from any spirituous or aromatic fomentations whatever; that is, I have found the one more capable of alleviating the pain, which such patients almost always feel, than the other; which circumstance I regard as a very material one. Pain is always an evil; but in this particular case I look upon it as being singularly so. Whatever heats, irritates, stimulates, or gives uneasiness, appears to me always to increase the disorder, and to add to the rapidity of its progress; and, on the contrary, I have always found that whatever tended merely to calm, to appease, and to relax, at least retarded the mischief, if it did no more.

The whole plan of the chirurgic treatment of this disease is founded on a general idea of warming, invigorating, stimulating, and resisting putrefaction; and the means generally made use of

are very proper for such purpose; but I must own that I think the purpose, or intention, to be improper.

Upon this principle, the old theriaca Londinensis, and the present cataplasma e Cymino, have been, and still are so freely used on this occasion. A composition of this kind, if it does any thing, must heat and stimulate, and it is by heating and stimulating the skin, to which it is applied, that it so frequently does that mischief which I am confident it often does, though such mischief is set to the account of the nature of the disorder. Cases exactly similar, in all circumstances, are not to be met with every day; but I am from experience convinced, that of two, as nearly similar as may be, in point of pain, if the one be treated in the usual manner, with a warm, stimulating cataplasm, and the other only with a poultice made of the fine farina seminis lini, in boiling milk or water, mixed with ung. sambuc. or fresh butter, that the pain, and the progress of the distemper, will be much greater and quicker in the former than in the latter.

When the black or mortified spot has fairly made its appearance on one or more of the toes, it is the general practice to scarify or cut into such altered part with the point of a knife or lancet. If this incision be made merely to learn whether the part be mortified or not, it is altogether unnecessary: the detachment of the cuticle, and the colour of the skin, render that a decided point. If it be not made quite through the eschar, it can serve no purpose at all; if it be made quite through, as there is no confined fluid to give discharge to, it can only serve to convey such medicines as may be applied for the purpose of procuring digestion to parts capable of feeling their influence, and on this account they are supposed to be beneficial, and therefore right.

When the upper part of the foot begins to part with its cuticle, and to change colour, it is a practice with many to scarify immediately; here, as in the preceding instance, if the scarifications be too superficial, they must be useless; if they be so deep, as to cause a slight hæmorrhage, and to reach the parts which have not yet lost their sensibility, they must do what indeed they are generally intended to do, that is, give the medicines which shall be applied, an opportunity of acting on such parts.

The medicines most frequently made use of for this purpose

are, like the theriaca, chosen for this supposed activity; and consist of the warm, pungent oils and balsams, whose action must necessarily be to stimulate and irritate. From these qualities they most frequently excite pain, which, according to my idea of the disease, is diametrically opposite to the proper curative intention; and this I am convinced of from repeated experience.

The dressings cannot consist of materials which are too soft and lenient; nor are any scarifications necessary for their application. But I would go further and say, that scarifications are not only useless, but, in my opinion, prejudicial, by exciting pain, the great, and chiefly to be dreaded, evil in this complaint. The poultice should be also soft, smooth, and unirritating; its intention should be merely to soften and relax; it should comprehend the whole foot, ankle, and part of the leg; and should always be so moist or greasy, as not to be likely to become at all dry or hard between one dressing and another.

I will trouble the reader with only one remark more.

When the toes are, to all appearance, perfectly mortified, and seem so loose as to be capable of being easily taken away, it is, in general, thought right to remove them. However rotten and loose they may seem to be, or really are, yet while they hold on, they hold by something which is still endued with sensation, as may always be known, if they be bent back or twisted with any degree of violence.

I will not enter into a dispute about the sensibility or insensibility of ligaments, nor undertake to determine whether thay be ligaments, or any other kind of parts which still maintain the connexion of the toes with their own respective joints, or with the metatarsal bones; it is sufficient for me to know, and to inform the young practitioner, that however loose they may seem, yet if they be violently twisted off, or the parts by which they hang be divided, a very considerable degree of pain will most commonly attend such operation, which therefore had much better be avoided; and that I seen this very pain, thus produced, bring on fresh mischief, and that of the gangrenous kind.

If the patient does well, these parts will certainly drop off: if he does not, no good can arise from removing them.

REMARKS

ON THE

NECESSITY AND PROPRIETY

OF THE

OPERATION OF AMPUTATION,

IN CERTAIN CASES,

AND

UNDER CERTAIN CIRCUMSTANCES.

REMARKS

ON THE

OPERATION OF AMPUTATION.

No man, however slightly acquainted with the history of Surgery can have the smallest doubt of the superiority which its present state justly claims over that of our predecessors, especially over that of our more remote ones.

The surgery of the last century, and even of some part of this, was coarse and cruel in its operative part, painful and tedious in what is generally called the curative. A multiplicity of heavy unmanageable instruments characterised the former, and a variety of irritating applications the latter. By means of the one, many operations were rendered much more terrible to bear, as well as more hazardous in the event, than they ought to have been; while long suffering and tedious confinement became the necessary consequences of the use of the other.

To simplify the art has been the aim of all the best practitioners of later times, and to this they owe both their success and their reputation; by this they have reduced our instruments to a small number, and have rendered those which are now used much more manageable; upon the same plan, they have discharged a farrago of external applications, the majority of which were either useless or mischievous. A prosecution of the same method will,

I make no doubt, produce greater improvements, but still operations will for ever remain unavoidable in particular circumstances, and some diseases will still sometimes require applications which must produce uneasiness: to render these as seldom necessary, and as little painful as possible, should be the business of every practitioner, and this is all that art can do, or that should be expected from it. The boast of universal specifics, of remedies infallibly preventive of diseases, and of means whereby chirurgical operations may be rendered totally unnecessary, is the language of quackery, and not of science.

The amputation of a limb is an operation terrible to bear, horrid to see, and must leave the person on whom it has been performed in a mutilated, imperfect state; but still it is one of those which becomes, in certain circumstances, absolutely and indispensably necessary.

To those who are well acquainted with surgery, it must appear needless to have said this; they well know the truth of it: but as they who have not had sufficient opportunity of obtaining practical information, may be misled by a contrary doctrine, when boldly advanced; and as they who are really well informed, may, under certain circumstances, be deterred from acting up to their knowledge, I have thought that I should not absolutely misspend my time, nor do mankind a disservice, if I took this opportunity of giving the subject a little consideration.

I am the more inclined to do this for three reasons:

1st. Because I am satisfied that the propriety of amputations in certain cases, stands upon as fixed and as rational principles as any part of surgery.

2d. Because a contrary doctrine has within a few years been boldly and industriously propagated, not without some very indecent, as well as untrue reflections, on the profession in general, and on those who have the care of hospitals in particular: and,

3dly. Because I am convinced that such doctrine has been employed to the prejudice of mankind, by covering ignorance and timidity, and also for serving the base purpose of malevolence.

"*Ne occidisse nisi servasset*," is, under certain limitations, a very just and prudent maxim, but taken at large may be produc-

tive of much mischief. Mankind are rather too apt to form their opinion from events only; success with many constitutes propriety, and the failure of it is often very unjustly set to the account of misconduct, or of want of knowledge. A young practitioner at a distance from assistance, and thereby deprived of that support, may be afraid to put his character to hazard, by acting in such manner, as although it might justly entitle him to success, yet cannot command it. He may understand his art, but art is not infallible. He may be a very excellent surgeon, and yet be afraid to encounter the prejudices of some, or the malevolence of others.

A few years ago a book was published professedly to oppose and condemn the practice of amputation, in all cases whatever, and almost without exception. The book was written by a Mr. Bilguer, a surgeon in the Prussian service. Mr. Tissot wrote some Annotations on it, and a Preface, announcing its great and wonderful merit and utility; and the whole was translated into English, and dedicated to Sir John Pringle. Both the book and the Annotations contain some very extraordinary doctrines and assertions, neither of which it is my intention to criticise in this place. They who read the work, and understand the subject, will, I verily believe, have but one opinion. The writer, as well as the annotator, may have meant well; but certain I am, if their opinions were generally followed, mankind would be great sufferers. The particular cases in which the operation of amputation is totally and absolutely unnecessary, and therefore wrong, are in his own words, or at least in those of his translator, as follow:—

"1st. A mortification which spreads until it reaches the bone.
"2dly. Any limb so greatly hurt, whether by fracture or dilace-
"ration, that there is room to dread the most fatal conse-
"quences.

"3dly. A violent contusion of the soft parts, which has at the
"same time shattered the bones.

"4thly. Wounds of the larger vessels, which convey blood into
"the limb, either as the only way of stopping the hæmorrhage, or
"through apprehension it should perish for want of nourishment.

"5thly. An incurable caries of the bone."

In the first of these the art of surgery has very little to do, except the mere sawing the bones through: nature, if the patient lives, will in general do all the rest, and will remove the limb, whether the surgeon may choose it or not. In the 2d, 3d, and 4th, what the writer has asserted is so repugnant to the universal opinion of all the ablest and best practitioners, to common sense, and to constant experience; and his doctrine would, if followed, be productive of so much mischief to mankind, that I cannot help bearing my testimony against it. But as flat contradictions have no more authority than positive assertions, I take this opportunity of giving my reasons for a different opinion at large.

The cases in which, under *certain circumstances*, amputation *may* become necessary for the preservation of the patient's life, are several; but I will confine myself to four.

These are: 1. A compound fracture.

2. Some kind of scrofulous joints.

3. Some kind of aneurisms.

4. A caries of the whole substance of the bone or bones composing a limb.

In all, and each of which, it may, and does sometimes so happen, that the patient's life can be only preserved by the loss of his limb. This doctrine is very opposite to that of the book just cited; but if it be consonant to truth and experience, it matters not from whom it may differ.

In compound fractures, there are three points of time in which the operation of amputation may become necessary. The first of these is immediately, or as soon as may be, after the receipt of the injury. The second is, when the bones continue for a great length of time without any disposition to unite; and the discharge from the wound has been so long and is so large, that the patient's strength fails, and general symptoms foreboding dissolution come on. And the third is, when a mortification shall have taken such complete possession of the soft parts of the inferior part of the limb, quite down to the bone, that, upon separation of such parts, the bone or bones shall be left bare in the inter-space.

The first and second of these are matters of very serious consideration. The third hardly requires any.

When a compound fracture is caused by the passage of a very

heavy body over a limb, such, for instance, as the broad wheel of a wagon, or a loaded cart, or by the fall of a very ponderous body on it, or by a cannon shot, or by any other means so violent as to break the bones into many fragments, and so to tear, bruise, and wound the soft parts, that there shall be good reason to fear that there will not be vessels sufficient to carry on the circulation with the parts below the fracture, it becomes a matter of the most serious consideration, whether an attempt to save such person's limb will not be the occasion of the loss of his life: this consideration must be before any degree of inflammation has seized the part, and therefore must be immediately after the accident.

When inflammation, irritation, and tension have taken place, and when the air admitted freely into the tela cellulosa has begun to exert its pernicious influence, it is too late: an operation then, instead of being beneficial, would prove destructive.

The necessity of immediate, or very early decision in this case, arising from the circumstances already mentioned, make this a very delicate part of practice: for however pressing the case may seem to the surgeon to be, it will not in general appear in the same light to the patient, to the relations, or to by-standers; they will be inclined to regard the proposition as arising from ignorance how to treat the case properly, or from an inclination to save trouble; or perhaps from a still worse motive, a desire to operate; and it will often require more firmness on the part of the practitioner, and more resignation and confidence on the part of the patient, than is generally met with, to submit to such a severe operation, in such a seeming hurry, and upon so little apparent deliberation; and yet it often happens, that the suffering this point of time to pass, decides the patient's fate. I must repeat, that this necessity of early decision, arises from the very just dread of the ill effects of a greatly obstructed circulation, owing to a large destruction of vessels: these, added to those arising from pain, irritation, and the admission of air, often produce a high fever, and intense inflammation, ending, and that very shortly, in gangrene, mortification, and death. That this is no exaggeration, melancholy and frequent experience evinces, even in those whose constitutions previous to the accident were in good order; but much more in those who had been heated by violent exercise, or labour, or liquor,

who have led very debauched and intemperate lives, or who have habits naturally inflammable and irritable.

This may be, and often is the case, when the fracture happens to the middle part of the bones, at the greatest possible distance from the extremities; but is much more likely to happen, and indeed much more frequently is the case, when any of the large joints are concerned: the circumstances of broken bones in these parts, and of torn, bruised, and wounded ligaments, to say nothing of the admission of air into joints, are dreadful additions to the hazard, and demand a speedy decision, as they are productive of the worst consequences in the shortest space of time; and therefore, that, in many of these cases, a determination for or against amputation is really a determination for or against the patient's existence, is a truth of which I am as well satisfied, as I am, or can be, of any truth whatever.

That it would have been impossible to have saved some limbs which have been cut off, no man will pretend to say; no man that knows any thing of the matter can say it: but this does not at all alter the consideration, or render the practice injudicious or blamable, the question really standing thus:—Do not the majority of those whose misfortune it is to get into the just mentioned hazardous circumstances, and on whom the operation of amputation is not performed, perish, and that by means of their wounds? Or, to put the same question into other words, have not many lives been preserved by means of amputation, which, from the same circumstances, would otherwise most probably have been lost? It is not for me, especially after what I have said, to determine it: it is not indeed for any one man to do it. I therefore appeal to all the best practitioners, to those who have seen the most of these accidents, for the truth of the assertion.

When a judicious man says that a limb ought to be removed, it is not to be supposed that he means to say, that it is absolutely impossible, at all events, that such limb can be saved, nor that such patient must infallibly die if the operation be not performed; no, he only means, that from repeated experience of himself and others, in all times, it has been found, that the circumstances above mentioned put the patient's life much more to hazard in an attempt to save the limb, than the operation does in removing it; and there-

fore that humanity as well as judgment determine for the latter. On the other hand, it must be allowed, that, from some of the worst of these cases, some have had the good fortune to escape; but escapes they so truly are, that I make no scruple to affirm, that in certain cases and circumstances, a determination not to amputate, is a determination much more unfavourable and hazardous to the patient, than that for amputation can be.

It is, I think, impossible for any person, who has either sense or candour, so to misconstrue what I have said, as to imagine that I would recommend the amputation of the majority of limbs which have suffered a compound fracture: such conduct would be as injudicious as it would be cruel. My meaning is, that the operation should be limited and confined to certain cases and circumstances already mentioned, and that under them it is not only proper, but necessary.

Pressing and urgent as the state of a compound fracture may be at this first point of time, still it will be a matter of choice whether the limb shall be removed or not. Very serious deliberation may be required, added to all the judgment and experience of the most able practitioner, to determine what may be most for the patient's safety; but at the second period which I have mentioned, the operation ceases to be a matter of choice, it must be submitted to, or the patient must die.

The most unpromising appearances at first do not necessarily or constantly end unfortunately. Every body conversant with business of this kind, knows, that sometimes, after the most threatening first symptoms, after considerable length of time, great discharges of matter, and large exfoliation of bone, it happens, that notwithstanding all these difficulties and discouragements, success shall ultimately be obtained, and the patient shall recover his health and the use of his limb.

But it is also as well known, that after the most judicious treatment through every stage of the disease; after the united efforts of physic and surgery, it sometimes happens that the sore, instead of granulating kindly, and contracting daily to a smaller size, shall remain as large as at first, with a tawny, spongy surface, discharging a large quantity of thin sanies, instead of a small one

of good matter; that the fractured ends of the bones, instead of tending to exfoliate, or to unite, will remain as perfectly loose and disunited as at first, while the patient shall lose his sleep, his appetite, and his strength, a symptomatic fever of the hectical kind, with a quick, small, hard pulse, profuse sweats, and colliquative purgings, contributing at the same time to bring him to the brink of the grave, notwithstanding every kind of assistance. In these circumstances, which are by no means uncommon, if amputation be not performed, I should be glad to be informed what else can rescue the patient from destruction.

Let it not, by way of answer, be said, that a more generous plan of diet should be prescribed; that bark, cordials, anodynes, astringents, &c. should be taken, because I should be very sorry to have it supposed that I was either so unknowing or so brutal as to think of amputation, before every thing of this kind had been fairly and fully tried, and found ineffectual. I confess that I know of nothing but the operation which can be attempted; and when, instead of this, I hear people talk of specific balsams, particular fomentations, &c. I can only be sorry to find that they are so weak or so wicked.

I might in this place mention a case which I have twice seen, which is, that in a compound fracture, which has got well through the first or inflammatory state, the bones, instead on the one hand of exfoliating or uniting, or on the other of remaining entirely disunited, shall (in particular constitutions) become thoroughly distempered and enlarged through their whole substance, forming such a kind of caries as nothing but amputation can cure.

The third and last period which I mentioned regarding compound fractures, and requiring amputation, is indeed a matter which does not require much consideration.

Every practitioner knows that sometimes, too often indeed, it happens that the inflammation consequent upon the injury, instead of producing abscess and suppuration, tends to gangrene and mortification; the progress of which is often so rapid, as to destroy the patient in a very short space of time, constituting that very sort of case in which amputation should have been immediately performed. But it also sometimes happens, that even this dreadful and very threatening malady is, by the help of art, put a stop to,

but not until it has totally destroyed all the surrounding muscles, tendons, and membranes, quite down to the bone, which, upon the separation of the mortified parts, is left quite bare, and all circulation between the parts above and those below, is, by this totally cut off. If it should be said, that merely sawing the bare bones cannot be called amputating, I will not dispute about the propriety of the phrase; but only beg leave to observe, that call the operation by what name you please, the patient loses his limb.

The case is exactly the same, when a mortification, from whatever cause, has seized the lower part of a limb, and produced the same effect. This is the very case which M. Bilguer has mentioned, of mortification seizing all the parts down to the bone. Let the cause of the mortification be what it may, if the effect be the destruction of all the soft parts down to the bone or bones, either the surgeon must saw them, or they must be left to separate: in either case the patient loses his limb.

Scrophulous joints, with enlarged carious bones, and distempered ligaments, make a second kind of case, in which I have said that amputation may become absolutely necessary.

There is one circumstance attending this kind of complaint, which often renders it particularly unpleasant, which is, that the subjects are most frequently young children, or at least are at so early an age, as to be incapable of determining for themselves, which inflicts a very distressing task on their nearest relations.

The common people call these, white swellings; a term not very inapt, because it conveys an idea of one mark of the distemper, which is, that notwithstanding the increase of size in the joint, the skin is not inflamed, but retains its natural colour.

A history of this kind of disease is a thing very much wanted; and I much wish that some man, who has leisure and capacity, and who has seen business, would undertake it. If I was possessed of the requisite knowledge, it would carry me too far from my present purpose; which is only to prove that, when it affects the joints in a certain manner, and to a certain degree, that then the mischief which it causes is such, that nothing but the removal of the joint can remedy.

Whoever has had opportunity of seeing much of this disease,

must know, that all the efforts of physic and surgery, by internal as well as external means, do often prove absolutely ineffectual, not only to cure, but even to retard the progress of this most terrible malady.

I should be sorry to be misunderstood: I do not mean to say, that this is always, or even most commonly the case, nor that scrophulous joints are not sometimes relieved, and even cured, by means of art. I sincerely wish that they were more frequently, and that we were possessed of more effectual remedies for this purpose than we are, or at least than I am acquainted with; but to the great misfortune of scrophulous people, every man conversant with business knows, that the disease often begins in the very inmost recesses of the cellular texture of the heads of the bones forming the larger articulations, such as the hip, knee, ankle, and elbow; that the bones so affected spread gradually, and become enlarged to a very considerable degree, and carious throughout, sometimes with great pain and symptomatic fever, sometimes with very little of either, at least in the beginning; that the cartilages covering the ends of these bones, and designed for the mobility of the joints, are totally destroyed; that the epiphyses in many young subjects are either partially or totally separated from the said bones; that the ligaments of the joints are so thickened and spoiled by the distemper, as to loose all natural appearance, and become quite unfit for all the purposes for which they were intended; that the parts appointed for the secretion of the synovia become distempered in like manner; that all these together furnish a large quantity of stinking sanious matter, which is discharged either through artificial openings made for the purpose, or by small ones made by erosions, and that these openings commonly lead to bones which are rotten through their whole texture; that, bad as this is, it is not all, nor the worst; for when the disease is got into this state, the constant pain, the irritation, and the absorption of poison from all these distempered parts, bring on a fever of the truly hectical kind, attended with the most destructive general symptoms, such as total loss of appetite, rest, and strength, profuse night sweats, and as profuse purgings, which foil all the efforts of medicine, and bring the patient to the brink of destruction.

That this is no exaggeration is known to every body.

Now, supposing that the art of surgery, or, what is by many supposed to be more capable, the art of quackery, could exfoliate all the bones of a large joint, and restore the internal and medullary parts of it to a sound state; supposing either of them capable of giving the ligamentous parts a new and healthy structure, and of re-uniting the loosened epiphyses; I say, supposing, against all sense, and experience, all this to be practicable, yet it must require a length of time to accomplish, which such patient's state will not admit.

The state which I have described is no uncommon one, neither are the circumstances at all exaggerated; but it is the state of a person hastening rapidly to destruction, who has no time to lose, and whose life can be preserved by the removal of the limb only.

That unless the operation be performed, such patient will perish, is an incontestible truth; and it is as incontestibly true, that numbers in the same circumstances have, by submitting to the operation, recovered firm and vigorous health, which they have enjoyed for many years, or even during a long life; and therefore, bad as this state of things is, and terrible as it must be to loose a limb, yet if it be thought preferable to parting with life, it is a consolation to have the malady fall on a part where amputation can be performed, such as the knee, ankle, or wrist, rather than on the hip, where it cannot, or on the parts about the lumbal vertebræ, there causing those most dreadful and most destructive distempers, known[e] by the names of the Lumbal and Psoas Abscess.

e M. Bilguer and M. Tissot are the only people whom I have met with, or heard of, in the profession, who speak of an amputation in the joint of the hip, as an advisable thing, or as being preferable to the same operation in the thigh: the doctrine is so new, and so uncommon, that I must beg leave to cite the whole passage in their own words, lest my reader should not give me credit.

"The difficulty attending amputation in the upper parts of the thigh is so "considerable that surgeons rather choose to abandon to their fate those "wounded men, where it appears necessary, than to undertake it; and I own "I am of the same opinion with them. If, nevertheless, a case occurred, "wherein the death of the patient was certain, if amputation was not per-

The third kind of disorder which I mentioned as sometimes producing the necessity of amputation, was the aneurism.

That kind of dilatation of the arterial tube, which is called a true aneurism, is sometimes found in the middle, sometimes in the upper part of the thigh, and sometimes in the ham.

The general characteristic marks of this distemper are, a circumscribed tumor, small at its first appearance, but gradually increasing, and for some length of time having a pulsatory motion and feel, exactly correspondent with the patient's pulse at the wrist. This pulsation arising from the motion of the blood from the heart through the artery, is very easily seen and felt for some

"formed, I would even *prefer* taking off the limb at the articulation, *rather* "*than at any other place.*"

The reason which M. Bilguer gives for this is as extraordinary: "for al-"though it be extremely difficult, yet it prevents the inconveniences and "accidents which a stump might occasion."

M. Bilguer's annotator seems determined not to be behind hand with his author, part of his note on the preceding passage being as follows:—"I am "of opinion that if any one had the misfortune of being reduced to the ne-"cessity of choosing between amputation at the upper part of the thigh, or "at the articulation itself, one reason for preferring the latter would be, the "greater ease there is in stopping the hæmorrhage of the crural artery."—Very extraordinary doctrine this!

That amputation in the joint of the hip is not an impracticable operation (although it be a dreadful one), I very well know: I cannot say that I have ever done it, but I have seen it done, and am now very sure I shall never do it unless it be on a dead body. The parallel which is drawn between this operation, and that in the joint of the shoulder, will not hold. In the latter it sometimes happens, that the caries is confined to the head of the os humeri, and that the scapula is perfectly sound and unaffected. In the case of a carious hip joint, this never is the fact: the acetabulum ischii, and parts about, are always more or less in the same state, or at least in a distempered one, and so indeed most frequently are the parts within the pelvis—a circumstance this of the greatest consequence; for the power of performing the operation beyond the seat of the disease, and consequently of totally removing all the distempered parts, is the very decisive circumstance in favour of amputation every where but in the hips, where (to say nothing of the horridness of the operation itself) the hæmorrhage from a multiplicity of vessels, some of which are of considerable size, and the immense discharge which a sore of such dimensions must furnish, the distempered state of the parts, which cannot by the operation be removed, will render it ineffectual, bold and bloody as it must be.

length of time; but as the tumor becomes gradually larger, the pulsation in it becomes more and more obscure to the touch; and in length of time, when either the artery is dilated to a very considerable size, or has burst, and has shed part of its contents, the motion becomes, in some cases, so obscure as hardly to be felt at all, or at least not without very diligent attention. When it has got into this state, whether it be femoral or poplitean, the lower part of the limb becomes, by the pressure of the extravasated blood, and by the obstruction to the circulation through the dilated artery, considerably loaded and swollen, unfit for use or motion, and generally very painful.

This is the state, or very nearly the state, in which we most frequently see it, especially among the labouring poor, who generally neglect it until it renders them lame and incapable of following their employment; and when it is got into this state it requires immediate attention.

In what manner is this disease, when got to this point, to be treated? or how is the cure of it to be attempted? for, if something be not done, the limb will become mortified, and the patient will perish.

If a man was to answer from theory, he would say, that the skin is to be divided, the extravasated blood to be cleared away, and the artery to be tied above and below the dilatation—in short, that what is called the operation for the aneurism, is to be performed. Sorry I am to find myself obliged to say, that, as far as my observation and experience go, such operation, however judiciously performed, will not be successful; that is, will not save the patient's life.

In both these aneurisms, the femoral and the poplitean, it most frequently happens that the artery is not only dilated and burst, but it is also distempered some way above the dilatation, particularly in the poplitean. This may very probably be one reason why the ligature is in general so unsuccessful. The want of collateral branches of sufficient size to carry on the circulation, is another very powerful impediment. Whether these may be allowed sufficient to frustrate the attempt by the operation, I will not take upon me to say; but certain I am, that it does not succeed: I have tried it myself more than once or twice; I have seen it tried

by others; but the event has always been fatal. Excessive pain, a high degree of symptomatic fever, great tension of the whole limb, rapidly tending to gangrene, and ending in mortification both upwards and downwards, have destroyed all those whom I have seen, on whom the operation of tying the artery has been practised.

Nor have I ever seen any other operation than that of amputation, which has preserved the life of the patient.[f]

To this, an objection has been made by some, which, if it was founded in fact, would be a very valid one. It has been said, that the aneurism in the thigh, or ham, is very seldom the only one which the patient labours under, and that he most frequently has the same kind of dilatation either of the aorta, or of some of the larger vessels within the body. This is urged as a reason against amputation in this disease; they who maintain this opinion, very justly observing, that it cannot be of any use to cut off a patient's leg for a femoral or a poplitean aneurism, who will, in all probability, be destroyed very soon by the same kind of disease in another part of him.

If the datum were true, the inference would be just; but it is not. When I say that it is not true, I mean that it is not constantly or necessarily, or even generally so, as I can from repeated experience affirm, having several times performed the operation of amputation for both these, on people who have lived several years after, without any symptoms of the same kind of disease in

[f] Since Mr. Pott's time, very considerable improvements have taken place in the treatment of aneurisms, by which the arguments against the operation are completely obviated. The late Mr. Hunter suggested the idea of tying the artery above, and at a distance from the disease itself, by which the bad and often fatal consequences, which attended the laying open the aneurismal sac, are avoided; and the anastomozing vessels being found sufficient to carry on the circulation, completely removes the other objection which Mr. Pott had conceived. In cases of popliteal aneurisms, it is well known that the artery has frequently been tied in the thigh with complete success. And in a case where it was dilated so high up, and so near the groin, that it was impossible to get above it by any ordinary operation, Mr. Abernethy was compelled to put a ligature on the external iliac within the pelvis, and the branches of the internal iliac were found sufficient for the nourishment of the parts below. He has since twice repeated the operation with success. E.

any other part of them. Indeed, the determination for an operation when a poplitean aneurism is arrived to the state which I have just described, is hardly to be called a matter of choice; it is indeed a matter of absolute necessity. When the swelling from the extravasated blood is become so large, that the pulsatory feel of the artery is rendered very obscure, the whole limb below is exceedingly loaded and swollen, the return of the fluids, both by the veins and by the lymphatics, so very difficultly executed, that the patient gets little or no rest from the constant pain; and if some relief be not obtained, and that speedily, from the art of surgery, gangrene and mortification are the inevitable consequences.

The means of relief are two—and two only; the operation of amputation, and that of tying the artery above and below the diseased part.

The operator undoubtedly may make his choice between them, and follow the dictates of his own judgment and his own experience; but it must be worth his while to observe, that for the success of the latter, a free circulation through all the inferior part of the limb seems to be a very necessary circumstance, and that when the load, and pressure, and obstruction, are become so great as even to threaten gangrene and mortification, which is frequently the case, such free circulation is not much to be expected; but, on the contrary, all the evils arising from a very obstructed one, and that through distempered parts.

There is another kind of complaint affecting the leg, removeable (as far as my experience goes) by amputation only, which is one reason why I mention it in this place, and to which I might add another reason, which is, that it either derives its origin from a burstern artery, or at least is accompanied by it.

I know no name to give it, or under what class to range it, but will describe it in the best manner I can.

It has its seat in the middle of the calf of the leg, or rather more toward its upper part, under the gastrocnemius and soleus muscles: it begins by a small, hard, deep seated swelling, sometimes very painful, sometimes but little so, and only hindering the patient's exercises; it does not alter the natural colour of the skin, at least until it has attained a considerable size; it enlarges

gradually, does not soften as it enlarges, but continues through the greatest part of it incompressibly hard; and when it is got to a large size, it seems to contain a fluid which may be felt toward the bottom, or resting, as it were, on the back part of the bones. If an opening be made for the discharge of this fluid, it must be made very deep, and through a strangely distempered mass. This fluid is generally small in quantity, and consists of a sanies mixed with grumous blood: the discharge of it produces very little diminution of the tumor; and in a few cases which I have seen, very high symptoms of irritation and inflammation come on, and, advancing with great rapidity and most exquisite pain, very soon destroy the patient, either by the fever, which is high and unremitting, or by a mortification of the whole leg.

If amputation has not been performed, and the patient dies, after the tumor has been freely opened, the mortified and putrid state of the parts prevents all satisfactory examination: but if the limb be removed without any previous operation, (and which, as far as my experience goes, is the only way of preserving the patient's life,) the arteria tibialis postica will be found to be enlarged, distempered, and burst; the muscles of the calf of the leg to have been converted into a strangely morbid mass; and the posterior part of both the tibia and the fibula more or less carious.

The fourth kind of distemper, which I mentioned, as being sometimes productive of the necessity of amputation, is a caries of the whole bone or bones forming a limb. By this I would be understood to mean a caries possessing not only the surface of such bones, but the whole internal substance, and that from end to end. This I take to be the very individual case, in which both M. Bilguer and M. Tissot have reprobated amputation, and which the former has mentioned in his fifth article, under the title of Incurable Caries.

The terms in which M. Bilguer has chosen to express himself, are rather unfortunate.

After having mentioned three or four different distempers, in which, in certain cases, and under certain circumstances, amputation has in general been thought necessary and right, and in which he is of a totally different opinion, he adds—An *incurable*

caries of the bones; which *incurable* caries he says, ought not to be amputated, because there is a method of curing it.

If this was merely a blunder in language, and went no farther, it would be a matter of little importance; but it is a serious piece of advice, delivered authoritatively, and by a writer who professes to correct the errors both of his predecessors and contemporaries, therefore it should not be merely laughed at; and as it is an advice which is not built on fact, and which is fraught with mischief to mankind, it ought to be contradicted.

That bones become carious from a variety of causes, such as the struma, the lues venerea, deep-seated imposthumation, pressure, &c. is well known to every body; and that such carious bones, properly treated, will exfoliate, and cast off their rotten parts, is as well known; but when, in some particular habits, whether scrophulous, scorbutic, or cancerous, the whole substance of the bone becomes diseased, not only on its surface, but through its whole internal medullary texture, and that from end to end, the same means, be they what they may, will not avail. The use of the scalper, the raspatory, and the rugine, for the removal of the diseased surface of bones; of the trephine, for perforating into the internal texture of carious ones, and of what are called exfoliating applications, are as well known, I presume, to every practitioner, as to M. Bilguer; but giving to these all their real or their supposed merit, still I affirm, and that from repeated experience, that there are cases of caries, in which none of these will succeed, though ever so judiciously used; that neither by these, nor by any other means, can an exfoliation be obtained; and that, unless the whole bone be removed by amputation, the patient will perish.

The metaphor, or simile, by which M. Bilguer endeavours to illustrate his meaning, is somewhat singular: he says, "The real "method of doing service to bones consumed by caries, is like "what happens to boards joined together by nails: if you make "them excessively dry, the nails fall out of themselves," &c.

Now admitting what I think will not be admitted, that this simile conveys a just and true idea of the manner in which the rotten parts of bones are separated from the sound, yet it necessarily implies, that in these very bones there are some sound part or parts, from which the rotten are to be dried off, in order to

loosen the nails, and that the existence of such sound parts is the *sine qua non* of the cure.

It may, perhaps, in answer to this, be said, that proper treatment, external and internal, may so alter and correct even the carious part of a bone, as to render it capable of parting with the rest, and thereby of becoming sound. I say, admitting this, which is not in general admissible, yet it sometimes happens, that there is not time for such experiment, and that, even in very young subjects, the whole habit is, by the rotten bone, so poisoned and spoiled, that a hectic fever of the putrid kind, with all its train of horrid symptoms, will, in spite of the efforts of physic and surgery, in spite of bark and every other specific, in spite of drying, burning, rasping, and boring, come on, and in a very short space of time destroy the patient, unless rescued by amputation, which alone can remove a whole bone.

I have as high an opinion of, and as just a reverence for, both branches of the medical art, as any man; but I also know, that they are both in many instances exceedingly unequal to our expectations, and very much limited.

This is a disagreeable and an unfortunate truth, but still it is a truth, and so much so, that whoever professes a contrary opinion, is either much deceived himself, or inclined to deceive others.

REMARKS

ON THAT KIND OF

PALSY OF THE LOWER LIMBS,

WHICH IS FREQUENTLY FOUND TO

ACCOMPANY A CURVATURE OF THE SPINE,

AND IS

SUPPOSED TO BE CAUSED BY IT.

TOGETHER

WITH ITS METHOD OF CURE.

TO

DR. JOHN LEWIS PETIT,

ONE OF THE

Physicians to St. Bartholomew's Hospital.

THE

FOLLOWING TRACTS

ARE INSCRIBED,

AS

A SMALL MARK OF THE GREAT ESTEEM

AND REGARD OF

THE AUTHOR.

ON THE

PALSY OF THE LOWER LIMBS, &c.

Among the various objects of Physic and Surgery, there are unfortunately some, in which all the efforts of both have hitherto been found absolutely ineffectual, and which therefore have always made a very disagreeable and melancholy part of practice.

To remove, or even to relieve any of the miseries to which mankind are liable, is a very satisfactory employment; but to attend on a distemper from its beginning, through a long and painful course, to its last, fatal period, without even the hope of being able to do any thing which shall be really serviceable, is, of all tasks, the most unpleasant.

In such cases, any attempts, however hazardous, provided they were rational, would be justifiable; certainly then, whatever is not in itself dangerous, and affords the smallest ray of hope, ought to be embraced.

Some little time ago I gave to the public an account of the success which I had seen attend the free use of opium in mortifications of the toes and feet; particularly in those which began, or were attended with, great pain.

In that publication I merely related the fact, as it had happened under my own eye. I entered into no reasoning about it; nor did I give to the medicine any greater degree of credit than it appeared to me to deserve. I did not propose it as a certain specific, or as a remedy whose success was always and infallibly,

or indeed even generally to be depended upon. I acknowledged, that I had several times seen it fail; but as I had also several times seen it succeed, as I was very sure that no hazard could possibly attend the experiment; and as the best and most experienced practitioners were obliged to allow, that they were not yet acquainted with any means whereby they were enabled to prevent the fatal effects of this most horrid distemper, or even to retard its daily and painful ravages, I thought it my duty to make known as early as I could what I had seen, that others might make the same trial, and thereby propagate the benefit. Had any other means of relief been known to the faculty, and this had therefore appeared to me only in the light of another, or a preferable one, I should certainly have withheld my observations, until more time had verified and confirmed them, and thereby had proved the superior utility of what I had to propose: but as the fact was directly the contrary, as opium was the only medicine which I had ever seen prove really and essentially serviceable; as it had succeeded so often, and to such a degree, as to satisfy me that much good might be expected from it; and as I was perfectly sure that not the least degree of hazard could attend the trial, I thought that such publication, though early, could not be regarded in any other light than its true one; I mean that of a request to the profession in general to repeat the experiment; and that therefore it could not be justly deemed premature. If upon repeated trial the success should not be found equal to what I thought I had good reason to expect, no harm could accrue to the patient: if it should answer my expectation, it would serve the most valuable of all purposes.

Since that time I have had the satisfaction of having my opinion confirmed, not only by my own experience, but by the concurrent testimony of several practitioners of eminence in different parts of the kingdom, who have done me the favour to communicate to me the result of their experiments: the success of these, as I expected, from what I had seen, has not been constant, but it has been so frequent, as to make me very well pleased at having furnished the hint. I sincerely wish that the good effect was more general and more certain; but the preservation of even a few, from a malady, found hitherto to have been inevitably destructive to all,

is a matter of some importance, and furnishes no unpleasing reflection.

I now do the same thing, relative to another disorder, which I then did with regard to the mortification. I publish an account of the good success which has attended a particular method of treating a disease, which has hitherto foiled all the efforts of art; and as I do it now from the same principle which I did then, *viz.* that of inducing others, by making the same experiment, to propagate the benefit, I offer no apology for another early publication.

The disease of which I mean to speak, is generally called a palsy, as it consists in a total or partial abolition of the power of using, and sometimes of even moving the lower limbs, in consequence, as is generally supposed, of a curvature of some part of the spine.

To this distemper both sexes, and all ages, are equally liable. If the patient be an infant, it becomes an object of constant, though unavailing distress to its parents; if an adult, he is rendered perfectly helpless to himself, and useless to others, which, of all possible states, is surely the very worst.

When this disease attacks an infant of only a year or two old, or under, the true cause of it is seldom discovered until some time after the effect has taken place, at least not by parents and nurses, who know not where to look for it. The child is said to be uncommonly backward in the use of his legs, or it is thought to have received some hurt in its birth.

When it affects a child who is old enough to have already walked, and who has been able to walk, the loss of the use of his legs is gradual, though in general not very slow. He at first complains of being very soon tired, is languid, listless, and unwilling to move much, or at all briskly: in no great length of time after this he may be observed frequently to trip, and stumble, although there be no impediment in his way; and whenever he attempts to move briskly, he finds that his legs involuntarily cross each other, by which he is frequently thrown down, and that without stumbling; upon endeavouring to stand still and erect, without support, even for a few minutes, his knees give way and bend forward. When the distemper is a little further advanced, it will be found

that he cannot, without much difficulty and deliberation, direct either of his feet precisely to any exact point; and very soon after this, both thighs and legs lose a good deal of their natural sensibility, and become perfectly useless for all the purposes of locomotion. When an adult is the patient, the progress of the distemper is much the same, but rather quicker.

Until the curvature of the spine has been discovered, it generally passes for a nervous complaint; but when the state of the back bone has been adverted to, recourse is almost always had to some previous violence to account for it, some pulling, lifting, carrying, or drawing a heavy body, which is supposed to have hurt the back. In some few instances, this exertion may have been such, as might be allowed to have been equal to the effect; but, in by much the majority, this is so far from being the case, that, if it be admitted to have had any share at all in it, some predisposing cause, at least, must be looked for, in which, in my opinion, consists the very essence of the disease.

I have, in compliance with custom, called the disease a palsy; but it should be observed, that notwithstanding the lower limbs be rendered almost or totally useless, yet there are some essential circumstances in which this affection differs from a common nervous palsy; the legs and thighs are, I have just said, rendered unfit for all the purposes of locomotion, and do also lose much of their natural sensibility; but notwithstanding this, they have neither the flabby feel, which a truly paralytic limb has, nor have they that seeming looseness at the joints, nor that total incapacity of resistance, which allows the latter to be twisted in almost all directions; on the contrary, the joints have frequently a considerable degree of stiffness, particularly the ankles, by which stiffness, the feet of children are generally pointed downward, and they are prevented from setting them flat upon the ground.

The curvature of the spine, which is supposed to be the cause of this complaint, varies in situation, extent, and degree, being either in the neck or back, and sometimes, though very seldom, in the upper part of the loins; sometimes comprehending two vertebræ only, sometimes three, or more, by which the extent of the curve becomes necessarily more or less; but whatever may be the number of vertebræ concerned, or whatever may be the degree or

extent of the curvature, the lower limbs only feel the effect—at least I have never once seen the arms affected by it.

This effect is also different in different subjects; some are rendered totally and absolutely incapable of walking in any manner, or with any help, and that very early in the course of the distemper; others can make a shift to move about with the help of crutches, or by grasping their own thighs with their hands; some can sit in an erect posture, or in a chair, without much trouble or fatigue, which others are incapable of, at least for any length of time; some have such a degree of motion in their legs and thighs, as to enable them to turn and move for their own convenience in bed; others have not that benefit, and are obliged to lie till moved by another.

When a naturally weak infant is the subject, and the curvature is in the vertebræ of the back, it is not infrequently productive of additional deformity, by gradually rendering the whole back what is commonly called humped; and by alterations which all the bones of the thorax sometimes undergo, in consequence of the flexure and weakness of the spine, by which such persons are justly said to be shortened in their stature; but in all cases where this effect has been gradually produced, to whatever degree the deformity may extend, or however the alteration made in the disposition of the ribs and sternum may contribute to such deformity, yet I think that it will always be found, that the curvature of the spine appeared first, and, if I may so say, singly, and that all the rest was consequential.

While the curvature of the spine remains undiscovered or unattended to, the case is generally supposed to be nervous, and medicines so called are most frequently prescribed, together with warm liniments, embrocations, and blisters, to the parts affected; and when the true cause is known, recourse is always had to steel stays, the swing, the screw chair, and other pieces of machinery, in order to restore the spine to its true and natural figure; but all, as far as I have observed, to no real or permanent good purpose; the patient becomes unhealthy, and, languishing for some time under a variety of complaints, dies in an exhausted, emaciated state; or, which is still worse, drags on a miserable existence.

confined to a great chair, or bed, totally deprived of the power of locomotion, and useless both to himself and others.

This in an infant is most melancholy to see, in an adult most miserable to endure.

The general health of the patient does not seem at first to be materially, if at all, affected; but when the disease has been some time, and the curvature thereby increased, many inconveniences and complaints come on, such as difficulty in respiration, indigestion, pain, and what they all call tightness at the stomach, obstinate constipations, purgings, involuntary flux of urine and fæces, &c. with the addition of what are called nervous complaints; some of which are caused by the alterations made in the form of the cavity of the thorax; others seem to arise from impressions made on the abdominal viscera. These are different both in kind and in degree, in different subjects, but seem to depend very much on the consequences of the curvature—that is, in naturally infirm children, although the curvature of the dorsal vertebræ is always the first mark of the distemper, by preceding every other, yet it is frequently soon followed by such a degree of deformity of the bones of the trunk, as to be, in conjunction with the necessary inactivity and confinement of the patient, productive of all the ills above mentioned.

An affecting instance of this distemper, in the person of a very promising youth of fourteen years old, with whose family I was nearly connected, induced me to think more of it than perhaps I otherwise should have done; and the restoration of the use of his limbs, immediately after a seemingly accidental abscess near the part, engaged my attention still more, and became a matter of frequent, though not very satisfactory contemplation; I say unsatisfactory, because it served only to increase my doubts, without leading me toward a solution of them. The more I thought upon the subject, the more I was inclined to suspect that we had been misled by appearances, and that a distempered state of the parts forming, or in the neighbourhood of curvature, preceded, or accompanied it: in short, that there was something predisposing, and that we had most probably mistaken an effect for a cause.

For these suspicions, I had the following reasons, which appeared to me to have some weight:

1. That I had never seen this paralytic effect on the legs from a malformation of the spine, however crooked such malformation might have rendered it, or whether such crookedness had been from time of birth, or had come on at any time afterwards, during infancy.

2. That none of those strange twists and deviations, which the majority of European women get in their shapes, from the very absurd custom of dressing them in stays during their infancy, and which put them into all directions but the right, ever caused any thing of this kind, however great the deformity might be.

3. That the curvature of the spine, which is accompanied by this affection of the limbs, whatever may be its degree or extent, is at first almost always the same, that is, it is always from within, outward, and seldom or never to either side.

4. That since I had been particularly attentive to the disorder, I had remarked, that neither the degree nor the extent of the curve made any alteration in the nature or degree of the symptoms at first, nor for some time after the appearance; or, in other words, that the smallest curvature, in which only two or three of the vertebræ were concerned, was always, at first, attended by the same symptoms as the largest.

5. That although it sometimes happened that a smart blow, or a violent strain, had immediately preceded the appearance of the curve, and might be supposed to have given rise to it, yet in many more adults it happened that no such cause was fairly assignable, and that they began to stoop, and to faulter in their walking, before they thought at all of their back, or of any violence offered to it.

6. That exactly the same symptoms are found in infants, and in young children, who have not exerted themselves, nor have been injured by others, as in the adult, who has strained himself, or received a blow; and that the case was still the same in those grown people, who have neither done nor suffered any act of violence.

7. That although it must be allowed, that a dislocation of any of the vertebræ, would most probably be attended with the same kind of symptoms, from the pressure it must make on the spinal marrow, yet it is also most probable that such symptoms would

be immediate, and attended with great pain in the part; neither of which is in general the case here.

These considerations appear to me to have much force; but what confirmed me in my opinion was the state of the parts forming the curvature, and which I had several fair opportunities of examining after death. By these examinations I found, in infants, in young children, and in those who had been afflicted with the disorder but a small space of time, that the ligaments connecting the vertebræ, which formed the curve, were in some degree altered from a natural state, by being somewhat thickened and relaxed, and that what are called the bodies of those bones, were palpably spread and enlarged in their texture, just as the bones forming the articulations are in children who are called rickety. That in those who had long laboured under the distemper, and in whom the symptoms were aggravated, whatever might be their age, the ligaments were still more thickened, relaxed, and altered, the bodies of the bones more spread, more enlarged, and more inclining to become carious, and the cartilages between the bodies of the vertebræ much compressed and lessened in size; and that in all those who had so long laboured under the disease, as to have been destroyed by it, or by its consequences, the corpora vertebrarum were completely carious, the intervening cartilages totally destroyed, and a quantity of sanies lodged between the rotten bones and the membrane investing the spinal marrow.[a]

All these circumstances put together, induced me, as I have already said, to suspect, that when we attribute the whole of this mischief to the mere accidental curvature of the spine, in consequence of violence, we mistake an effect for a cause; and that previous both to the paralytic state of the legs, and to the alteration of the figure of the back bone, there is a predisposing cause of both, consisting in a distempered state of the ligaments and bones, where the curve soon after makes its appearance.

While the subject was fresh in my mind, I happened to be at Worcester, and in a conversation on it with the late Dr. Cameron

[a] In the body of a man, who died not long since of this disorder, in its last and worst state, the bodies of three of the vertebræ were not only quite carious, but completely separated from all connexions with the other parts of the same vertebræ.

of that place, I mentioned to him my opinion, and my doubts: the doctor concurred with me, and at the same time mentioned a circumstance, which made a strong impression on me. He said, that he remembered, some years ago, to have noted a passage in Hippocrates, in which he speaks of a paralysis of the lower limbs being cured by an abscess in the back or loins; and that taking the hint from this, he, Dr. Cameron, had, in a case of a palsy of the legs and thighs, attended by a curvature of the back bone, endeavoured to imitate this act of nature, by exciting a discharge near the part, and that it had proved very advantageous. He also referred me to Mr. Jeffrys, a surgeon of eminence at Worcester, for a further account of the same kind of attempt: this gentleman confirmed what Dr. Cameron had told me, and assured me that he had found the method equally successful.

It may easily be supposed, that these accounts from gentlemen of veracity, and of reputation in their profession, still added to my desire of knowing more on this subject, and determined me to lose no opportunity of getting information.

The first that offered was in an infant, whose curvature was in the middle of the neck, and who had lost the use of its legs for about two or three months. I made an issue by incision on one side of the projection, and gave strict charge to the mother to take care that the pea was kept in; the woman, who had no faith in the remedy, did not take the proper care, and consequently the discharge was not equal to what it should, and might have been; but notwithstanding this neglect, at the end of about three weeks or a month the child was manifestly better, and began to make use of its legs: it was then seized with the small pox, and died. The bodies of the vertebræ concerned in the curve were larger than they should be, and than those above and below were, and their texture much more open and spongy; which difference appeared immediately, before the parts covering them were dissected off.

Some time passed before I had another opportunity. My next patient was a tall, thin man, about thirty-five years old, who thought that he had hurt himself by lifting a heavy weight: his legs and thighs were cold, and what he called numby, but not absolutely useless: he could with difficulty go about the room with the help of a pair of crutches, but he could neither rise from his

chair, nor get on his crutches, without the assistance of another person, nor could he, without them, walk at all.

I made a seton on each side of the curve, which was in his back, about the middle; and having given his wife directions how to dress them, I called on him once in three or four days. At the end of six weeks he had recovered the due degree of sensation in his limbs, and found much less necessity for the use of his crutches; he could rise from his bed and from his chair without assistance; and by means of one crutch, and an underhand stick, could walk for an hour, or more, without resting, and without fatigue. The setons had now, from not having been properly managed, worn their way out, and I would have converted each of them into an issue; but as neither the patient nor his wife had ever believed that the discharge had had any share in his amendment, but, on the contrary, that he would have been better without it, he would not submit to what I proposed, and I left him. At the distance of about three weeks from the time of my leaving him, I met him in the street, walking very stoutly, with a common cane, of which he made little or no use. I asked him what he had done: he told me that the sores had continued to discharge till within a few days; but that he had drunk a great deal of comfrey root tea, with isinglass, and he supposed that had cured him.

I believe that the cure of this man will, by all who know any thing of medicine, be thought to be so unlikely to have been effected by the comfrey and isinglass, that my inference in favour of the seton will not be thought unreasonable, and that my determination to prosecute the method, from what I had heard and seen, was well founded.

Within the course of the last ten or twelve months, I have had several fair opportunities of doing this, both in St. Bartholomew's hospital, and out of it; and am very happy to be able to say, that it has not only always answered, but in some instances greatly exceeded my most sanguine expectations, by restoring several most miserable and totally helpless people to the use of their limbs, and to a capacity of enjoying life themselves, as well as of being useful to others.

I have now in the hospital, a boy about twelve years old, whose case was so truly deplorable, that I made the experiment merely

to avoid the appearance of inhumanity, by discharging him as incurable, without trying something. The curvature was in his back, and consisted of three or four vertebræ; but by means of the weakness thereby induced, the whole set of dorsal ones had so universally and gradually given way, that he was exceedingly deformed both behind and before: he was so absolutely incapable of motion, that he could neither turn himself, nor sit up in his bed: his feet were pointed downwards, and his ankles so stiff, that when he was held up under the arms, the extremities of his great toes touched the floor, nor could his feet be brought flat to the ground by any means or force whatever. In short, he was as perfectly and as totally helpless as can be supposed; and at the same time in an exceedingly general bad state of health, from disorders of the thoracic and abdominal viscera. In this state he had been more than a year: it is now about three months since the caustics were applied; he is become healthy, and free from most of his general complaints, has the most perfect use of his legs while he is in bed, can walk without the assistance of any body, or any thing to hold by; and from his manner of executing this, will, I make no doubt, in a very short space, recover perfectly the use of his legs. To this I ought to add, that notwithstanding a considerable degree of deformity does, and I suppose will, remain, yet the spine in general is so much strengthened, that he is some inches taller than he was four months ago.

The remedy for this most dreadful disease consists merely in procuring a large discharge of matter, by suppuration, from underneath the membrana adiposa on each side of the curvature, and in maintaining such discharge until the patient shall have perfectly recovered the use of his legs. To accomplish this purpose, I have made use of different means, such as setons, issues made by incision, and issues made by caustic: and although there be no very material difference, I do, upon the whole, prefer the last. A seton is a painful and a nasty thing; besides which, it frequently wears through the skin before the end for which it was made can be accomplished: issues made by incision, if they be large enough for the intended purpose, are apt to become inflamed, and to be very troublesome before they come to suppuration; but openings made by caustic are not in general liable to any of

these inconveniences, at least not so frequently, nor in the same degree: they are neither so troublesome to make or to maintain. I make the eschars about this size and shape, on each side the curve, taking care to leave a sufficient portion of skin between them: in a few days, when the eschar begins to loosen and separate, I cut out all the middle, and put into each a large kidney-bean. When the bottoms of the sores are become clean by suppuration, I sprinkle, every third or fourth day, a small quantity of finely powdered cantharides on them, by which the sores are prevented from contracting, the discharge increased, and possibly other benefit obtained. The issues I keep open until the cure is complete: that is, until the patient recovers perfectly the use of his legs, or even for some time longer; and I should think that it would be more prudent to heal only one of them first, keeping the other open for some time; that is, not only until the patient can walk, but until he can walk firmly, briskly, and without the assistance of a stick; until he can stand quite upright, and has recovered all the height, which the habit, or rather the necessity of stooping, occasioned by the distemper, had made him lose.

I have said that the discharge by means of the issue, is all that is requisite for a cure; which is true, as I have experimentally proved by not using any other, in cases which have succeeded perfectly; but this fact being established, there is no reason why every assistant means should not be applied at the same time, in order to expedite: such as bark, cold-bathing, frictions, &c.

That the patient becomes more upright as his legs become stronger, is certain, and therefore appears taller, as well as straighter, in proportion as the whole spine strengthens; but whether the curvature will always and totally disappear, I am not yet able to say with certainty. In two late instances, both adults, it has; but the deformity which, in weak infants and children, is often the consequence of the curvature, and of the state of the spine at that place, must, in some degree, I fear, be expected to remain; but of this I am not yet able to speak with absolute certainty. There are a few other circumstances, of no great moment perhaps,

but which will require more time to ascertain than I thought should be suffered to pass, before mankind were made acquainted with the great means of relief, in so distressing, so melancholy, and so dreadful a malady: for the reader will be pleased to remember what I told him at the beginning of this tract, which was, that my motive for publishing this account sooner than might appear in general to be right, or indeed than I otherwise should have done, was a desire that as little time as possible might be lost, in conveying to the profession in particular, and to mankind in general, the means of relief under an affliction, which, till these were known, has not admitted of any; and this I was still more incited to do, because the remedy is as harmless, and as void of hazard, as it is efficacious.

In the preceding tract I have related the appearances which the parts constituting the seat of the distemper make upon examination after death; or, to speak more properly, the different states of these parts in different persons, and at different periods of this disease. These, though necessarily subject to considerable variety, may, I think, be reduced to three general ones.

1. A small degree of an increase of size in the bodies of the vertebræ, forming the curve, with an apparent laxity in their texture, and a relaxed state of the connecting ligaments, by which they seem to have lost part of their power of holding the bones together.

2. A more considerable and more apparent enlargement of the same parts of the vertebræ, whose spongy texture becomes more visibly spread through their whole substance, and tending towards a caries, with an apparently distempered state, both of the ligaments and of the intervening cartilages.

3. A truly carious state of the bodies of the bones; a dissolution or destruction of the cartilaginous substance between them; and a lodgement of sanies on the surface of the membrane enveloping the spinal marrow.

These are I think the most particularly different states or stages of the disorder, and are such as, in my opinion, decisively mark the true nature of it.

Between these, in different persons, and under different circum-

stances, there must be a considerable variety, but the material difference will be only in degree.

From the whole, the few following practical inferences seem fairly deducible:

1. That the disease does not originally consist in a displacement of the vertebræ, made by violence, the bones and ligaments being previously in a sound and uninjured state; but in such a morbid alteration of the texture of both, as will, if not timely prevented, produce curvature and caries, with all their consequences.

2. That the proper remedies for this disease cannot be applied too soon.

3. That the restoration of the spine to its natural figure, depends much on the early administration of the help proposed.

4. That although the distemper may be so far cured, that the patient may perfectly recover the use of his legs, yet such an alteration may have taken place in the bodies of the vertebræ, as to render it impossible for the spine to become straight again.

5. That when three or four, or more vertebræ, are concerned in the curve, the trunk of the body will have so little support from that part of the spine which is not distempered, that no degree of deformity can be wondered at; nor can it be expected that such deformity should be removed, whatever other benefit such patient may receive.

6. That if from inattention, from length of time, or from any other circumstances, it happens that the bodies of the vertebræ become completely carious, and the intervening cartilages are destroyed, no assistance is to be expected from the proposed remedy.

To these I will take the liberty of adding, that it appears to me well worth while, to try what a large and free discharge, made for a length of time from the vicinity of the distempered part, might be capable of doing in the very beginning of what are commonly called scrophulous joints; which, when arrived to a certain point, baffle all our art, and render a painful and hazardous operation absolutely necessary.

Within these last six or eight months, several cases of curved spine have been received into St. Bartholomew's hospital, where they have been seen by great numbers of the profession. The

novelty of the treatment, and the success which has hitherto constantly attended it, has necessarily engaged the attention of many, and occasioned some conversations on the subject. In some of these it has been said, that as it appears to be undeniably a disease of the bony texture of the bodies of the vertebræ, it may be apprehended, that the relief expected from the caustics may in some cases fail, and in others may not prove permanent; and, that the same kind of constitution remaining, a return of the malady may not unreasonably be feared.

To this I can only answer, that although I have called this an early publication, yet I have waited a sufficient length of time, and have treated a sufficient number of subjects, to be clear in the truth of what I have asserted, as far as such time, and such individuals go. That the patients whom I have attended in the early part of the distemper, of whatever age, have all got well; that is, have all not only regained the use of their legs, but have become healthy, and fit for any exercise or labour, as numbers can testify, who have seen them daily. Most of them have become much straighter, some quite straight, and all of them perfectly free from all kind of inconvenience arising from the curve.

That in all the infants whom I have seen, the general health of the patient has always been restored, in proportion to the restoration of the use of the limbs.

That I must suppose all this to have been done by the discharge from the caustics, because in many of them no other means of any kind have been made use of.

That as far as my experience goes, I have not the least doubt, that if the means proposed be made use of before the bones are become really carious and rotten, they will always be successful. When indeed a truly rotten state of the bones takes place, no good is to be expected from this, or from any thing else: but it should be observed, at the same time, that this never happens but when the distemper is of very old date, and that, when this is the case, the whole machine is so disordered, and the patient so truly and so generally distempered, that there can be no reasonable expectation of success from any thing.

To this I must take the liberty of adding, that what I have affirmed, is what I have seen and proved, and that the objections

are merely speculative and theoretical. However, supposing them to be not quite unreasonable, the most useful inference to be drawn from them is, that the same remedy by which so great and so evident relief is obtained, ought to be continued, while there may be any fear of return of the mischief; and that every other means for the restoration of health and strength should at the same time be made use of; both which coincide absolutely with my own opinion and advice.

FURTHER REMARKS

ON THE

USELESS STATE OF THE LOWER LIMBS,

IN CONSEQUENCE OF

A CURVATURE OF THE SPINE.

WITH

SOME OBSERVATIONS

ON THE

AUXILLIARY ASSISTANCE OF MECHANISM, AND OTHER REMARKS,

BY THE EDITOR.

FURTHER REMARKS

ON THE

PALSY OF THE LOWER LIMBS, &c.

It is now near three years since I first troubled the public with my observations on the disease which makes the subject of the following tract.

The apology which I then made, for what I was perfectly aware might be thought a premature publication, was, that the distemper to which it related was supposed to be incapable of receiving any relief from art; and that they who were afflicted with it, were therefore deserted, and left to linger out a most miserable existence; but that, from the benefit which I had seen to be derived from a particular, and, at the same time, a perfectly safe method of treating it, I thought that it demanded the immediate and serious regard of the profession.

Previous to the publication, I had considered the disease with some attention, and had made some experiments on it, which, although not many, were sufficient in number, and had been attended with such a degree of success as to satisfy me, that it was a subject in which mankind was much interested; but as I did not think that any one man's experience, be it what it might, was sufficient to determine a matter of so much importance, I wished that the faculty at large might be made acquainted with what I had seen and done, that they might be induced to make the same experiment, and thereby either contradict or confirm what I had said. If the former should be the result, my proposition would soon meet with the neglect which it would deserve; I could only

console myself with the rectitude of my intention, and be sorry for my mistake: but if, on the contrary, the attempts of others should prove as successful as mine, it appeared to me, that the chirurgic art would make a great acquisition, as it would be thereby furnished with the means of relieving one of the most distressing maladies to which human nature is liable; a malady which, when it befalls an adult, makes him completely miserable, by depriving him of all power of being useful to himself or others; a malady which, when an infant becomes its victim, renders all the care and tears, all the tenderness and anxiety of the fondest parent absolutely unavailing, and a malady for which it was supposed there was no remedy.

These were my reasons for hazarding my opinion so hastily; the importance of the subject, and the perfect safety of the experiment, were, as I thought, a sufficient excuse for so doing.

My wishes, and my expectations, have been most pleasingly fulfilled. I have received such manifold and repeated testimony of the success of the proposed method, from so large a number of the most eminent practitioners, not only in this town and kingdom, but in many other parts of Europe; that these, added to my own experience, have completely satisfied me, and enabled me to say, that in proper cases, and under proper treatment, I have no doubt of its being universal.

In all the time which has passed since the first publication, I have sought and embraced every opportunity of obtaining information, both from the living and from the dead; and I have requested and received the assistance of many friends, whose civilities, and whose information, I take this opportunity of acknowledging.

By these means I have been enabled to correct several errors, and to make some additional observations, which I hope may not only elucidate the original subject, but may serve other equally valuable purposes. Truths, built on observation and experience, seldom stand single; they generally lead to others, and become the means of more diffusive knowledge.

The disease of which I am to speak, is a disease of the spine, producing an alteration in its natural figure, and not unfrequently

attended with a partial, or a total loss of the power of using, or even of moving, the lower limbs.

From this last circumstance, (the loss of the use of the limbs,) it has in general been called a palsy, and treated as a paralytic affection; to which it is in almost every respect perfectly unlike.

The occasion of the mistake is palpable; the patient is deprived of the use of his legs, and has a deformed incurvation of the spine; the incurvation is supposed to be caused by a dislocation of the vertebræ; the displaced bones are thought to make an unnatural pressure on the spinal marrow; and a pressure on that being very likely to produce a paralysis of some kind, the loss of the use of the legs is in this case determined to be such. The truth is, that there is no dislocation, no unnatural pressure made on the spinal marrow; nor are the limbs by any means paralytic, as will appear to whoever will examine the two complaints with any degree of attention.

In the true paralysis, from whatever cause, the muscles of the affected limb, are soft, flabby, unresisting, and incapable of being put into even a tonic state: the limb itself may be placed in almost any position or posture: if it be lifted up, and then let go, it falls down, and it is not in the power of the patient to prevent, or even to retard its fall: the joints are perfectly and easily moveable in any direction: if the affection be of the lower limbs, neither hips, knees, nor ankles, have any degree of rigidity or stiffness, but permit the limb to be turned or twisted in almost any manner.

In the present case, the muscles are indeed extenuated, and lessened in size; but they are rigid, and always at least in a tonic state, by which the knees and ankles acquire a stiffness not very easy to overcome. By means of this stiffness, mixed with a kind of spasm, the legs of the patient are either constantly kept stretched out straight, in which case considerable force is required to bend the knees, or they are by the action of the stronger muscles drawn across each other in such manner as to require as much to separate them: when the leg is in a straight position, the extensor muscles act so powerfully as to require a considerable degree of force to bend the joints of the knees; and when they have been bent, the legs are immediately and strongly drawn up, with the heels toward the buttocks: by the rigidity of the

ankle joints, joined to the spasmodic action of the gastrocnemii muscles, the patient's toes are pointed downward in such manner as to render it impossible for him to put his foot flat to the ground; which makes one of the decisive characteristics of the distemper.

These are strong marks of the distinction which ought to be made between the two diseases; and fully sufficient to show the impropriety of confounding them with each other.

The majority of those who labour under this disease are infants or young children: adults are by no means exempt from it; but I have never seen it at an age beyond forty.

When it attacks a child who is old enough to have walked properly, its awkward and imperfect manner of using its legs, is the circumstance which first excites attention; and the incapacity of using them at all, which very soon follows, fixes that attention, and alarms the friends.

The account most frequently given is, that for some time previous to the incapacity, the child had been observed to be languid, listless, and very soon tired; that he was unwilling to move much, or briskly; that he had been observed frequently to trip and stumble, although no impediment lay in his way; that when he moved hastily or unguardedly, his legs would cross each other involuntarily, by which he was often and suddenly thrown down; that if he endeavoured to stand still and upright, unsupported by another person, his knees would totter and bend under him; that he could not with any degree of precision or certainty steadily direct either of his feet to any particular point, but that, in attempting so to do, they would be suddenly and involuntarily brought across each other; that soon after this, he complained of frequent pains and twitchings in his thighs, particularly when in bed, and of an uneasy sensation at the pit of his stomach; that when he sat on a chair, or a stool, his legs were almost always found across each other, and drawn up under the seat; and that in a little time after these particulars had been observed, he totally lost the power of walking.

These are the general circumstances which are found, at least in some degree, and that pretty uniformly, in most infants and

children; but there are others which are different in different subjects.

If the incurvation be of the neck, and to a considerable degree, by affecting several vertebræ, the child finds it inconvenient and painful to support its own head, and is always desirous of laying it on a table or pillow, or any thing to take off the weight. If the affection be of the dorsal vertebræ, the general marks of a distempered habit, such as loss of appetite, hard, dry cough, laborious respiration, quick pulse, and disposition to hectic, appear pretty early, and in such a manner as to demand attention; and as in this state of the case there is always, from the connection between the ribs, sternum, and spine, a great degree of crookedness of the trunk, these complaints are by every body set to the account of the deformity merely. In an adult, the attack and the progress of the disease are much the same, but there are some few circumstances which may be learned from a patient of such age, which either do not make an impression on a child, or do not happen to it.

An adult, in a case where no violence hath been committed, or received, will tell you, that his first intimation was a sense of weakness in his back bone, accompanied with what he will call a heavy, dull kind of pain, attended with such a lassitude as rendered a small degree of exercise fatiguing; that this was soon followed by an unusual sense of coldness in his thighs, not accountable for from the weather, and a palpable diminution of their sensibility; that, in a little time more, his limbs were frequently convulsed by involuntary twitchings, particularly troublesome in the night; that soon after this, he not only became incapable of walking, but that his power either of retaining or discharging his urine and fæces was considerably impaired, and his penis became incapable of erection.

The adult also finds all the offices of his digestive and respiratory organs much affected, and complains constantly of pain and tightness at his stomach.

In infants, the curve is seldom noticed till it has got to such size and state, as to demand attention from the deformity: previous to this, all the marks of distemper which appear in the child,

pass for the effects of general weakness, and are treated as such; differently by different people, and under different circumstances, but never with any permanent good effect; some of the adventitious symptoms, if I may so call them, are, in some degree, relieved; but the principal remain in full force, or, what is much more frequent, go on increasing.

In an adult it passes for rheumatism, or gravel, or a strain; and the defect in the limbs is the first thing that occasions an inquiry into the state of the back bone.

When a curvature is perceived in an infant, it is always supposed to have received a hurt by a blow or fall, and an adult has always recourse to some exertion in pulling, drawing, lifting, or carrying, by which the spine is thought to have been deranged, or injured; but which supposition is seldom, if ever, true in either case.

The true cause of the disease is a morbid state of the spine, and of some of the parts connected with it; which distempered state of parts will, upon careful inquiry, be always found to have preceded the deformity some length of time: in infants this is the sole cause, and external violence has nothing to do with it. In the adult, I will not assert that external mischief is always and totally out of the question, but I will venture to affirm what is equal, as far as regards the true nature of the case, which is, that although accident and violence may in some few instances be allowed to have contributed to its more immediate appearance, yet the part in which it shows itself, must have been previously in a morbid state, and thereby predisposed for the production of it. I do not by this mean to say that a violent exertion cannot injure the spine, nor produce a paralytic complaint; that would be to say more than I know: but I will venture to assert, that no degree of violence whatever is capable of producing such an appearance as I am now speaking of, unless the bodies of the vertebræ were by previous distemper disposed to give way; and that no supposable dislocation, caused by mere violence done to the bones of the back, which bones were before the receipt of the injury in a sound state, can possibly be attended with the peculiar symptoms of a curved spine. In which distinction, according to my judgment, consists the very essence of the disease. Violence may easily be supposed to bring

the two vertebræ nearer to each other than they ought to be, and by crushing an intermediate one to produce a curvature; but then the body of the vertebræ so crushed, must have been in a distempered state previous to such violence. Great violence may also suddenly and immediately displace a perfectly sound vertebra from its proper and natural situation, with regard to those annexed to it; but the necessary consequences of these two kinds of injury must be so very different, that they never can be confounded together, or mistaken for each other, even by the most inattentive observer.

The true curvature is invariably uniform in being from within outwards; but it varies in situation, in extent, and in degree; it affects the neck, the back, or the loins; it comprehends one vertebra only, or two, or more; and as few or more are affected, or, as these are more or less morbid, and consequently give way more or less, the curve must be different: but whatever variety these circumstances may admit, the lower limbs alone,[b] in general, feel the effect. Some are, very soon after the curvature, rendered totally and absolutely incapable, not only of walking, but of using their legs in any manner; others can make shift to move about with the help of crutches, or by grasping their thighs, just above the knees, with both hands; some can sit in an armed chair without much trouble or fatigue, others cannot sit up with any help; some retain such a degree of power of using their legs, as to be able to shift their posture when in bed; others have no such power, and are obliged to be moved upon all occasions.

Weak and delicate children are the most frequent subjects of this distemper; and when, in these, it seizes on the dorsal vertebræ, great deformity of the trunk, both before and behind, is the almost inevitable and necessary consequence: this will be differ-

[b] Since I began to put these papers together, I have seen two cases, in one of which the arms only were affected; in the other both legs and arms.

Mr. E. Ford, of Golden square, has favoured me with the examination and case of a lad, who lost the use of both legs, and both arms, from a curvature, which Mr. Ford cured by means of the caustics. Mr. Parke, of Liverpool, has also obliged me with an account of two persons, both under his care, both with useless arms and legs, and both cured by the same means.

ent in different persons; but let the difference in this be what it may, it is an adjunct circumstance; and upon due inquiry it will always be found, that the curvature from within outward preceded the other deformity, and was, at one time, the only one to be seen.

Before the alteration of figure in the back bone has been discovered, all the attention is paid to the limbs, in which the whole disorder is supposed to reside, and all the applications for relief are made to them; frictions, liniments, embrocations, blisters, &c. to which is generally added cold bathing and electricity. When the curvature has been noticed, recourse is immediately had to back boards, collars, steel boddice, swings, screw chairs, and other pieces of machinery, but all to no purpose; the patient becomes daily more and more helpless and unhealthy, languishes for more or less time, and at last dies either in an emaciated state from an hectic, or by a drain from an abscess formed within the body.

That this is the case frequent and melancholy experience evinces; but why it is so, is perhaps not generally so well understood or attended to as it ought to be.

The primary and sole cause of all the mischief, is a distempered state of the parts composing, or in immediate connexion with, the spine, tending to, and most frequently ending in, a caries of the body, or bodies, of one or more of the vertebræ: from this proceed all the ills, whether general or local, apparent or concealed; this causes the ill health of the patient, and, in time, the curvature. The helpless state of the limbs is only one consequence of several, proceeding from the same cause; but though this effect is a very frequent one, and always affects the limbs in nearly the same manner, yet the disease not having its origin in them, no application made to them only can ever be of any possible use.

The same failure of success attends the use of the different pieces of machinery, and for reasons which are equally obvious.

They are all, from the most simple to the most complex, but particularly the swing and the screw, calculated to obviate and remove what does not exist. They are founded upon the supposi-

tion of an actual *dislocation*, which never is the case, and therefore they always have been, and ever must be, unsuccessful.

To understand this in the clearest and most convincing manner, we need only reflect on the nature of the disease, its seat, and the state in which the parts concerned must necessarily be.

The bones are either already carious, or tending to become so; the parts connected with them are diseased, and not infrequently ulcerated; there is no displacement of the vertebræ with regard to each other; and the spine bends forward only because the rotten bone or bones, intervening between the sound ones, give way, being unable in such state to bear the weight of the parts above. The most superficial reflection on this must point out to every one, why attempts of this kind can do no good; and a little more attention to the subject will show why they may be productive of real and great mischief. The bones are supposed to be sound, but displaced: these machines are designed to bring them back to their former situation, and thereby to restore to the spine its proper rectitude. If therefore they have any power, that power must be exercised on the parts in connexion with the curve; which parts, when the disease is at all advanced, are incapable of bearing such a degree of violence without being much hurt thereby: this, if it were merely theoretical, being a conclusion drawn from the obvious and demonstrable state of the distempered parts, could not be deemed unreasonable; but, unfortunately for the afflicted, it is confirmed by practice. They who have had patience and fortitude to bear the use of them to such a degree as to affect the parts concerned, have always found increase of pain and fever, and an exasperation of all their bad symptoms; and I have known more than one instance in which the attempt has proved *fatal*.

The use of some or other of these pieces of machinery is so general, and the vulgar prejudice in their favour so great, that notwithstanding I have been long convinced of their perfect inutility, yet if I had no other objection to them, I would not attempt to rob the afflicted of what they seem to derive such comfortable expectation from; but as I am satisfied of their mischievous effects, not only in the case of the present subject, but in many others, I

cannot help bearing my testimony against the indiscriminate and very improper use which is daily made of them.

They are used with design to prevent growing children from becoming crooked or misshapen; and this they are supposed to do by supporting the back bone, and by forcing the shoulders unnaturally backward: the former they cannot do; and in all cases where the spine is weak, and thereby inclined to deviate from a right figure, the latter action of these instruments must contribute to, rather than prevent such deviation; as will appear to whoever will with any attention examine the matter: if, instead of adding to the embarrassments of children's dress by such iron restraints, parents would throw off all of every kind, and thereby give nature an opportunity of exerting her own powers; and if, in all cases of manifest debility, recourse was had to friction, bark, and cold bathing, with a due attention to air, diet, exercise, and rest, the children of the opulent would, perhaps, stand a chance of being as stout, as straight, and as well shapen as those of the laborious poor.

When a child appears to be what the common people call naturally weakly, whatever complaints it may have are supposed to be caused by its weak state, and it is generally believed that time and common care will remove them; but when a curvature has made its appearance, all these marks of ill health, such as laborious respiration, hard cough, quick pulse, hectical heat and flushing, pain and tightness of the stomach, &c. are more attentively regarded, and set to the account of the deformity consequent to the curve, more especially if the curvature be of the dorsal vertebræ; in which case the deformity is always greatest: but whoever will carefully attend to all the circumstances of this disorder, will be convinced, that most, if not all the complaints of children, labouring under this infirmity, precede the curvature, and that a morbid state of the spine, and of the parts connected with it, is the original and primary cause of both.[c]

[c] When I published the first edition of this tract, I was not so aware of this truth, as a more enlarged experience in, and a more careful attention to, the disorder since has made me.

I am very glad to embrace this opportunity of acknowledging, and of correcting the mistake, and the more so, as I am convinced that an inference of the greatest importance may be drawn from it. I am satisfied that this malady

I have in the former edition informed the reader, that my particular attention to this disease was first excited by an instance of its being cured by a seemingly accidental abscess; that this first gave me reason to suspect, that we had mistaken an effect for a cause; and that, upon mature deliberation upon the matter, I was still more inclined to think so, for the following reasons:

1. "That I did not remember ever to have seen this useless "state of the limbs from a mere malformation of the spine, how-"ever crooked such malformation might have made it.

2. "That none of those deviations from right shape, which "growing girls are so liable to, however great the deformity might "be, was ever attended with this effect.

3. "That the kind of deformity, which was attended with this "affection of the limbs, although it was different as to its degree "and its extent in different people, yet it was uniform in one cir-"cumstance, which was, that the curvature always was from "within outwards.

4. "That since I had been particularly attentive to the disorder, "I thought that I had observed, that neither the extent nor degree "of the curve, had in general produced any material difference in "the symptoms, but that the smallest was, when perfectly formed, "attended with the same consequences as the largest.

5. "That although it had sometimes happened, that a blow, or "a strain, had preceded the appearance of the curve, yet it much "more frequently happened, that no such cause was assignable.

6. "That I had observed exactly the same symptoms in infants, "and in young children, who had neither exerted themselves, nor "were supposed to have received any injury from others; and that "the case was still the same in those adults, who had no such "cause to look to.

7. "That although it might be expected that a dislocation of "any of the vertebræ would be attended with symptoms of the "paralytic kind, yet they would be very unlike to those which "affected the limbs in the present case."

may, in many instances, by early and proper attention, be prevented from producing its otherwise inevitable consequences, temporary lameness, and permanent deformity.

The suspicions which these circumstances had excited in my mind, were confirmed[d] by what I had a few opportunities of observing in the dead bodies of some, who had died afflicted with this disorder, and altogether satisfied me, that there must be something predisposing in the parts concerned; and that when we attribute the useless state of the limbs merely to the curvature, we mistake, as I have just said, an effect for a cause.

At the same time I gave an account of a conversation which passed between me and the late Dr. Cameron, of Worcester, who told me, that having remarked in Hippocrates an account of a paralysis of the lower limbs cured by an abscess in the back, he had, in a case of useless limbs, attended with a curvature of the spine, endeavoured to imitate this act of nature, by exciting a purulent discharge, and that it had proved very beneficial; which was confirmed to me by Mr. Jeffrys, of Worcester, who had made the same experiment with the same success.[e]

From the time of my receiving this first information to the present, I have sought every opportunity of making the experiment. St. Bartholomew's hospital has seldom been without cases of this kind, and it is with infinite pleasure and satisfaction, that I find myself enabled to say, that in all cases where the complaint has been so circumstanced as to admit of even probable expectation, the attempt has been successful.

If the cure of this most dreadful distemper had depended upon

[d] In the first edition, I had described the bones on which the disease had seized, as being enlarged and spread: upon repeated inquiry and examination, I am convinced that they are not.

The bodies of the vertebræ concerned are often affected, while the ligaments bear but little mark of distemper; but whether the ligaments be affected or not, the bodies of the vertebræ are always diseased, which disease does not so properly *enlarge* as *erode*: the state also of the intervertebral cartilages, I find to be subject to great variety, they being sometimes totally destroyed, while the caries is small in degree, sometimes apparently but little injured, where the caries has done considerable mischief, and sometimes totally destroyed and annihilated.

[e] In this place of the first edition, I have a short account of the first two or three cases which occured to me: in this I omit them as needless.

The number of experiments which have been made by many of the most eminent practitioners, at home and abroad, have sufficiently established the fact, and render the relation of particular cases unnecessary.

an application to the constitution in general, it might have required a variety of medicines, the administration of which must have demanded judgment in adapting them to particular persons and constitutions; and it must also, in the nature of things, have happened that many individuals could not have been benefited at all. But fortunately for the afflicted, the means of relief are simple, uniform, and safely applicable to every individual, under almost every possible circumstance, not attended by the smallest degree of hazard, and capable of being executed by any body who has the least portion of chirurgic knowledge: it consists merely in procuring a large discharge of matter from underneath the membrana adiposa, on each side of the distempered bones forming the curvature, and in maintaining such discharge until the patient shall have recovered his health and limbs. They who are little conversant with matters of this sort, will suppose the means very inadequate to the proposed end; but they who have been experimentally acquainted with the very wonderful effects of purulent drains, made from the immediate neighbourhood of diseases, will not be so much surprised at this particular one; and will immediately see how such kind of discharge, made and continued from the distempered part, checks the further progress of the caries, gives nature an opportunity of exerting her own powers, of throwing off the diseased parts, and of producing by incarnation an union of the bones, (now rendered sound,) and thereby establishing a cure.

However, be all this as it may, the fact is undoubted, and the number of witnesses, as well as patients, producible in confirmation of it, is so considerable, that it is needless to say any thing more on that head.

It is a matter of little importance towards the cure, by what means the discharge be procured, provided it be large, that it come from a sufficient depth, and that it be continued for a sufficient length of time.[f]

I have tried the different means of setons, issues by incision, and issues by caustic, and have found the last in general prefer-

[f] When I say this, I mean to signify that it is absolutely without limitation, and must depend on their beneficial effect.

able, being least painful, most cleanly, most easily manageable, and capable of being longest continued.

The caustics should be applied on each side of the curvature, in such a manner as to leave the portion of skin covering the spinal processes of the protruding bones, intire and unhurt; and so large, that the sores, upon the separations of the eschars, may easily hold each three or four peas in the case of the smallest curvature; but in large curves, at least as many more.

These issues should not only be kept open, but the discharge from them should be maintained by means of orange peas, cantharides in fine powder, ærugo æris, or any such application as may best serve the intended purpose, which should be that of a large and long continued drain.

Whatever length of time it may take to obtain a complete cure, by restoring the health as well as the limbs, the issues must be continued at least as long; and, in my opinion, a considerable time longer, especially in the persons of infants and growing children; the necessity of which will appear more strongly, when it shall be considered that infants and young children of strumous habits, are the subjects who are most liable to this distemper, and that in all the time previous to menstruation in one sex, and puberty in the other, they are in general more served by artificial drains than any other persons whatever.

This, and this only, does or can alleviate the misery attending this distemper, and in proper time effect a cure.

By means of these discharges, the eroding caries is first checked, and then stopped; in consequence of which an incarnation takes place, and the cartilages between the bodies of the vertebræ having been previously destroyed, the bones become united with each other, and form a kind of anchylosis.

The time necessary for the accomplishment of this, must, in the nature of things, be considerable in all cases, but very different, according to different circumstances.

No degree of benefit or relief, nor any the smallest tendency towards a cure, is to be expected until the caries be stopped, and the rotten bones have begun to incarn: the larger the quantity of bones concerned, and the greater degree of waste and havock committed by the caries, the greater must be the length of time

required for the correction of it, and for restoring to a sound state so large a quantity of distempered parts—and *vice versa*.[g]

In the progress toward a cure, the same gradation or succession of circumstances may be observed, as was found to attend the formation of the disease; with this difference, that they which attend the latter, are much more rapid than those which accompany the former.

After the discharge has been made some time (very uncertain what), the patient is found to be better in all general respects; and if of age to distinguish, will acknowledge that he feels himself to be in better health; he begins to recover his appetite, gets refreshing sleep, and has a more quiet and less hectical kind of pulse; but the relief which he feels above all others, is from having got rid of that distressing sensation of tightness about the stomach: in a little time more, a degree of warmth and a sensibility is felt in the thighs, which they had been strangers to for some time; and generally, much about the same time, the power of retaining and discharging the urine and fæces begins to be in some degree exerted.

The first return of the power of motion in the limbs is rather disagreeable, the motions being involuntary, and of the spasmodic kind, principally in the night; and generally attended with a sense of pain in all the muscles concerned.

At this point of amendment, if it may be so called, it is no uncommon thing, especially in bad cases, for the patient to stand some time without making any further progress: this in adults occasions impatience, and in parents despair: but in the milder kind of case, the power of voluntary motion generally soon follows the involuntary.

The knees and ankles by degrees lose their stiffness, and the relaxation of the latter enables the patient to set his feet flat upon the ground, the certain mark that the power of walking will soon follow: but those joints, having lost their rigidity, become exceed-

[g] Nothing can be more uncertain than the time required for the cure of this distemper. I have seen it perfected in two or three months, and I have known it require two years; two-thirds of which time passed before there was any visible amendment.

ingly weak, and are not for some time capable of serving the purpose of progression.

The first voluntary motions are weak, not constantly performable, nor even every day, and liable to great variation, from a number of accidental circumstances, both external and internal.

The first attempts to walk are feeble, irregular, and unsteady, and bear every mark of nervous and muscular debility; the patient stands in need of much help; and his steps, with the best support, will be, as I have just said, irregular and unsteady: but when they have arrived at this, I have never seen an instance in which they did not soon attain the full power of walking.

When the patient can just walk, either with crutches, or between two supporters, he generally finds much trouble and inconvenience, in not being able to resist, or to regulate, the more powerful action of the stronger muscles of the thigh over the weaker, by which his legs are frequently brought involuntarily across each other, and he is suddenly thrown down.

Adults find assistance in crutches, by laying hold of chairs, tables, &c.; but the best and safest assistance for a child, is what is called a go-cart, of such height as to reach under the arms, and so made as to enclose the whole body: this takes all inconvenient weight off from the legs, and at the same time enables the child to move them as much as it may please.

Time and patience are very requisite: but they do in this case, as in many others, accomplish our wishes at last.

The deformity, remaining after recovery, is subject to great uncertainty, and considerable variety, as it depends on the degree of caries, and the number of bones affected; in general, it may be said, that where one vertebra only is affected, and the patient young, the curve will in length of time almost totally disappear: but where two or three are affected, this cannot be expected. The thing aimed at is the consolidation and union of the bones, which had been carious, and are now become sound: this is the *sine qua non* of the cure, and this must in such cases render the curvature, and consequently the deformity, permanent: the issues will restore the use of the limbs, but not the lost figure of the spine.

Since this method of treating the distemper has been made known, the disease itself has been more adverted to, and applications for relief have been more frequent than they were while it was regarded as incurable. The number received into St. Bartholomew's hospital has been considerable, and, as it may be supposed, some in a state to admit of cure, others not. While the thing was new, and before a number of cures sufficient to establish the fact had been wrought, it was doubted by most and positively denied by some: but since a variety of successes has put the matter beyond all doubt, with regard to the restoration of the use of the limbs, it has been said, that as the disease is manifestly a disease of the bones, it is to be apprehended, that the expectation of relief may in some cases fail, and that in others it may not prove permanent; that the same kind of constitution remaining, a return of the malady may be feared; and, in short, that a much greater degree of uncertainty may occur, than might be expected from the account which I have given.

To the first I answer, that in cases where the caries is very extensive, and the constitution has been thereby so injured as to produce a degree of mischief tending to the destruction of the patient, no good is to be expected; the disease has been too long neglected, and is become thereby an overmatch for the remedy. But how does this differ from what may be said, with the same truth, of every disease, and of every remedy? To the second, third, and fourth remark, all I can say is, that in the space of three years, during which I have had many opportunities of making the experiment, I have met with but one single instance in which it has failed, where, from the state of the disease, and of the patient, there was any reasonable foundation for hopes; that all those who have submitted to keep the issues open long enough, have been so restored to health, and to the free use of their limbs, as to be perfectly capable, not only of exercise, but of hard labour; and that I have never yet, among those so treated, met with one on whom the disease has returned.

On the other hand, the nature of the original distemper in the habit, its effects, both local and general, the gradual, slow manner in which alone a cure is obtainable, and the particular circum-

stance on which such cure entirely depends, I mean the removal of the caries, and the union of the bones with each other, all very strongly point out the propriety of continuing that discharge for a sufficient length of time, from which, and from which only, such benefit has been derived.

At the beginning of the preceding tract I have said, that when I first began to consider the distemper with that degree of attention which it seemed to deserve, I was inclined to suspect that we had hitherto regarded it too superficially; that we had been satisfied with observing its external appearance merely, without inquiring into its real nature; that we had thereby been led to mistake an effect for a cause; and that there must certainly be, either in the constitution of the patient, or in the state of the parts concerned, something which tended to produce this very dreadful malady.

I am satisfied I was right in my conjecture, and am convinced, from every circumstance, general and particular, in the living, and from every appearance in the dead, that the complaint arises from what is commonly called a strumous or scrophulous indisposition, affecting the parts composing the spine, or those in its immediate vicinity.

This morbid affection shows itself in a variety of forms; but, although its appearances be various, yet they are always such as determine the true nature of the distemper.

Sometimes it appears in a thickened state of the ligaments, connecting the vertebræ together, without any apparent affection of the bones.

Sometimes in the form of a distempered state of the intervertebral substances, called cartilages.

Sometimes in that of diseased glands, either in a merely indurated and enlarged state, or, what is more frequent, in that of a partial suppuration.

Sometimes it is found in the form of bags or cysts, containing a quantity of stuff of a very unequal consistence, partly purulent, partly sanious, and partly a curd-like kind of substance; and not unfrequently entirely out of the last.

Sometimes under these bags, or cysts, even while they remain whole, the subjacent bones are found to be distempered; that is, deprived of periosteum, and tending to become carious.

Sometimes these collections erode the containing membranes, and make their way downward by the side of the psoas muscle, toward the groin, or by the side of the pelvis behind the great trochanter, or in some cases to the outside of the upper part of the thigh.

Sometimes each of the distempered states of these parts is accompanied by a greater or less degree of deformity and crookedness of the spine, without any apparent disease of the bones composing it: sometimes the deformity is attended with an erosion, or caries of the body or bones of some of the vertebræ; and sometimes the same bones are found to be carious, without any crookedness or alteration of figure.

These different affections of the spine, and of the parts in its immediate neighbourhood, are productive of many disorders, general and local, affecting the whole frame and habit of the patient, as well as particular parts; and, among the rest, of that curvature which is the subject of this inquiry; and it may not be amiss to remark, that strumous tubercles in the lungs, and a distempered state of some of the abdominal viscera, often make a part of them.

From an attentive examination of these morbid appearances, and of their effects in different subjects, and under different circumstances, the following observations, tending not only to illustrate and explain the true nature of the disease in question, but also to throw light on others of equal importance, may, I think, be made.

1. That the disease which produces these effects on the spine, and the parts in its vicinity, is what is in general called the scrophula; that is, that same kind of indisposition as occasions the thick upper lip, the tedious, obstinate ophthalmy, the indurated glands under the chin and in the neck, the obstructed mesentery, the hard, dry cough, the glairy swellings of the wrist and ankles, the thickened ligaments of the joints, the enlargement and caries of the bones, &c. &c. &c.

2. That this disease, by falling on the spine, and the parts con-

nected with it, is the cause of a great variety of complaints, both general and local.

3. That when these complaints are not attended with an alteration of the figure of the back bone, neither the real seat, nor true nature of such distemper are pointed out by the general symptoms; and consequently, that they frequently are unknown, at least while the patient lives.

4. That when by means of this distemper an alteration is produced in the figure of the back bone, that alteration is different in different subjects, and according to different circumstances.

5. That when the ligaments and cartilages of the spine become the seat of the disorder, without any affection of the vertebræ, it sometimes happens that the whole spine, from the lowest vertebræ of the neck downwards, gives way laterally, forming sometimes one great curve to one side, and sometimes a more irregular figure, producing general crookedness and deformity of the whole trunk of the body, attended with many marks of ill health.

6. That these complaints, which are by almost every body supposed to be the effect of the deformity merely, are really occasioned by that distempered state of the parts within the thorax, which is at the same time the cause both of the deformity and of the want of health.

7. That the attack is sometimes on the bodies of some of the vertebræ; and that when this is the case, ulceration or erosion of the bone is the consequence, and not enlargement.

8. That when this erosion or caries seizes the body or bodies of one or more of the vertebræ, it sometimes happens that the particular kind of curvature which makes the subject of these sheets is the consequence.

9. That this curvature, which is always from within outward, is caused by the erosion or destruction of part of the body or bodies of one or more of the vertebræ; by which means that immediately above the distemper, and that immediately below it, are brought nearer to each other than they should be, the body of the patient bends forward, the spine is curved from within outward, and the tuberosity appears behind, occasioned by the protrusion of

the spinal processes of the distempered vertebræ. See plate 1, 2, and 3.

10. That according to the degree of carious erosion, and according to the number of vertebræ affected, the curve must be less or greater.

11. That when the attack is made upon the dorsal vertebræ, the sternum and ribs, for want of proper support, necessarily give way, and other deformity, additional to the curve, is thereby produced.

12. That this kind of caries is always confined to the bodies of the vertebræ, seldom or never affecting the articular processes.[h]

13. That without this erosive destruction of the bodies of the vertebræ, there can be no curvature of the kind which I am speaking of; or, in other words, that erosion is the *sine qua non* of this disease; that although there can be no true curve without caries, yet there is, and that not infrequently, caries without curve. See plate 5.

14. That the caries with curvature and useless limbs, is most frequently of the cervical or dorsal vertebræ; the caries without curve, of the lumbal, though this is by no means constant or necessary.

15. That in the case of carious spine, without curvature, it most frequently happens, that internal abscesses and collections of matter are formed, which matter makes its way outward, and appears in the hip, groin, or thigh; or being detained within the body, destroys the patient; the real and immediate cause of whose death is seldom known, or even rightly guessed at, unless the dead body be examined.

16. That what are commonly called lumbal and psoas abscesses, are not infrequently produced in this manner, and therefore when we use these terms, we should be understood to mean only a description of the course which such matter has pursued in its way outward, or the place where it makes its appearance externally, the terms really meaning nothing more, nor conveying any

[h] I have seen two cases in which the bodies of the vertebræ were totally separated from all connexion with the other parts, leaving the membrane, which included the spinal marrow, perfectly bare. See plate 4.

precise idea of the nature, seat, or origin of a distemper, subject to great variety, and from which variety its very different symptoms and events, in different subjects, can alone be accounted for.

17. That contrary to the general opinion, a caries of the spine is more frequently a cause than an effect of these abscesses.

18. That the true curvature of the spine, from within outward, of which the paralytic, or useless state of the lower limbs, is a too frequent consequence, is itself but *one* effect of a distempered spine; such case being always attended with a number of complaints which arise from the same cause; the generally received opinion, therefore, that all the attending symptoms are derived from the curvature, considered abstractedly, is by no means founded in truth, and may be productive of very erroneous conduct.

19. That in the case of true curvature, attended with useless limbs, there never is a *dislocation*, properly to be so called, but that the alteration in the figure of the back bone is caused solely by the erosion, and destruction of a part of one or more of the corpora vertebrarum; and, that as there can be no true curvature without caries, it must be demonstrably clear, that there must have been a distempered state of parts previous to such erosion; from all which it follows, that this distemper, call it by what name you please, ought to be regarded as the original cause of the whole; that is, of the caries, of the curvature, and all the attendant mischiefs, be they what they may, general or particular; a consideration, as it appears to me, of infinite importance to all such infants and young children, as show, either from their general complaints, or from their shape, a tendency to this kind of evil; and whose parents and friends generally content themselves with a swing, or piece of iron machinery, and look no further.

20. That whoever will consider the real state of the parts when a caries has taken place, and the parts surrounding it are in a state of ulceration, must see why none of the attempts, by means of swings, screws, &c. can possibly do any good, but on the contrary, if they act so as to produce any effect at all, it must be a bad one.

21. That the discharge, by means of the issues, produces in due time (more or less under different circumstances) a cessation of the erosion of the bones, that this is followed by an incar-

nation, by means of which the bodies of the vertebræ which had been the seat of the disease, coalesce, and unite with each other, forming a kind of anchylosis.

22. That the different degrees and extent of the caries, in different subjects, must render all attempts to cure uncertain, both as to the time required, and as to the ultimate event: the least and smallest degree will (every thing else being equal) be soonest relieved and cured: the larger and more extensive will require more time; and where the rottenness is to a great degree, and all the surrounding parts in a state of distempered ulceration, it must foil all attempts, and destroy the patient.

23. That when two or more vertebræ are affected, forming a large curve, however perfect the success may be with regard to the restoration of health and limbs, yet the curvature will and must remain, in consequence of the union of the bones with each other.

24. That the useless state of the limbs is by no means a consequence of the altered figure of the spine, or of the disposition of the bones with regard to each other, but merely of the caries: of this truth there needs no other proof, than what may be drawn from the cure of a large and extensive curvature, in which three or more vertebræ were concerned: in this the deformity always remains unaltered and unalterable, notwithstanding the patient recovers both health and limbs.

Upon the whole, after due consideration of what has been said concerning the nature of the complaint, its producing cause, and the method by which it is capable of being cured, I would ask, whether the diseased state of the spine, and of the parts connected with it, (which, if not prevented, must produce some of its very dreadful effects,) may not, by a timely use of proper means, be prevented?

A morbid state of parts previous to deformity, caries, or curve, must be allowed: every complaint of the living, and every appearance in the dead, prove it beyond contradiction or doubt. All the general complaints of persons afflicted with this disorder, will always, upon careful inquiry, be found to have preceded any degree of deformity, to have increased as the curve became apparent, and to have decreased as the means used for relief took place: the pain and tightness about the stomach, the indigestion, the want of appe-

tite, the disturbed sleep, &c. &c. gradually disappear, and the marks of returning health become observable, before the limbs recover the smallest degree of their power of moving.

On the other hand, it is as true, that when, from extent, or degree, or inveteracy of the caries, the issues are found to be unequal to the wished for effect, the general complaints receive no amendment, but increase until the patient sinks under them.

If all this be true, which, that it is, the manifold and repeated experience of many, as well as myself, can amply testify; and if it be found that the issues are capable of effecting a perfect cure, even after a caries has taken place, and that to a considerable degree, which is also true to demonstration, is it not reasonable to conclude, that the same means, made use of in due time, might prove preventive?

If this was a matter of mere speculation or opinion, I would be very cautious how I spake on the subject: but it is really a matter of experiment; and as far as I have had it in my power to put it to that test, it has succeeded, by the restoration of lost health, and the prevention of a deformity which was advancing rapidly.

It may, perhaps, be said, that if no such means had been used, the same space of time might have produced the same effect: to this it is impossible to make an answer: I shall, therefore, content myself with having given my opinion, with the circumstances and reasons on which it is founded.

I should be sorry to be misunderstood on this point, or to have it thought that I meant to say, that every weak or rickety child was necessarily liable to a curved spine; or that issues were to be deemed an infallible remedy for the ills arising from a strumous habit: far be it from me to say either: what I would wish to be understood to mean is, that such kind of habit appears to me to be most apt to produce some of the mischiefs mentioned in this tract; that, as a purulent discharge, derived from the neighbourhood of the spine, is found, from repeated experience, to be a successful remedy, even after the disease is confirmed by a caries, it seems to me to bid fairer than any thing else, if used in time, to become a preventive; and that, as some other kinds of deformity are found to follow attacks of the same kind of constitutional disorder seizing on these parts, and which, though not causing precisely the same effect, are neverthe-

less attended with the same general symptoms, I cannot help thinking, that it may be well worth while to try whether benefit be not attainable by the same means, in the one case as in the other; and if the old maxim, "*anceps remedium quam nullum*," be admissible, surely an experiment, which is in its nature perfectly incapable of harm, is worth making.

*** Since Mr. Pott made his first observations on this disease, it has much engaged the attention of the profession, and from repeated examinations it has been proved to be caused by the giving way of the bodies of some of the vertebræ, owing to a loss of substance produced by caries: in many cases the remaining parts of the bone show that they were considerably enlarged before the carious disposition took place, which has led some to consider it as a species of spina ventosa of the back bone. Such a state of the bones often produces bad symptoms and much mischief; but the curvature cannot take place till the caries has caused a loss of substance in the bodies of the vertebræ.

The first and great object, in our endeavours to relieve this disease, must be to prevent the increase or continuance of the caries, and to give nature an opportunity of restoring the weakened part by furnishing fresh growth of bony matter. That this effect has been produced by issues opened on each side of the curvature, has been proved beyond controversy, by symptoms in the living, and by examination of the parts after death. Many persons have, in a great variety of instances, had opportunities of observing the gradual progress from total imbecility to strength and vigour, without the intervention of any other means than issues; and I feel the highest satisfaction in having it in my power to assert, that by such simple means one of the most destructive disorders which attack the human frame may be prevented, and the blessings of health restored. To him who invented or proposed the plan, every praise is due; and I may presume that any attempt to improve on it cannot fail of being well received.

On these grounds I shall take the liberty to remark, that highly as I think of the power and efficacy of issues in these cases, I must confess that in many which I have attended, I have been conscious of the want of some power, or means, to raise and support the superior parts, and to take off the superincumbent pressure. And I have long been of opinion that, in *this case*, surgery will find great advantage in the aid of mechanism.

The assistance derived from mechanical powers, in a variety of chirurgical cases, is too notorious to require to be mentioned: their effects on bent bones, clubbed feet, and other distortions of the limbs, must be manifest to any one who will candidly give his attention to the subject; yet, from unaccountable prejudices, I have known some eminent practitioners in surgery oppose, even in these cases, what they call the use of irons, and who would let Nature persist in her error, in hopes that she may rectify herself in the general growth of the body, rather than take proper means to lead her into the right path; while the real state of the fact is, that the distortion is much more likely to become consolidated with the growth of the child, and strengthen with its strength, until it is confirmed and unalterable.

Mr. Pott had no objection to the use of instruments in cases of distorted limbs: I have many times known them applied under his direction with great advantage; but he certainly did not entertain a favourable idea of any assistance to be gained by mechanical powers in those distortions, or incurvations of the spine, which were the subject of his treatise; on the contrary, in several passages of the work alluded to, he showed a marked disapprobation of them. He was of opinion that the discharge produced by the issues was all which is requisite for a cure, and so it has certainly often proved, no other means being employed in cases which have succeeded perfectly; yet he agreed that other assistant means, such as bark, cold bathing, frictions, &c., might occasionally be added, in order to expedite the cure; but with regard to pieces of mechanism, as was observed, he always objected to them, and would not allow them to be in any degree assistant to his plan. I should certainly be cautious in giving an opinion after such respectable authority; yet I must observe, that the more respectable an author is, the more weight his opinions carry; and consequently there is more reason why those opinions should be scrutinized, if they clash with subsequent observations apparently well founded. Thus, with all due deference to the judgment of a man, of whom no one can entertain a higher opinion, I must observe that I think some powers of mechanic ingenuity may, in many cases of distortions of the spine be made, not only to assist in accomplishing the end which Mr. Pott intended by the caustics, but to produce effects

more beneficial, and far beyond what he himself expected from their application.

Mr. Pott observes that "these pieces of mechanism are calcu-"lated to obviate and remove what does not exist; that they are "formed on a supposition of actual dislocation, which never is "the case; and therefore they always have been and ever must be "useless." I readily allow that in those cases in which the issues have been so successful, there is no dislocation; but it must be acknowledged that the part occupied by the disease is in general extremely weak, and incapable of supporting the weight of the parts above the curvature. On this head Mr. Pott himself remarks, that, "if the curvature be of the neck, the child finds it "inconvenient and painful to support its own head, and is always "desirous of laying it on a table, pillow, or any thing, to take off "the weight." The same thing precisely happens when the disease attacks the dorsal or lumbal vertebræ. Every one who has attended to these cases, must have remarked the efforts which children make under such circumstances: I speak of children as being most frequently liable to the complaint; but adults, and every one subject to a weakness in the back, from whatever cause, endeavour to take off the load which oppresses them, by supporting themselves on tables or chairs; and when they rise to walk, they press their hands on their knees in order to relieve the spine: all this points out the necessity of giving what assistance is in our power to the weak part.

In another place Mr. Pott observes, that the bones are already carious, or tending to become so, the parts connected with them diseased, and not infrequently ulcerated; that "there is no dis-"placement of the vertebræ with regard to each other, and that "the spine bends forward only because the rotten bone or bones "intervening between the sound ones give way, being *unable* in "such state to bear the weight of the parts above." Surely then it appears reasonable that those parts should be strengthened and supported, while nature, with the assistance of the issues, is doing the work of restoration, by putting a stop to the caries, after which bony matter is deposited to supply the deficiency which the disease has produced. We apply splints to a broken leg while ossification is forming; we do not allow any pressure to be made on

it while that natural process is going on; and the patient afterwards takes off the weight of the body from it by means of crutches, until it is perfectly strong and capable of its own duty. I am at a loss to find any good reason or sound argument why the same means of assistance, at least so far as lies in our power, should not be applied in cases of a weakened spine, in order to take off superincumbent pressure, and to endeavour to restore the actual form of the spine during the progress of the cure: if this be not attempted, or cannot be brought about at this time, the consequence must be that the back will remain crooked during the cure. Nature is obliged to do her work while it is in the bent position; and though the strength of the pillar be subsequently increased, the cure itself becomes in some degree an evil, and a lasting one, as the growth of new bone in that situation must consolidate all the parts, and must confirm the curvature exactly, or nearly as it stood, before the cure was attempted; for whatever power the issues have in strengthening, it cannot be supposed that they can materially alter the curve which is already formed. The period when we are most likely to improve the form of the pillar must be during the progress of the cure, while the parts allow of some latitude of motion: when they are once become consolidated and fixed by the growth of bony matter, no alteration scarcely can take place but what is effected by the future general growth of the whole body. In very young subjects this is certainly very considerable; but is not this an argument why the assistance to be obtained by growth should as early as possible be determined in a proper direction? When that is accomplished, bark, cold bathing, and frictions may be useful; but till then, the aid which they may give only contributes to fix and confirm the parts in a wrong situation.

From repeated observation I am so convinced, and conceive the benefit likely to result from mechanic assistance so self-evident, that had not the objections to it originated in an authority so generally respected, I should think it unnecessary to advance any thing more on the subject. But this being the case, I take the liberty to add, that as a further proof how necessary it is that by some means or other the pressure of the parts above must be in many cases taken off while the cure is perfecting, and to show that Mr. Pott himself was convinced of the necessity of it, though perhaps

it did not appear to him exactly in the same point of view, I must remark, that in many cases of curved spines which Mr. Pott attended, he thought it necessary to confine his patients to bed, or to a horizontal, situation during the greatest part of the cure, as they could not bear to remain in an upright position. I need not observe how irksome this must be, how it must tend to relax and weaken the patient, and consequently to retard the cure: seeing it only in this light, it must be acknowledged that any means which would render unnecessary this severe and unhealthy process, must be desirable and advantageous.

That many of the machines which have been invented to remedy distorted spines, from having been imperfectly or improperly made, badly contrived, or injudiciously applied, are capable of doing much mischief, must certainly be allowed: the neck swing, and the screw chair, I should conceive, can do little good, for it is obvious that a posture produced by swinging a child by the neck, or stretching it in a chair, cannot long be borne: he may be amused in it at first, but in a short time it will become irksome, if not painful, and he will be urgent to be released; and then what good can an extension of such duration have done? The weight of the superior parts, all the rest of the day, destroys the little effect produced. If it be often repeated, the alternative of extension and relaxation must be injurious, as it interrupts the regeneration of parts, and by moving the diseased bones on one another, is a constant source of irritation. In some cases, when the parts are already weakened by the disease, much mischief, even to fatality, may be the consequence of imprudently or violently stretching them. The stays, which are intended to apply forcible pressure to the prominent part of the curve, are also in my opinion inefficacious, and sometimes detrimental: but if a machine be contrived to elevate the head, and support the thorax, passing down the spine, and strengthening it, as a splint does a broken limb, resting on the pelvis, as its basis, with a contrivance to give such gradual and permanent extension as the weak parts will bear without injury, and to be continued until, by a deposition of osseous matter, the yielding vertebræ become firm and compact bones, I am clearly of opinion that much good from it may be derived.

This instrument has received still further improvements, which in some cases have been found necessary and efficacious, particularly when there is also a diseased state of the bones of the pelvis. It has been contrived to pass under the arms, and to rest on the seat, so as to take off the whole weight of the body when sitting: it has also been connected, by means of joints, to perpendicular bars, passing down the outside of the thighs and legs, to support it when in a standing posture.

The want of some assistance in aid of Mr. Pott's plan always appeared to me in a strong light, and I was induced to give my opinion on it more at large, in a pamphlet, published in 1799, of which this is an extract.

Indeed, the good effects arising from a *well adapted* instrument in cases of curvature, from various causes unaccompanied with caries, is so generally known and acknowledged, that it is unnecessary to say more on the subject in this place: what I principally wished, by the description of it in the pamphlet alluded to, was to show that it is safe and useful, and to endeavour to set aside the disinclination which I perceived in many practitioners, as well as in the writings of Mr. Pott, to admit of its use or assistance in cases of curvature, attended with caries; and further, I have endeavoured to make it apparent, that such a contrivance is not only frequently useful, but often absolutely necessary. I need not observe that undoubtedly greater care and judgment are required in the application of it, where some of the bones of the spine being carious, the parts connected with them may more easily be injured by improperly or suddenly stretching them, than when the curve has arisen from muscular action or other causes.

But I hope not to be misunderstood: I do not mean to say, indeed am far from thinking, that instruments of any sort are wanting in every case of curvature of the spine. The issues are often sufficient to complete the cure without any other assistance, as has been proved in many instances.

Mr. Pott has, in his usual perspicuous manner, given a circumstantial account of the method of applying the caustics and conducting his mode of cure; but as some alterations have since been introduced which appear to be improvements on his plan, I think it

right to notice them. Mr. Pott has directed the issues to be made of an oval shape, and has left a sketch of one, as a pattern, one inch long by three quarters of an inch wide. From repeated experience I have found longitudinal eschars, according to the extent of the curve, answer better. They should be made so that the peas may lie imbeded on each side, and near to the spinal processes. Particular attention should be given that the caustics be applied so as to reach just above the curvature. I have many times seen a large and copious drain maintained without effect, because it was made below the beginning of the curve; but, on its being opened above, the good effect derived from it soon took place. If peas or small beans are used, they should be softened by soaking them in water: they should then be strung on a thread and suffered to dry, when they are to be cut into proper lengths according to the drain, which, as was observed, must vary with the circumstances of the case: thus they are easily applied and easily removed. It has always been no small difficulty to keep these issues open and in a good state, so as to furnish a proper discharge. The means which have been usually employed for this purpose are painful, and the effects produced by them of short duration; so that the issues were perpetually closing and filling up with fungous granulations, in consequence of which the unpleasant task of using escharotics became necessary, at least once a week, or oftener in some subjects. This in adults was often as much as they could bear; in children particularly distressing to every one concerned. At some intervals this was necessary to be done with fresh application of caustic, perhaps more painful than the original one.

Very small solid glass beads, placed all round the edges of the wound, have of late years been found to obviate these difficulties, for wounds never heal from the centre; and if the beads are properly applied, they will soon sink in beneath the granulations; and being foreign bodies, the sides of the wound will never heal over them. Another advantage which the beads have over peas, is, that when once they are fairly established, they may be left in, and the issues may be dressed like other superficial wounds; whereas peas or beans swell, and require to be daily renewed, as, being vegetable productions, they soon become putrid.

I have sometimes used setons, and in some cases am inclined to give them the preference for several reasons: they embrace a large extent, which is of material consequence when the diseased part cannot be very accurately determined, or where there is reason to suppose that several vertebræ may be affected: they become efficient in three or four days, when the sloughs from the caustics do not separate generally in less than a week or ten days: they are not offensive; and they never need the application of escharotics, except at the extreme points from which only fungous granulations can arise.

The object is to procure a large discharge of matter by suppuration from underneath the membrana adiposa on each side of the curvature, and to maintain it until the cure be accomplished, or so long as may be thought necessary. Whether this be brought about by issues or setons is perhaps not very material, but the easiest means will always be the best. Mr. Pott disliked setons: he observes, "A seton is a painful and nasty thing; besides which, "it frequently wears through the skin before the end for which "it is made can be accomplished." In the common way of making and managing setons this was certainly the case; the usual mode was in general to make the track of the seton short, but, be the length what it might, the silk, or whatever it was thought proper to use, was passed through and cut off an inch or two above and below, and a knot was fastened at each end, to prevent it from slipping out. This was ordered to be moved every day backward and forward, and the wounds at each end to be made clean; but the seton was not changed, so that it constantly remained in the wound, immersed in, and confining a quantity of putrid matter, the acrimony of which certainly tended to inflame the skin, and made it wear its way out: but under different management I conceive the effect produced will be very different. The method I would recommend is the following.

A seton needle being passed in the usual manner through as great a space as may be deemed necessary, will conduct a skein of coarse silk, which, when brought out at the lower wound, should be cut off from the needle, leaving about an inch to be secured by a slip of sticking plaster, to prevent its being drawn back again. The remainder of the silk above should be neatly doubled

up, and confined by a slip or two of sticking plaster. When the suppuration is established, and the seton become loose, it may be drawn down. The part which is soiled by the matter may be cut off, and a fresh portion of silk introduced. When one skein is used, another may be connected to it, and drawn through in the same manner. Thus it may be changed as often as necessary, and the wound be kept perfectly sweet and clean. By these means the skin will not become inflamed or irritated, and the drain may be continued almost for any length of time.

I have frequently remarked that the first action or stimulus of the caustics produces an almost immediate effect; the patients, in a day or two after they are applied, find a considerable alteration for the better in the general state of their health, attended with a glowing warmth, and sometimes a degree of motion in the limbs. I have often pointed out this at the Hospital, at the same time observing that this agreeable symptom would soon be less apparent; nor until the issues should arrive at a more advanced stage, would any permanent good effects be observed; and my conjecture has seldom proved unfounded. I mention this, that people may not be discouraged at experiencing this kind of check upon their hopes: let them wait with patience till the drain is fairly established, and they will rarely be disappointed in their expectations.

Parents, nurses, and persons unaccustomed to these cases, dread the quantity of the discharge, and conceive it must tend to weaken the constitution; but it certainly has not such an effect. I have often remarked children improving in health and strength, and growing fat under a very considerable drain of this sort. I do not mean to say that this is the cause of the amendment; the return of health probably arises from the stop which is put to the ravages of the disease; and I only mean to infer that neither health nor strength appears to be diminished by the discharge, which it is necessary to keep up in order to effect a cure.

Mr. Pott has remarked that "there can be no curvature from "within outward, without an erosive destruction of the bodies of "some of the vertebræ; but that there is not infrequently caries, "without any curvature being produced; that this happens more "frequently in the loins than in any other part of the spine; that

" what are called lumbar or psoas abscesses are not uncommonly " produced in this manner; and that a caries of the spine is more " usually a cause than an effect of these abscesses." That caries of the bodies of the vertebræ may produce bad symptoms, and may cause great mischief, before it has destroyed sufficient of the bony support to make the spine bend, is not only probable but a fact well known. Not only abscesses are produced by it, but it is frequently accompanied with grinding, deep seated pains in the pelvis and thighs, sometimes to such a degree as to produce an inability of motion in the limbs, bordering on paralysis, but not to such a degree as when the bones have given way, and caused a compression on the spinal marrow. It is reasonable to conclude that the same means which are known to cure a disease in its advanced state, would be more likely to prove efficacious in stopping its progress in the beginning; but Mr. Pott has remarked, that " when " these complaints are not attended with an alteration of the " figure of the back bone, neither the real seat nor the true nature of " such distemper is pointed out by the general symptoms, and con- " sequently that they are frequently unknown, *at least while the* " *patient lives.*" This is an observation of material import, and should not be passed by without a comment, as it rather tends to damp our inquiry into this species of mischief, the progress of which might often be arrested, if found out in time. It may be right therefore to observe, what from repeated instances I have learned, that, in cases which have led to a suspicion of the producing cause being derived from the back, if we attend to the patient's complaints, and observe the part to which he points, the seat of the mischief may often be discovered, by pressure with the fingers, or tapping with the knuckles gently on each vertebræ, singly, one after another. I need not repeat that this is a fact of great consequence to be known, as when discovered, the incipient disease may often be stopped; and probably many lumbar abscesses, with all the consequences of increase of mischief, may be prevented.

The following case will serve to illustrate this point of practice:

In April 1795, Mrs. F———, a lady from Ireland, consulted Dr. Turton on account of pains, with which she was afflicted

about the lower part of the loins and hips, which were thought to be rheumatic. As she received no relief from medicine, and there was some inability to walk, Dr. Turton, with his usual acuteness of judgment, suspected that her complaints might arise from some disorder in the spine. I was accordingly desired to examine it; I found the spinal processes of all the vertebræ perfectly regular and even, and could discover no reason to suppose that the disease had its source from that origin. On its increasing, I was desired to meet the doctor again. She was now considerably worse, her pains in bed were tormenting and almost constant: with great difficulty, and not without the assistance of a servant, she could drag one foot after the other across the room. I again examined the spine, and could discern not the smallest deviation from the right line; but, on pressing pretty firmly on every vertebræ singly, I observed, when I came to the two lowermost of the loins, she shrunk from the touch, and said, in that part I gave her a sensation she had not felt before, amounting to pain, though not acute. From these observations alone, it was determined to apply caustics on each side of those vertebræ, the surprising and happy consequence of which was, that in a few nights her pains grew better, and soon in a great degree left her. In a fortnight she was able to walk without assistance across the room: soon after she went into the neighbourhood of Hampton-Court, where her health and strength improved rapidly, and in about two months she was able to walk a couple of miles. In the autumn I saw her at Brighthelmstone, where she bathed, walked, rode on horseback, and enjoyed good health and spirits; and I may add, that I afterwards met her frequently in London, where she spent the winter, without any return of the complaint.

Many more instances might be adduced when the cause, though occult, has been discovered, and the mischief, which we may positively conclude would have gone on from bad to worse, has by the assistance of caustics been restrained and prevented. If any doubt should arise about the precise spot where they should be applied, the caustics, if it be thought proper to use that method, not being confined to small oval ones, but made longitudinal, so as to take in one or more of the vetebræ, according to circumstances, will be the means of finding out the disease and acting upon it; or if setons

are used, they may be made sufficiently long to include with certainty the seat of the disease.

In the latter part of Mr. Pott's life, he had applied the method of cure by issues to other diseases: particularly in strumous affections of the joint of the hip, he had been several times successful in preventing an increase of caries, by means of an ulcer being established in the neighbourhood of it. In those deplorable cases, where one hip is let down below the other, where the parts are flabby, the glutæi muscles lose their firmness, the buttock its figure and convexity, and the leg is lengthened, probably by the increase in size of the head of the os femoris, he found that the progress of the disease may frequently be stopped, and the parts restored to their natural firmness and figure, by making an issue just behind the great trochanter. Mr. Pott remarked that the time when the change will take place, and the restoration be complete, is indefinite: it may take place in a few weeks or months: or, as was observed with regard to the effect of caustics in diseases of the spine, it may require a much longer time. In short, every thing relative to the complaint is uncertain, except the ultimate cure, which will rarely fail to reward our perseverance; provided, that at the same time the constitution is attended to, and the diseased habit of body corrected by medicine, proper diet, and good air.

When the thigh was retracted, and accompanied with a considerable swelling, Mr. Pott was not sanguine in his prognostics of recovery, but spoke of most applications as inefficacious. Yet, even in these cases, I have known the caustics applied with great apparent advantage.

Some years ago I was desired by the late Mr. Berry to visit a girl about eighteen years of age. She complained of pain in her knee, leading up toward the hip; she could not straighten her thigh, which was drawn up toward the pelvis, and with great difficulty she could walk across the room; she had been electrified, and had used variety of remedies, by the advice of some gentlemen of eminence in the profession, to no purpose; the complaint grew rapidly worse, and she was obliged to take to her bed. The thigh was now drawn up to the pelvis, the knee turned inward,

and the appearance was as if the head of the femur was dislocated; the parts surrounding the hip were turgid and enlarged, exquisitely painful to the touch, and on the smallest motion; blisters, embrocations, fomentations, &c. were tried in vain. The pain was now become almost incessant, the disease continued to increase, and bore the appearance of matter forming in the joint. Though this was not a case in which Mr. Pott recommended an issue, I was determined to give her the chance of one: a caustic was accordingly applied below and posterior to the great trochanter. She did not appear to be much served by it at first, though we remarked that her pain was not so violent: in about six weeks she seemed to have derived some benefit, and though the limb was still contracted she could straighten it better. I now found that the issue had been neglected and nearly suffered to close. I recommended it to be enlarged, which was done the beginning of September: in about a week after, when the suppuration was fairly established, she began to grow better, the joint became unlocked, and in a few weeks she had lost the pain of the hip, and was able to straighten the thigh and leg perfectly; soon after she walked across the room without help, only complaining of a little tenderness in the joint, and in no great length of time afterward was perfectly recovered. No other method having been of the least service to her, as she appeared to receive some advantage from the first application of the caustic, and got well after the repetition of it, we may reasonably infer that they were the causes which produced the alteration and subsequent cure. As this was the first case of the kind I had tried it in, I regarded it with some degree of diffidence, but have now no doubt of the fact; as I have since seen several cases nearly similar, and have one at present under my care, which have received great benefit from the application of caustics. In those cases in which Mr. Pott succeeded, a much longer time elapsed before the effect was produced.

Mr. Pott also used caustics in scrophulous swellings of the joint of the knee, where there was suspicion of beginning caries: they were applied just above and below the joint: in some cases they appeared to be materially serviceable in preventing the increase of the swelling; in many others they failed.

In similar diseases of the joint of the ankle he also tried them: but the caustics seemed to have less effect, as the part affected was at a greater distance from the trunk: in these joints no advantage appeared to be derived from them. The idea, however, is worthy of its author, and deserves further trials; indeed, whatever has the least chance of being beneficial ought not to be neglected in those desperate cases, which, if their progress be not prevented, terminate in the unavoidable loss of the life or limb. E.

AN

ACCOUNT OF TUMORS

WHICH RENDERED

THE BONES SOFT.

COMMUNICATED TO THE ROYAL SOCIETY,

BY MR. POTT, SURGEON;

AND PRINTED IN THEIR TRANSACTIONS, VOL. XLI.

AN

ACCOUNT OF TUMORS

WHICH RENDERED THE BONES SOFT, &c. &c. &c.

In November 1737, a gentleman aged 27 complained to me of a swelling in the inside of his right thigh (being in every other respect in perfect health). Upon examination, it appeared to be an encysted tumor of the steatomatous kind, lying loose between the *sartorius* and *vastus internus* muscles. I told him I could propose no way of curing it, but by taking it out; which was accordingly done, and he was very well in six weeks.

After this he continued well for near a year, (except that he now and then complained of a slight pain in the joint of that hip, which went off and returned at different times,) and then fell into such a disposition to sleep, that no company or diversion, nor his own endeavours to the contrary, could keep him awake, after eight or nine o'clock in the evening, if he sat down.

This continued on him for three or four months, and then the pain in his hip grew worse; for which he used the cold bath, flesh brush, and riding on horseback, but without any effect.

Hereupon he asked the advice of Dr. Beaufort, who put him into a course of æthiops mineral, cinnabar of antimony, and gum guaiacum, with the Spa water, and purging with calomel by intervals. This method he pursued for a considerable time, but without any benefit.

After this, by the advice of some acquaintance, he took half a drachm of salt of hartshorn, night and morning, in a draught of warm whey, for some time, but without any sensible effect, even by perspiration.

Some little time after this, he began to complain of a slight periodical heat and thirst, which returned every night, with a quick hard pulse, but which was not so great as to make him uneasy.

It was now September 1739, when, having an opportunity of going with some friends, he determined to try what Bath would do for him: in his journey thither, the nocturnal heat and thirst increased so much as to prevent his sleeping; but in the few days that he spent in recovering from the fatigue of the journey, they seemed to go off again.

He then began to use the waters, both internally and externally; upon which the last mentioned symptoms again appeared, and he was obliged to desist, and use cooling medicines.

His physicians then advised him to bathe the affected limb only, upon which they returned again, and with such violence, that the further use of the waters was thought highly improper, and he then left them off.

During this time the sight of his left eye grew dim, which dimness increased gradually for some little time, till he became quite blind of that eye; the bulb of it being considerably enlarged, and thrust forward out of the orbit.

For the most part of the time he had been at Bath, he had generally been very costive; and upon leaving off the water, had no stool for some days; for which reason a common clyster was given, and produced so profuse a discharge of serous matter, and continued for so many hours, (almost incessantly,) that he was reduced as low as possible.

For some time past several small tumors had appeared in different parts of him; *viz.* five or six on his head, two or three in his back, and one in the neck; all lying just under the skin, and sensibly increasing every day, till they came to a considerable size.

December the 2d, 1739, he returned to London.

His chief complaints now were an excessive langour, an inability to move his right hip, and, when moved by another person, a very

acute pain in it, an incapacity of sleeping when in bed, and an intense thirst in the night, with a quick hard pulse.

He now took the advice of Dr. Hartley and Dr. Shaw, who prescribed him the cinnabar of antimony three times a day, to drink the Seltzer waters, and keep to a cooling regimen; and allowed him a moderate dose of the pill Matthæi every night; by means of which he got some sleep, of which he had for some time been absolutely deprived.

When he had taken the cinnabar five or six days, and during that time had no stool, it was thought proper to give him a clyster, which brought away all the medicine, without the least alteration; nor was there ever after this time any appearance of any mucus being secreted by the intestinal glands, he never going to stool above once in a week; and then there came away a few lumps of excrement as hard as pieces of wood, which were expelled with such labour and fatigue as can hardly be imagined, though he generally took an oily clyster to render it more easy, and washed down his medicines with a soapy draught.

The joint of the hip was now become quite stiff, all the inguinal glands being loaded with the same kind of matter, of which the other tumors seemed to be composed; and a large cluster more of them might be felt under the glutæi muscles, and behind the trochanter.

The cinnabar was now left off, and mercurial unction proposed and consented to; and accordingly a proper quantity was rubbed in every night, stopping now and then to see what turn it would take; and in this course he continued for more than a month, but without any benefit; nor did the mercury produce any visible effect on him.

Sir Edward Hulse, being called in, directed the burnt sponge, which he took for some time, till growing worse and weaker he determined to try Mr. Ward.

He took his sweating and purging medicines two or three times, but found no sort of effect from them; and being now quite tired of physic, and reduced extremely low, he determined to pass the rest of his time as easily as he could, by gradually increasing his opiate; and in this manner languished, incapable of stirring or helping himself, till the 2d of May, 1740, and then died.

For a considerable time before he died, he was nourished by fluids only; yet, as soon as ever they were received into the stomach, in however small quantity, they gave him an acute pain at the bottom of his belly, just above the pubis.

For two months, or more, before his death, he could never make any water while he was up, but always made a good deal at different times when in bed.

Soon after his return to London I opened the tumor I had taken out of his thigh two years before, and found the inside of it ossified.

Upon dissection, the first thing that offered itself was a large tumor on the sternum, which had been perceived about three months before he died: it was as large as a turkey's egg, and so hard and immoveable, that I was in doubt whether it was upon or under the bone.

Upon removing the skin, it appeared covered by the expansion of the tendons of the intercostal muscles, and the periosteum: this coat being taken off, it was of a suetty kind of substance for about half an inch deep; and below this was a kind of cartilage intermixed with a great many bony particles. I then shaved off all this diseased body even with the surface of the rest of the sternum but found no bone, it being quite dissolved and confounded with the mass of matter that composed the tumor, which was equally protuberant within the thorax, and composed of the same materials.

Part of the fifth and seventh ribs were dissolved in the same manner into a kind of substance between bone and cartilage, with a thick coat of steatomatous matter.

Within the cavity of the thorax were thirty-seven of these diseased bodies, most of them attached either to the vertebræ or the ribs; and wherever they were attached, the cortex of the bone was destroyed, and its internal cellular part filled with the diseased matter.

Immediately above the diaphragm was a large scirrhous body, lying across the spine and the aorta, the latter of which lay in a sinus formed in its lower part: it had no attachment to any other part, and weighed thirteen ounces and a half; and from its situa-

tion, I think, must have taken its rise from some of the lymphatic glands lying about the thoracic duct.

From the origin of the aorta, from the heart quite up to the basis of the cranium, all the blood-vessels were surrounded with these scirrhous bodies, and the thyroid gland was diseased in like manner, and bony within.

On the left side was another of these bodies, made out of the glandula renalis, weighing nine ounces and three quarters.

On the right, the glandula renalis was in a natural state; but the cellular membrane, which surrounds the kidney, was filled with a large cluster of these bodies of different sizes, some of them entirely suetty, others intermixed with bony particles. Three or four of them were attached to the body of the kidney, and these were a sort of cartilage, beginning to ossify.

The pancreas was quite scirrhous and very large.

One very large tumor sprung from the spongy body of the third vertebra of the loins; the bony texture of which was so dissolved, and mixed with the matter of the tumor, that the knife passed through it with great ease.

The inner side of the os ilium, all the ischium and pubis, were covered with these appearances; and, upon removing them, the bone was found in the same state as the sternum and ribs; the middle of the right os femoris was surrounded with a mass of the same matter, and the bone underneath in the same state.

In the bottom of the orbit, surrounded by the recti muscles, was a pretty large steatoma, which occasioned the protrusion of the eye; and, by pressing on the optic nerve, (in all probability,) the blindness.

AN

ACCOUNT OF A HERNIA

OF THE

URINARY BLADDER,

INCLUDING A STONE;

COMMUNICATED TO THE ROYAL SOCIETY,

BY MR. POTT, SURGEON;

AND READ FEB. 16, 1764.—INSERTED IN THEIR PHILOSOPHICAL TRANSACTIONS,
VOLUME LIV.

AN ACCOUNT, &c. &c.

A HEALTHY boy, about six years old, was suddenly seized with a most acute pain at the bottom of his belly: during the time the pain lasted he could not discharge a drop of urine, though he frequently endeavoured. After about an hour and a half, he became perfectly easy on a sudden, and pissed very freely. A few days after this, a small tumor, about the size of a large pea, was discovered, in the upper part of the spermatic process, just below the groin. As this tumor was perfectly indolent, and gave the child no kind of uneasiness, no notice was taken of it. By slow degrees it descended lower and lower; and, as it descended, it seemed to increase in size: the boy was observed to make water oftener than usual, but without pain or difficulty. He was looked at by two or three practitioners in the country, who, not knowing what to make of it, advised the letting it alone: at last, in the space of five years, it got to the lower part of the scrotum; and, after it was got thither, it was observed to increase in size much faster than it had done before. The boy was at a great distance from London, and his friends could ill bear the expense of going thither with him; so that another year passed away after the tumor was got into the last mentioned situation. At last, when he was about thirteen years old, the swelling becoming troublesome, and the people in the country not caring to meddle with it, he was brought to London.

Two or three gentlemen of the profession, to whom he was showed, took it for a scirrhous testicle, and advised the extirpation of it; to which the child's friends would not consent.

When he was brought to me, I examined him very carefully, and was satisfied that the tumor, (which was now about as big as a middling chesnut,) was not formed by the testicle; but, though

I was clear that it was not formed by that gland, yet I could not find any testis on that side.

The swelling was still perfectly void of pain; had a stony, incompressible hardness; was troublesome to the child when at play, or using any brisk exercise, but never gave him any uneasiness when he sat, or stood still. It had all the appearance of being dependent from the spermatic process; but the process, though it had neither the look nor the feel of being diseased, was yet too large and too full for a child of that age, and larger and fuller than that of the other side. The perfect equality and smoothness of the tumor, its extreme incompressibility, and its being perfectly free from pain, even when pressed with some force, were the circumstances which induced me to believe that it was not the testicle; but though I was, in my own mind, satisfied of that, yet I cannot say that I was by any means clear what it was; and all that I could determine was, that it certainly ought to be removed; as well on account of the trouble it now gave, and its manifest disposition to increase, as that I could not foresee any great hazard that was likely to attend its extirpation. From the uncertainty in which I was concerning the true nature of the case, I determined to act very cautiously. I made an incision through the skin and cellular membrane, from the upper part of the scrotum quite down to the lower; by which I discovered a firm, strong, white membranous cyst, or bag, connected loosely with the skin by means of the dartos; I dissected all the anterior part of this cyst quite clean; and found that, as I traced it upward, it became narrower, and seemed to proceed from the groin: this determined me to try if I could not free the posterior part of it also. In doing this I discovered the testicle, which was much compressed, flat, very small, and lay immediately behind the tumor.

The dissection of the testicle, and of the spermatic chord from the bag, and from its neck, (which I was obliged to do in order to preserve the testis,) took up some time, and gave me some trouble; but when I had finished it, I found that the cyst was dependent from, or continuous with, a membranous tube, or duct, of about the breadth of a large wheat straw, which seemed to pass out from the abdomen, through the opening in the oblique muscle, along with the spermatic vessels.

When I had perfectly freed this duct from all connexion, I cut it through immediately above the tumor: upon the division of it a quantity of limpid fluid (not less than two ounces) followed, and the mouth of the cyst expanding itself discovered a large stone, exactly resembling the calculi found in the urinary bladder; which stone was closely embraced by the said cyst.

As there was not the least appearance of any fluid either in the bag or duct, before it was cut off, this discharge, together with the stone, induced me to suspect that the case was a hernia cystica. In order to be certain, I staid some time; and, when I thought it was probable that some urine was derived into the bladder, I desired the boy to make water: he endeavoured so to do, and a full stream of urine flowed out through the wound in the groin, which put the case beyond all doubt.

I dressed him superficially; he had no bad symptom; his urine all passed out by his wound for a fortnight, or twenty days; at the end of which time, the wound gradually contracted; all the urine came through the urethra; and at the end of a month he was perfectly well.

OBSERVATIONS

ON

HÆMORRHOIDAL EXCRESCENCES.

BY THE EDITOR.

OBSERVATIONS, &c. &c.

In the account of Mr. Pott's life, prefixed to my edition of his works, I asserted that he had been remarkably successful in the treatment of those painful excrescences which are produced from within the verge of the anus, and the removal of which, when large, firm, and indurated, has generally been thought dangerous and unadvisable. Mr. Pott had entertained a design of writing on this subject, to lessen the apprehension of practitioners, by pointing out in what cases an operation may be safely performed. The method which he employed was not new: it has been described and recommended by writers, and has been frequently practised on piles in a small and flaccid state; but he often asserted he knew no one who would attempt to apply it to the advanced state of the complaint: as far as my experience leads me, I believe his assertion strictly founded, or if it be practised by some, it is by no means generally adopted. During the last ten years of Mr. Pott's life, he had many opportunities of performing this operation: most of the patients I attended with him, and found that several of them had previously consulted other eminent surgeons, from whom they had not met with a proposition for a radical cure; in others the disease had been absolutely abandoned as an incurable cancer. For these reasons Mr. Pott often remarked, that he thought it a subject well worthy of being brought forward for the consideration of practitioners.

It is certainly a disease which, whoever labours under, must endure a miserable existence; consequently, every attempt towards the relief of it must be proportionably valuable; and as the subject had escaped Mr. Pott's superior pen, I thought some account

of it from the editor of his works would not be unacceptable: it was therefore inserted in my former edition, as an appendix to his Treatise on the Fistula in Ano. By some accident it has been omitted in this; but as it still appears to me too important to be left out, I have thought proper to subjoin it in this place. My description, however, only professed to give a sketch of the complaint, and an account of Mr. Pott's method of treating it; and at present I see no reason for altering my plan, as it appears to me sufficiently to point out the leading characters of the disease, and those circumstances in the operation which chiefly deserve attention.

The intestinum rectum is well known to be subject to a variety of diseases, from various causes; from its structure, use and office; and from its situation, which renders it liable to be pressed upon by the whole power of the abdominal muscles: it is also sensibly affected by its connexion with other parts in its vicinity, and it often affects them.

The diseases we are to treat of are tumors, originally formed within the rectum, and produced by a distention of the hæmorrhoidal vessels: in this state they are considered as inward piles, and give little trouble or uneasiness. In more or less time the tumors, being increased in size, are forced down in going to stool, and return back when the abdominal muscles cease to act. Soon after, grown larger, they return with difficulty, and require a considerable time and pressure before they will return: by degrees they are more irritable and painful to the touch; at length they become indurated and stationary, and are not to be reduced by any means, but are extremely inconvenient, and painful in the greatest degree. In some cases, while they are in this situation, the sphincter ani binds so tight round their basis as to produce a mortification of them, and thus effects a natural cure, analogous to that which we recommend—but certainly attended with much more pain and danger.

These tumors, on their first production, contain nothing but coagulated blood; perhaps this blood, at first either stagnating in the hæmorrhoidal vessels, or possibly effused under the internal coat of the rectum, may, in time, become organized. This organic mass

being irritated by frequent and severe pressure, may enlarge, and become firm and fleshy excrescences: in this state they frequently furnish a disagreeable sanies, or bloody discharge, and acquire an irritated, malignant appearance.

There are other tumors produced in this part, from various causes; as an enlargement of the sebaceous glands, at the verge of the anus, and excrescences arising from a venereal or cancerous disposition in the habit, which, in general are easily distinguishable from those here described.

The venereal verrucæ or excrescences are a frequent symptom of that poison, and are well known to practitioners. They differ in every respect from the tumors we treat of: the basis of them is generally broad; they do not arise from the intestine, nor particularly from the verge of the anus, but indiscriminately from thence and from the skin in the neighbourhood. They are rather flat than elongated; they may be tender to the touch, but, unless when exasperated by stimulating applications, are seldom productive of pain. In females, the same species of excrescence frequently surrounds the anus, covers the external parts of the labia pudenda and the internal of the thighs, seeming to be propagated in moist parts by contact; by neglect they sometimes spread over the groins and pubis, making a large fungous mass, separable into distinct excrescences. It is useless to attempt the removal of them, until the poison be eradicated from the constitution; when, though sometimes obstinate and liable to reproduction: they may generally be made to shrink away by proper topical applications.

Those which arise from a cancer within the rectum, and being thrust out, appear externally, are more liable to be confounded with the complaint I mean to describe, as they resemble each other in many circumstances: both are hard, swelled, and painful; both at times furnish a disagreeable sanious discharge; in both cases the patients have the same leaden, pallid countenance. There are, however, some leading features of distinction which may be noticed: in the cancerous protrusions the basis is generally harder, more incompressible, and broader; and has its origin higher up in the rectum, commonly occupying the whole circumference of the intestine, which so straitens the passage that the fæces are expelled with difficulty, and are compressed into a flat

or angular form. In the cancerous affection of the rectum, the parts sometimes feel soft, like a rotten substance. The pain of the cancerous, or malignant fungi, is unremitting: whether they are external, or returned within the sphincter, the patient is never at perfect ease, but complains of shooting pains in the region of the loins.

The pain attending the hæmorrhoidal tumors is sometimes great while they are external; but when this arises from the stricture of the sphincter, if they can be returned within the rectum, it soon ceases. When they have been long protruded in an unreturnable state, by degrees they become accommodated to frequent pressure; and unless irritated by an access of inflammation to the constitution, from exercise, wine, improper food, or other causes, they are commonly not so painful as at their first exit.

In both species of tumor anodyne injections give ease, but less in the cancerous: the return of pain also in the cancerous tumor is more immediate, more violent and lancinating. In the present state of medical knowledge, we are confined to a description of this dreadful disease: any chirurgical attempt to remove it, would but aggravate the mischief.

A protrusion of the rectum is also not an uncommon complaint in persons of a debilitated constitution. People who have accustomed themselves to aloetic purges, are particularly subject to this complaint; and it is sometimes only a symptom of a generally relaxed state of the internal coat of the intestine, through the whole extent of the canal; in which case lime water, joined with the bark, has been found to be very materially serviceable. This complaint may often be entirely removed by anodyne clysters; but astringent applications to the part frequently do harm.

Fortunately the procidentia ani is not easily confounded with the complaint we are now considering. The two diseases are perfectly distinct; the one is a protrusion of the gut; the other is an excrescence or enlargement of the vessels at the verge of the anus, protruded in many distinct portions or lobes; of a dark, dusky red colour; and in every respect different from the procidentia above mentioned.

When, by long continuance, and repeated irritations, these tumors are formed into large unreturnable excrescences, nothing

but the hand of surgery can give relief: this is the state of the complaint, in which I think the practice of Mr. Pott deserves our attention. However large and formidable the appearance of the excrescences, if there was no symptom of cancerous malignity, nor any contraindication in the constitution or habit of the patient, Mr. Pott always recommended the removal of them. Having seen profuse and dangerous hæmorrhages from the use of the knife in these cases, particularly in one instance, in which the patient nearly lost his life, he always preferred the ligature. The following was his method of performing the operation:—When the patient, by straining, as if going to stool, had forced out the tumors as far as could be done, he laid hold of one of each tumor or lobe, separately, with a blunt double hook, and drew it gently outwards until he discovered the basis of it, which is usually smaller and less indurated than the part which has been exposed to friction: then giving the hook to be held by an assistant, he slipped a ligature, previously tied in a loose knot, as near to the basis as possible. When he was satisfied that the ligature comprehended the whole lobe, he drew it tight, taking particular care to discriminate between the natural skin and the tumor: none of the former, however elongated, should ever be included in the ligature; for, when the tumor is removed, this will corrugate, and retire to its proper place, while the loss of any considerable portion of it, by contracting and straitening the parts, would create an inconvenience severely felt in riding, or any other exercise, and also in the natural functions of those parts. In the same manner Mr. Pott proceeded to treat the remainder of the lobes, one after another, taking care not to include more in each ligature than was necessary: if the basis was very broad, a circumstance which seldom happened, he passed a needle, armed with a double ligature, through the middle, and tied them on each side.

In this manner I have seen him treat successfully several cases, in which the tumors had increased to a considerable magnitude, particularly two, where they were at least from eight to ten inches in circumference: they had been of long standing, and were exquisitely sensible. The patients had long been in a state of hopeless misery, almost wholly excluded from society, debarred from all exercise, and not able to sit but in a *chaise percée:* the appear-

ances in both these cases were very similar, from the turgidity, at first sight uniform; but on examination they were divided into distinct tumors; which Mr. Pott carefully separated; and treated as has been described. The operation succeeded perfectly well in both; and from that time neither of the patients has experienced the least inconvenience, or return of the disease. I never saw any kind of mischief or alarming symptom from this method of extirpating this disease, except in one unfavourable subject, who had been liable to complaints about the neck of his bladder: in him the operation brought on a return of his old maladies—strangury and suppression of urine, which induced a necessity of using the catheter for some time; but this subsided, and left him as soon as the tumors were separated. I do not mention this case as a prohibition to the operation, but to show that it is right to attend carefully to the parts contiguous, which are liable to be affected by the necessary inflammation; that if the patient has been subject to complaints about the bladder, proper care may be taken to obviate and prevent them. Except this, I know of no harm which ever does, or can arise, from the operation. Particular care should be taken to draw the ligature sufficiently tight: if it be at all too slack, some vessels remaining pervious, the circulation will be continued in some part, by which the duration of the pain, and the existence of the tumors, will be protracted. In general, the parts, losing their nourishment, die and drop off in four or five days. I need not mention that a proper antiphlogistic regimen, both before and after the operation, should be observed. An anodyne injection, thrown up the rectum half an hour previous to the operation, will be efficacious in lessening the subsequent uneasiness. A soft poultice will be found to be the best topical application.

The following cases were obligingly communicated to me by Mr. Harvey, who attended them with Mr. Pott, and took notes of them at the time: they will greatly tend to elucidate the nature of the complaint, and the excellence of the remedy which I have endeavoured to describe.

CASE I.

A GENTLEMAN of about fifty years of age, and of a nervous, irritable constitution, had been during many years of a costive habit of body, and generally had recourse to aloetic pills to procure stools. About two years before Mr. Pott saw him, he first perceived a pain and swelling within the rectum, which was very troublesome whenever he attempted to discharge his fæces; until at length the difficulty of evacuating them became so great, that he was obliged to inject oil, and to sit over the steam of warm water, before he could obtain any natural relief. He was obliged to be very strict in his diet, as any food which was apt to occasion hardened fæces most certainly gave him excruciating pain. The frequent strainings had made a prolapsus of the gut habitual; neither could he get rid of the fæces, unless the excrescences were first protruded beyond the anus. In this situation he travelled from Cork to London, for Mr. Pott's advice. I should have observed, that the surgeons he had before consulted were led to believe, from the usual remedies for the piles not having benefited him, and from the unalterable hardness of the tumors, that they were cancerous. When I first saw him, he was much weakened by the constant irritation, and probably by the continual ichorous discharge, which was so profuse as to wet through many folds of linen in the course of a few hours. Mr. Pott immediately proposed the operation for removing them; and in this case, as in the others, he preferred doing it by ligature, rather than by the knife or scissors: round the anus there hung a loose flaccid skin, which Mr. Pott supposed had been a double fold of the inner coat of the gut protruded, and which had lost its natural texture and colour. The first excrescence which appeared seemed large enough to have filled the circumference of the intestine: it had a broader basis than I have usually since seen; therefore Mr. Pott passed a double ligature through; and tying them on each side, left it to slough off, which it did in a few days. Afterwards two smaller ones came forward, were

held by the hook, and surrounded by the ligature: they also came away in the poultices, and the gentleman returned home, in the course of three weeks, perfectly cured.

The progress and symptoms of the other cases were nearly the same; therefore I need not be minute in describing them.

CASE II.

Mrs. —— had been many years dreadfully afflicted with this disease, and the surgeons of the town where she resided pronounced it absolutely to be a cancer: her pain prevented her from walking or sitting upright, and she lay on a sofa, patiently expecting a painful death. Mr. Pott saw her during one of his excursions to Worcester: she followed him to London; and the operation was performed so successfully, that not only the excrescences were removed, but her health and spirits, which were before wretchedly reduced, were again perfectly restored. The excrescence in this case was large, rugged, and unequal in its surface: it had an ulcerous appearance, and very well authorized the opinion which the surgeons in the country had given of it.

CASE III.

A gentleman between thirty and forty came from Carlisle, on account of this complaint, to Mr. Pott. I have seldom seen a man more debilitated or nervous: the least surprise made him hysterical: he had laboured under the disease about a year; and from his peculiar irritability, it was accompanied with spasms at the neck of the bladder, pain in the urethra, and a discharge from the penis, as well as from the rectum, which was also protruded. Two excrescences were removed; and afterwards two lesser ones, not having their support, came forward, and were likewise taken away. This gentleman suffered more pain at, and after the operation, than in any instance I have seen: he had a small fever, and a great tendency to strangury. With the exhibition of anodyne and proper antiphlogistic remedies he recovered; the pro-

truded intestine returned, the irritation of the neck of the bladder left him, and he gained a very improved state of health.

The foregoing observations, as has already been stated, appeared in my edition of Mr. Pott's works, published in 1790; since which a great number of cases, of a similar nature, have been submitted to my care. The attending progress and symptoms were so nearly similar to those which have been described, that it is needless to enter on a minute description of them: yet I cannot avoid mentioning the case of a young lady, who had the complaint to a great degree, and who resided at a very considerable distance from the metropolis. The case was described to me by letter, in which it was said that the excrescence was very large, and furnished so much blood, at every exertion of going to stool, that her constitution was impoverished to the most extreme degree. From the hopes I gave her friends, they were induced to bring her, by short journeys, in a kind of litter, to London. When she arrived, she had lost so much blood during the journey, that she was almost exhausted: her lips were nearly colourless; and the blood which continued to be evacuated from the part would scarcely tinge linen. I do not know that I ever saw a nearer termination of existence which did not really prove so. To maintain the small remains of life, Madeira, brandy, and strong broths were given, and eagerly called for. On examination, the tumor was about nine inches in circumference, separable into several lobes, and altogether like a piece of sponge, bleeding from every pore. It was, however, of a healthy appearance, soft and compressible. I lost no time in comprising it in a sufficient number of ligatures: from that moment the bleeding ceased. The next day she found herself better, her strength improved, she gradually lost the desire for wine and spirits, which before were necessary to keep her from fainting. By the assistance of the bark, nourishing food, and proper attention, her constitution, which was naturally good, soon recovered itself, and in about six weeks she was able to return home, in good health, which she has now enjoyed several years. I am informed that her florid complexion is returned, and that she rides, dances, and partakes of all the diversions which the country affords.

I think this was the most alarming case I ever met with, though I have seen several nearly as large, and which had reduced the patients to an extreme degree of debility. After all my experience, the best advice which I can give, is, that whoever is afflicted with this complaint, should apply early for surgical relief: for, from the time that the protrusion is once established, it becomes an increasing evil, which never diminishes, but gradually grows larger and larger. Now, if it cannot be removed by any means but an operation, the difficulties attending such operation must be greater in proportion to the increase of the tumors; consequently it must be more easily performed, and attended with less pain when the tumors are of small size.

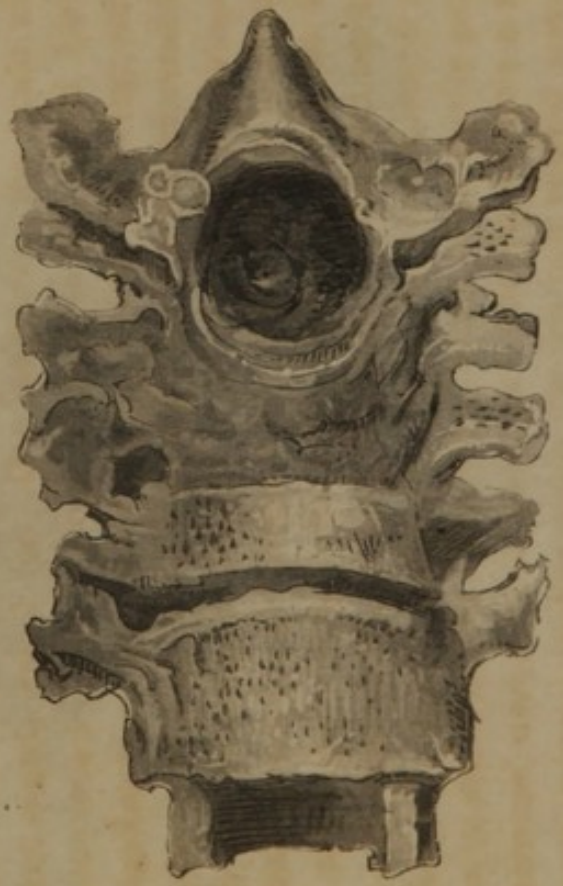

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Plate 2.

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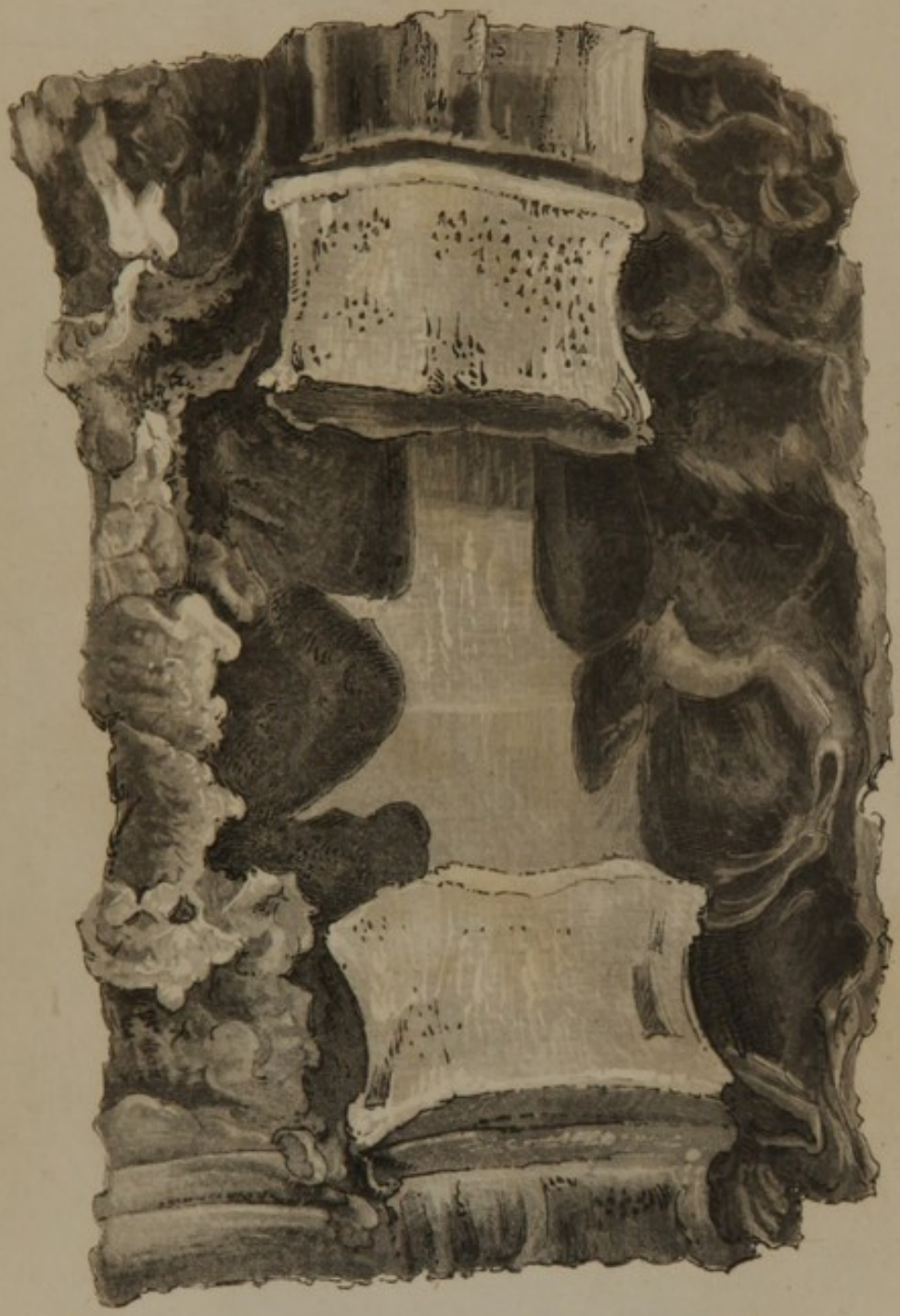
Plate 4.



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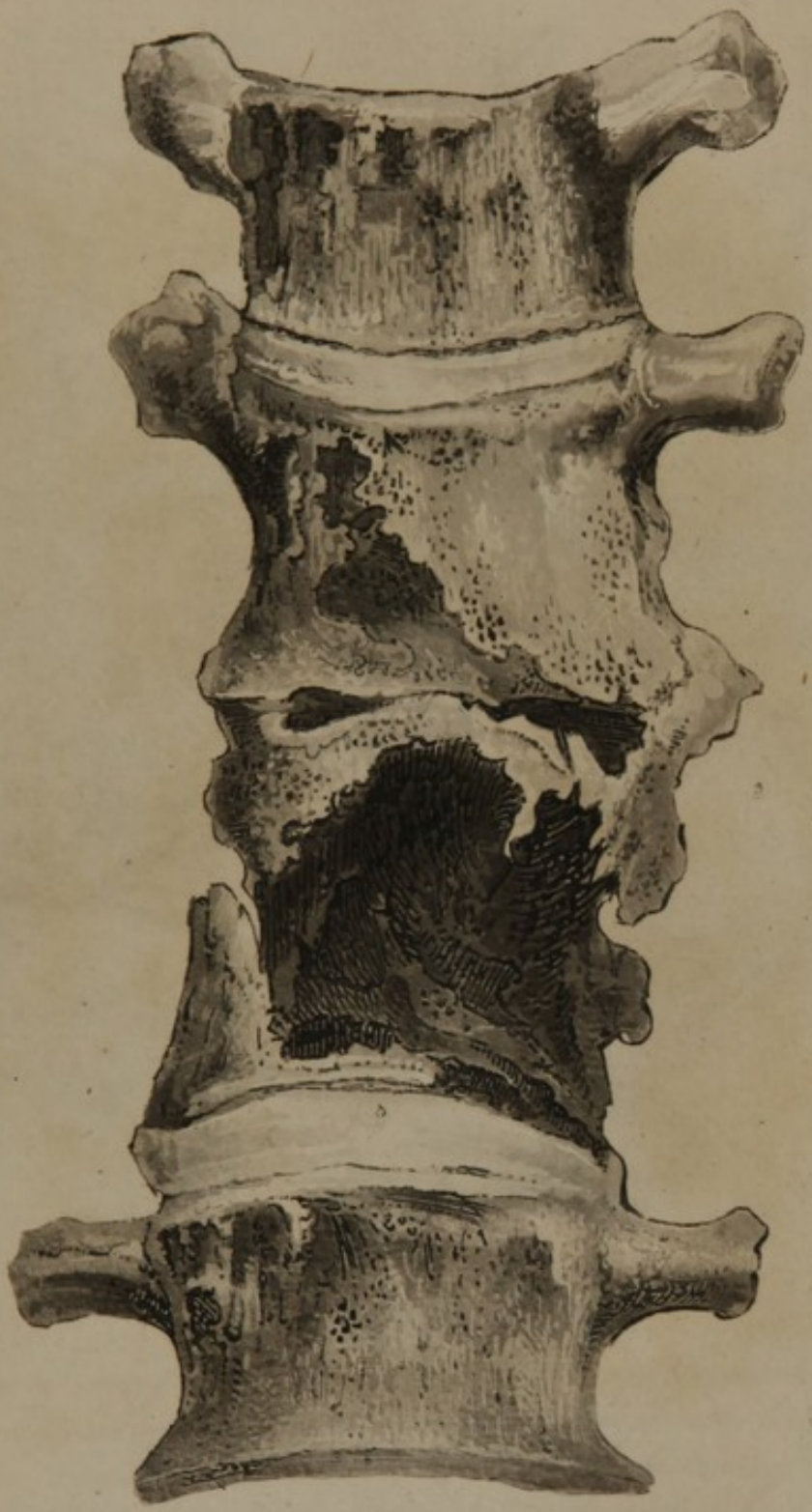

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A View of some of the Vertebræ in a case of Curved Spine which had been Cured by the Caustic, & which were taken from the body of the Patient who died of another distemper at some distance of Time after. In this may be seen the State of the Vertebræ which had been Crushed, and of the Consequent Anchylosis or Union.

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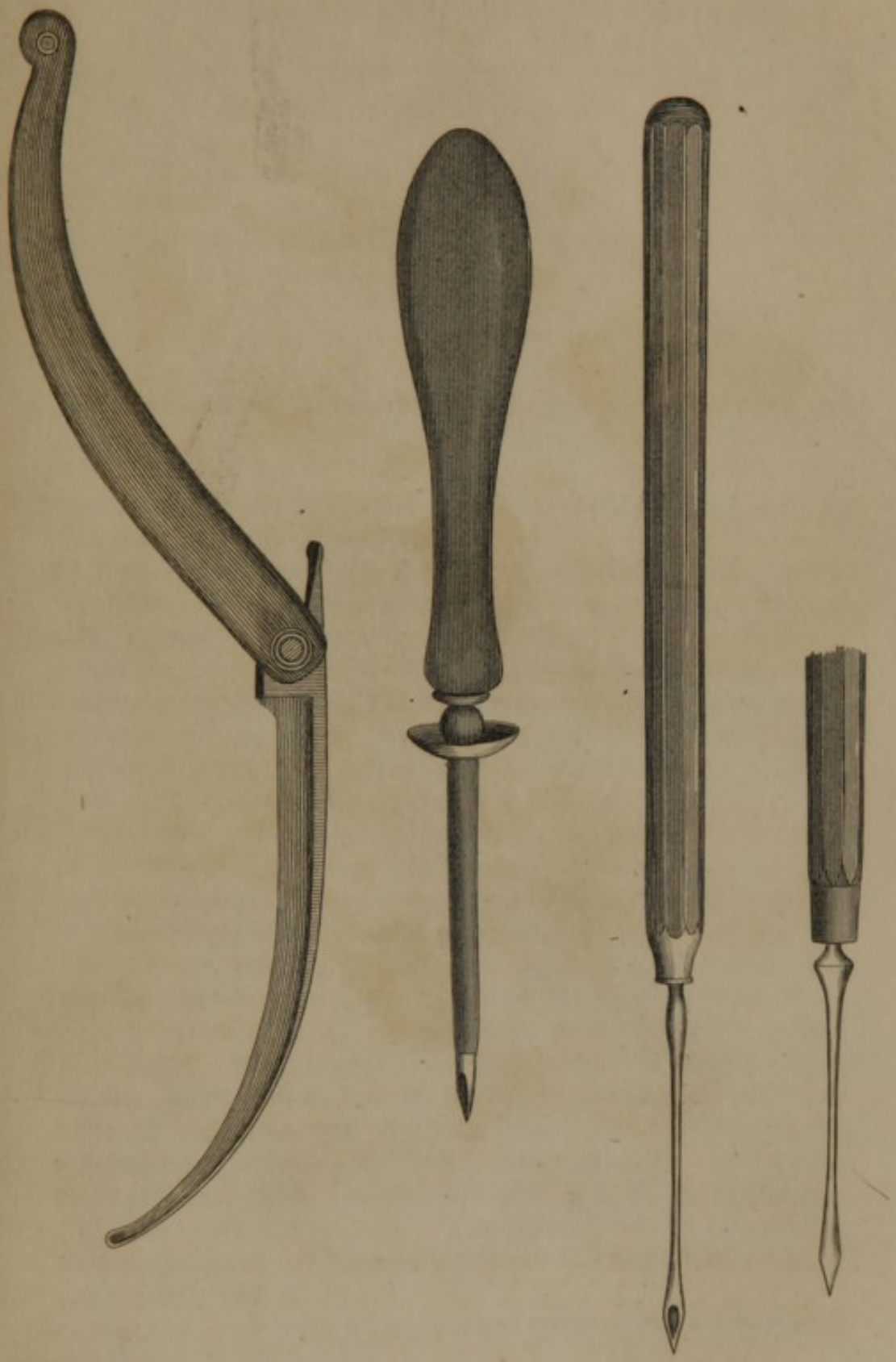

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