Practical observations on herniae : illustrated with cases / By B. Wilmer.

PRACTICAL OBSERVATIONS ON *HERNIÆ*; ILLUSTRATED WITH CASES.

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THE SECOND EDITION, ENLARGED.

LONDON.
PRINTED FOR T. N. LONGMAN & O. REES, PATERNOSTER-ROW.
1802.

Printed by A. Strahan,
Printers-Street.

ADVERTISEMENT.

In many reſpects the preſent Edition will be found to differ materially from the former. Beſides an account of ſome caſes which the Author's practice has ſince furniſhed, the Reader will find a deſcription of a new mode of reducing ſtrangulated Herniæ, which has ſucceeded after all the remedies hitherto recommended had failed.

It is true only two inſtances have *yet* preſented, in which an opportunity of putting it to the teſt has been afforded, and it requires a more enlarged experience to fix its merit; yet if an early Publication ſhall induce others to give it a trial, and be the means of reſcuing one individual from ſo dangerous a ſituation, the Author will not think he has employed his time in vain. In the former

Edition remarks were made reſpecting the frequent exiſtence of ſtrictures in the neck of the hernial ſac. Subſequent experience has confirmed their propriety, as in one third of the caſes in which the Author has been obliged to have recourſe to the knife, the cauſe of the ſtrangulation was in the neck of the hernial ſac; and he is convinced, that if the inexperienced Operator conſiders the ſtricture to be found only in the tendinous openings of the abdominal muſcles, many lives muſt be unavoidably loſt. He was early led to the conſideration of this ſubject, having ſeen the Inteſtine burſt by the rude efforts made to return it, after the opening of the external oblique muſcle had been dilated, in two caſes where the operation for ſtrangulated Herniæ was performed during his attendance at the London Hoſpitals.

COVENTRY,
Sept. 21, 1802.

PREFACE.

THE Hiſtory of Medicine affords not a clearer proof of the utility of anatomical knowledge than the treatment of Herniæ, which has been more immediately the province of Surgery. Ignorant of the ſtructure of the parts which were the ſeat of the diſeaſe, ſurgeons continued uninformed; and from the early age in which *Celſus* appeared, to the cloſe of the laſt century, no great degrees of improvement in theſe Inſtances are recorded, but the opinions and practices which cuſtom had eſtabliſhed were carefully taught, with all their faults, to the ſucceeding times.

If the regular practitioners in ſurgery ſeemed to be inattentive to the cure of theſe complaints, there was found another ſet of men, who boaſted of art ſufficient to remove

them. The boldneſs of theſe pretenders uſually bore proportion to their want of knowledge, and both of them, in no ſmall degree, ſeem to have been the ſtriking marks of their character.

The intricate ſteps which lead where the ſources of ſcience can be found, they had not taken; but all their defects of ſkill they ſupplied with never-ceaſing confidence; and the daring attempts, to which their want of merit gave birth, were, by the ignorant, thought to be the proofs of it. Till the time of *Heiſter*, the care of perſons, who were thus afflicted, was, in moſt parts of Europe, generally left to itinerants of ſuch a character as hath been deſcribed. Theſe wandering practitioners, in all caſes they undertook, uſed the moſt dangerous methods: nor is it ſtrange that their operations were often fatal to the patients, whom a more rational treatment might have reſtored. In moſt inſtances, with much temerity, they deſtroyed the ſpermatic chord by burning, inciſion,

inciſion, ligature, or ſome equal violence; and frequently when neither a ſtrangulation of the parts, nor any other circumſtances, made it neceſſary to reſort to ſuch inhuman and harſh methods of treatment.

The miſchievous progreſs of theſe empirics, at length, became hurtful enough to require the interpoſition of the magiſtrate; and, in ſome places, their further evil practices were thereby prevented.

With regard to the preſent ſtate of this branch of the Healing Art, when the praiſe which is owing to modern Surgeons, for the improvement they have made in it, is allowed, it muſt alſo be obſerved, that, probably, it will yet admit of many uſeful additions.

The diſcovery of the *Formation* of the Tunica Vaginalis hath led to the knowledge of a ſpecies of this diſeaſe, which a late and celebrated writer ſuppoſed to be a *Luſus Naturæ;* yet, from the uniformity of the natural courſe of things, it is not to be doubted that

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it muſt have happened, not only frequently, but in every age.

As ſome of the opinions contained in the following ſheets differ from thoſe which long uſage hath eſtabliſhed, and which are ſupported by the higheſt chirurgic authority, the Author thinks it neceſſary to declare, that he would not have ſubmitted them to the public eye had they not been the reſult of attentive and practical obſervation.

OBSER-

OBSERVATIONS

ON

HERNIÆ.

A HERNIA or rupture is a protruſion of ſome part or parts which ought to be retained within the cavity of the abdomen.

The different ſpecies of herniæ are diſtinguiſhed by different names, derived either from the nature of their contents, or the ſituations they reſpectively occupy. Thus, a tumor formed by a protruſion of part of the inteſtinal canal is called entero-cele. If by the omentum only, epiplocele. If compounded of inteſtine and omentum, entero-epiplocele. In reſpect to ſituation, if the rupture is at the navel, it is denominated exomphalus; if in the groin, inguinal, or bubonocele. When it deſcends to the lower part of the ſcrotum it is called oſchiocele, and if at the upper part of the thigh, the rupture is ſaid to be femoral.

The term rupture conveying an inaccurate idea ſhould no longer be applied to a deſcription of this diſeaſe. Thoſe who firſt diſtinguiſhed theſe

ſwellings by that term imagined, that a forcible laceration or diviſion of the peritoneum or membrane which gives a covering to the cavity of the abdomen and all its contents, was made at thoſe parts where the protruſion happened. In the living body the viſcera are ſo cloſely compacted together, that they ſuffer ſome degree of preſſure from the muſcles and integuments with which they are enveloped, hence we ſee that when a wound, even of a moderate ſize, penetrates the cavity of the belly, a kind of hernia or protruſion of ſome of the viſcera immediately occurs, ariſing from the reſiſtance at that part being removed, and unable to counteract the compreſſing power of the muſcles. In ſome of theſe caſes it is difficult to replace, and ſtill more ſo to retain the prolapſed parts, which for this purpoſe requires bandage and ſtrong ligatures. For the paſſage of the veſſels from the mother to the child at the navel; for the egreſs of blood veſſels and lymphatics under Poupart's ligament at the upper part of the thigh to the lower extremities; for the tranſmiſſion of arteries and veins to the teſticles, &c. &c. it was neceſſary that openings ſhould be made. At theſe places the defences are weakened, and here of courſe, from blows, falls, or any unuſual exertions of the compreſſing powers of the abdomen, ruptures may be expected to happen. In order to have an accurate idea of the different kinds of herniæ it will be neceſſary that the parts in which they

they are found ſhould be deſcribed, particularly the ſtate of the teſtis in the fœtus, and the changes it undergoes previous to and ſoon after birth.

The external oblique muſcles of the abdomen and their tendinous openings are thoſe only where herniæ are ſituated. They begin by fleſhy portions from the ſeventh, eighth, and the inferior ribs, theſe portions indigitate with correſponding parts of the latiſſimus dorſi and ſerratus major anticus, and becoming tendinous are inſerted in the linea alba, the ſpine of the ilium, and the os pubis.

A little above the os pubis, on each ſide, the fibres of this expanded tendon ſeparate from each other forming an opening of a figure nearly oval for the paſſage of the ſpermatic veſſels in men, and the round ligaments of the womb in women. Part of the border of this tendon attached to the os ilium, and ſtretching from thence to the pubis is called Poupart's ligament, forming a paſſage for the large blood veſſels, &c. to the leg and thigh, and from this a thin faſcia of fibres covers the inguinal glands, and unites with the faſcia lata of the thigh. Poupart's ligament being longer in women than men on account of the larger ſize of the pelvis, and the paſſage for the veſſels to the lower extremities wider, hence the femoral hernia is more common in that ſex than the other. In the fœtus, the teſtis on each ſide is uſually found immediately under the kidney, on the anterior part of the pſoas muſcle, and near that part of the

rectum which is above the brim of the pelvis.—Connected by its posterior edge to the psoas muscle, it is covered by the peritoneum in every other part, and with the viscera of the abdomen, receives from that membrane a smooth and polished surface.

Before the testis descends through the abdominal opening, it is, in some degree, connected with that aperture by a ligament, which seems to have an influence in directing its descent. This ligament is, in form, like an inverted pyramid; its larger extremity or basis is attached to the inferior part of the testis and the corresponding portion of the epididymis: its lower extremity unites with, and is lost in, the dartos. The peritoneum is united to the inferior surface of that part of the ligament, which is within the cavity of the abdomen.—This membrane adheres much stronger to the testis than to the neighbouring parts, over which it is very loosely spread, and this laxity of the connecting medium of cellular substance facilitates very much the subsequent descent of the testis, and the production of its tunica vaginalis. At some indefinite period of gestation; sometimes in the seventh month, often in the eighth, and sometimes not until after birth, the testis leaves its original situation in the cavity of the abdomen, and by slow gradations is moved through the external abdominal muscle into the groin, or scrotum. It is preceded in this route by its conducting ligament, whose office appears

pears to be, not only to guide it into its deſtined ſituation, but alſo to prepare its paſſage by dilating the opening of the abdominal muſcle.

Favoured by the very looſe and yielding ſtate, with which the peritoneum covers the parts contiguous to the teſtis, whilſt it was contained in the abdomen; when it deſcends, it brings that membrane with it, *behind* which it is ſituated. From the inferior part and ſides of the teſtis, the peritoneum is reflected, and forms a *pouch* communicating with the cavity of the abdomen. This pouch, thus formed, reſembles a hernial ſac, the anterior part looſe, the poſterior adhering to the teſtis, epididymis, ſpermatic veſſels, and vas deferens. The anterior or reflected part becomes the tunica vaginalis, and the poſterior part connected with the teſticle is called tunica albuginea.

From the ſtate of the parts thus deſcribed, it muſt appear evident that the teſticle, and all the veſſels connected with it, muſt be *behind* this production of the peritoneum.

Soon after the teſtis has paſſed through the external oblique muſcle, its opening communicating with the abdomen cloſes, and in general is from that time totally obliterated*. The inferior part remains

* That this happens is demonſtrated by diſſections, and by the hydrocele which young children frequently have, which could not poſſibly occur unleſs the opening was obliterated. I

remains looſe, and forms the tunica vaginalis teſtis. If the cloſing of this opening is prevented by the interpoſition of a portion of inteſtine, or any other cauſe, a communication betwixt the cavity of the abdomen, and that of the tunica vaginalis is eſtabliſhed; at whatever period afterward a hernia happens, its contents will be found in contact with the tunica albuginea of the teſtis, and thus the luſus naturæ of Mr. *Sharpe* is explained, and the ſuppoſed rupture of the ancients very readily accounted for. The celebrated *Haller* having obſerved, that ſometimes, in infants, the inteſtine falls down into the ſcrotum with the teſticle, or ſoon afterwards, and entering the tunica vaginalis before the opening communicating with the belly cloſed, was found in contact with the teſtis. He therefore denominated this ſpecies of diſeaſe hernia congenita. It is extremely probable that moſt inguinal ruptures, to which children are liable, are of this kind; for although it is certain that very early efforts to cloſe the upper part of the new-made peritoneal proceſs are made, it may be ſuppoſed, by the effort of crying, ſtraining, &c. the cicatrix may, with little force, be ſeparated again.

Parents cannot be ſufficiently careful in their attention to this diſeaſe in their children; for when

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ſaw a child lately, only three days old, that had an hydrocele on each ſide; after attempting, in vain, to diſperſe the tumor by abſorption, I opened the tunica vaginalis with a lancet, after which there was no return of the complaint.

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a portion of inteſtine inſinuates itſelf into the orifice of the tunica vaginalis, a hernial ſac is formed; into which, at any future period, (although the firſt diſeaſe may diſappear,) a portion of inteſtinal canal, or of the omentum, may be protruded. It has been found, by repeated experience, that the hernia congenita in adults, when in a ſtate of ſtrangulation, is a diſeaſe much more dangerous than a ſimple bubonocele. In this caſe, it frequently happens, that the impediment to the return of its contents into the belly, is occaſioned by a ſtricture in the neck of the ſac. Authors who have written upon this ſubject endeavour to account for the fact by obſerving, that the hernia congenita having exiſted in infancy, it was probable that truſſes had then been applied, and by the preſſure of the pad, the contraction of the neck of the ſac had been produced. But whether the ſtricture is occaſioned by this circumſtance, or the operation of the firſt efforts of the conſtitution to cloſe the paſſage, is not yet ſufficiently aſcertained. It muſt be obſerved, that the part where this ſtricture is generally found is at leaſt an inch higher than the opening of the external abdominal tendon, and therefore out of the reach of the preſſure of the truſs. It has been mentioned by writers of the firſt credit *.

Mr. *Samuel Sharpe* having found the inteſtine in ſeveral inſtances in contact with the teſticle, en-

* *Le Dran*, Obſerv. 58. *Arnaud*, p. 382. *Dionis*, 324.

deavours to explain the phenomenon by obſerving, "it is evident to me that, notwithſtanding the "peritoneum may at firſt fall down with the "viſcera, yet, in length of time, it may alſo be "ruptured, becauſe I have found the inteſtine and "omentum within the tunica vaginalis of the teſtis, "and in contact with the teſtis itſelf, which they "could not poſſibly have been if they were en-"veloped in a portion of peritoneum: however "we find this circumſtance occurs but rarely; for "we uſually find the viſcera within a prolapſus of "the peritoneum, which is known by the name of "the herniary ſac *." As far as my experience goes, I believe the hernia congenita is more frequent than is generally imagined; and of thoſe who have been obliged to ſubmit to the knife, the proportion has been more than one third.

The manner in which a common hernia is formed is frequently this:—A kind of weakneſs is perceived in the groin, where a ſmall tumor is apparent upon any unuſual exertion of the abdominal muſcles after coughing, ſneezing, &c. A ſenſation is felt as if the little ſwelling contained air. The tumor is not fixed but retires ſpontaneouſly, and the leaſt preſſure with the fingers makes it diſappear. The frequent returns it is ſubject to gradually dilates the tendinous aperture of the muſcle, the ſwelling enlarges, appears of a ſemi-oval form, and, by

* Critical Enquiry, p. 3.

degrees,

degrees, a complete duplicature of the inteſtine is engaged in it. In this ſtate the contents of the hernia uſually recede in the night and prolapſe again in the morning. In proceſs of time, having been often expoſed to the ſtrong compreſſing powers of the abdominal muſcles, the ſwelling firſt occupies the groin, and then deſcends to the lower part of the ſcrotum.

Whether the hernia is thus gradually formed, or more ſuddenly produced by ſome violent and more active cauſe, the inteſtine or omentum puſh before them a pouch formed by the peritoneum, which, being ſurrounded by a looſe cellular membrane, is eaſily dilated, and thus is produced the hernial ſac. This ſac, after it has been completely formed, is ſuppoſed, by contracting adheſions to the neighbouring parts, to be incapable of being again returned into the belly. Indeed it is generally found, that, when the contents of the tumor recede into the abdomen, the hernial ſac may be eaſily diſtinguiſhed to be left behind. Like all other parts of the body in an unnatural ſituation, the ſac becomes thickened and diſeaſed, and this morbid alteration in its ſtructure is dependent upon the duration and ſize of the tumor.

Some of the *French* authors have aſſerted that, after the tendon of the external oblique muſcle has been dilated, the operator, not being aware of the poſſibility of the ſtricture in the hernial ſac, had returned the inteſtine, ſtill incloſed in the ſac, into

the abdomen, and from the ſtricture remaining undivided, the caſe proved fatal. But it is an undoubted fact, except in very recent herniæ, that the ſac, ſoon after its protruſion from the abdomen, contracts adheſions to the neighbouring parts; and after the return of its contents into the belly (in whatever way it is accompliſhed), it ever afterwards remains in the groin or ſcrotum. It ſeems poſſible, that, in very recent deſcents, the ſac, not having had a ſufficient time to form adheſions with the contiguous parts, may be returned into the belly, and an inſtance of this is recorded by Mr. *Bell* in an operation at which he was preſent. But there are ſo many reaſons for dividing the ſac in the operation that it ſhould never be neglected.

Ruptures are very common in children, whoſe fibres reſiſt with little effect the force with which the contents of the belly are puſhed by crying, ſtraining, &c. The diſeaſe is often left to the management of nurſes or ignorant people, and is, in general, much neglected. In the early period of life the tendinous fibres forming the abdominal apertures eaſily give way; and the contents of the hernia are generally, by a recumbent poſture, or a ſlight degree of preſſure with the fingers, returnable into the abdomen *. But in more advanced life the fibres

* A ſtrangulation ſometimes occurs in the hernia of children. I was lately called to Rugby, in conſultation with Mr. *Bucknell*, to a child not two years of age.—The tumor was hard, attended with

fibres are more rigid, and when, by ſome violence, a protruſion of the inteſtine happens, the veins of the inteſtine are compreſſed by the reſiſtance of the edge of the tendon, and the moſt alarming appearances often enſue. At whatever age, or under whatever circumſtances, a rupture happens, it demands an immediate attention; for although it muſt be acknowleged that in infancy a ſtrangulation very ſeldom enſues, yet that is a period when the aſſiſtance of art, properly employed, will always be attended with ſucceſs. In the ruptures of adults, unleſs the caſe is recent, there will generally be more uncertainty of the event.

It has been obſerved, in the account of the formation of the tunica vaginalis, that ſoon after the teſtis is protruded through the abdominal opening, nature uniformly makes an attempt to cloſe the upper part of the peritoneal pouch, and the adheſion of its ſides to each other is generally completed in a very ſhort ſpace of time. A recent hernial ſac is exactly the ſame kind of production as the tunica vaginalis. They are both an elongation of the peritoneum; and if we reaſon by analogy, we may ſuppoſe that in infants, if the

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with vomiting and coſtiveneſs. He had been very ill during two days, in which attempts had ſeveral times been made to reduce the parts. Though we at laſt ſucceeded by the taxis, I never remember to have had more difficulty in an adult patient; and it was more than a quarter of an hour before the parts would, in the leaſt, give way to the preſſure I uſed.

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newly-made hernial ſac could be kept empty for the ſame ſpace of time as is required for the obliteration of the opening of the tunica vaginalis, the ſame effects would reſult in both. In young children linen bandages are in general truſted to, behind which the tumor frequently returns; and although the diſeaſe may appear to be cured, the orifice of the ſac having been frequently opened, and the abdominal aperture dilated, a hernial ſac, *communicating with the abdomen*, is frequently left in the ſpermatic proceſs, into which, at any future period, the contents of the belly may, by a variety of cauſes, be protruded.

In all caſes of rupture immediate reduction ſhould be attempted; and when that point is accompliſhed, the parts ſhould be prevented from prolapſing by a proper elaſtic bandage.

A recent hernial ſac, both in infants and adults, is no thicker than the peritoneum; its ſides may, therefore, after the reduction of the contents of the tumor, be brought into contact, and by a proper and long continued preſſure of the bandage, made to adhere; the future deſcent of the inteſtine and omentum prevented, and thus a radical cure will be effected.

It often happens, from inattention at the firſt commencement of the caſe, the parts compoſing a hernia are in ſuch a ſtate that they cannot be returned into the cavity of the abdomen. Medical writers have aſſigned various cauſes for this; the principal

principal of which are, the thickneſs of the neck of the hernial ſac, adheſions of parts to each other, increaſe of the ſize of the omentum, an inflammation of the inteſtine, and a ſtricture of the tendinous openings through which theſe parts have prolapſed.

The omental rupture has divided the opinion of ſurgeons: Some contending that the omentum not being a part of great conſequence in the animal œconomy, ſay, if it cannot be *eaſily* returned into the abdomen, it would be better to leave it in the ſcrotum, where it might be ſupported by a ſuſpenſory bandage; and that inconveniences may be apprehended from its lying, after reduction, like a lump at the bottom of the belly *. Others, with much more reaſon, aſſert, that the omentum ſhould, if poſſible, be reduced. It is troubleſome by its weight, and is ſubject, by being diſplaced, to many diſeaſes. By its connection with the ſtomach and duodenum a ſickneſs and pain of thoſe parts are often produced, a large quantity of omentum may be ſuddenly forced down into the ſcrotum, the circulation may be intercepted by the edges of the tendon, its veſſels will be loaded with blood, and a mortification enſue. If theſe effects do not happen it may contract adheſions to the hernial ſac, and increaſe ſo much in its bulk as to make its return impoſſible through the narrow paſſage from whence

* *Sharpe*'s Critical Enquiry.

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it came. The omentum, when thus diſplaced, has been found to be ſchirrous, and diſeaſed by ſteatomatous indurations. But the ſtrongeſt argument for the reduction of the omental herniæ is the danger there will be of a portion of inteſtine ſlipping through the parts which the omentum muſt always keep in a dilated ſtate.

When the cellular part of the omentum in a rupture is ſo much increaſed that the return has been thereby rendered impoſſible, ſeveral inſtances have occurred where the patient, having been confined by long illneſs, has been kept in a recumbent poſture, and ſuch an emaciation of the parts has enſued, that the contents have been found to be with great facility returnable into the abdomen. Surgeons appear to have taken a hint from this circumſtance; and by evacuants and long confinement have ſucceeded in the reduction of ſome caſes which, for many years, had been ſuppoſed irreducible *.

The ſymptoms produced by omental herniæ are always troubleſome and inconvenient to the patient, but they are not often dangerous. The writers of ſurgical obſervations have indeed acquainted us, that death has been the conſequence of miſmanaged caſes of this ſort, but thoſe inſtances are by no means numerous. The knowledge of the poſſibility of a fatal event is ſufficient to

* *Sharpe*'s Crit. Enq. p. 15. *Le Dran*, p. 114. *Arnaud*, p. 292. *Pott*, quarto edit. p. 260. *Hildanus*, Obſ. Cent.

guard

guard the prudent ſurgeon from any improper prognoſtic.

The enterocele, or deſcent of the inteſtine, is always a diſeaſe to which great attention ſhould be given. Although it be very common that perſons with ſuch a rupture may find no great inconvenience for many years, yet it muſt be remembered that they are never exempt from danger. A ſtrangulation of the parts may come on in the moſt ſudden manner *; and there have been inſtances where a mortification and death have happened in a very few hours after the acceſſion of the ſymptoms †.

We have been informed that the cauſe of the alarming appearances in ſtrangulated herniæ is a *ſtricture* of the openings of the tendons of the abdominal muſcles through which the contents paſs from the cavity of the abdomen. A very eminent writer aſſures us, that "a ſtricture made on the "prolapſed part of the gut by the borders of the "natural aperture in the tendon of the oblique "muſcle is the immediate cauſe of theſe ſymp-"toms, which nothing can appeaſe or remove "*except what will take off that ſtricture.*"

If the term ſtricture means any thing, it certainly implies either that the fibres of the tendon are more rigid than natural, or that the diameter of the tendinous opening is rendered ſmaller. But in a

* Vide Caſe xxiii.

† *Arnaud. Pott.* p. 253.

ſtrangulated

ſtrangulated hernia neither of theſe events take place. The borders of the tendon are never more rigid, nor in a ſtate of greater ſtricture, than in thoſe in health, and who are not afflicted with ruptures; and it will invariably be found (except, perhaps, in a very recent deſcent of a ſmall duplicature of inteſtine) that the diameter of the opening will be more or leſs dilated; an event which could not poſſibly happen unleſs the fibres were preternaturally extended and relaxed. In old ruptures, where the diſtending force of the hernial contents have gradually dilated the border of the tendon, the opening has been rendered of a very extraordinary ſize. The term ſtricture muſt give a young ſurgeon the idea either of induration or ſpaſmodic contraction. The fibres of tendons are not ſo much ſubject to changes in their texture, but the contents of a hernia are, from a variety of cauſes, liable to an alteration in their form. By ſtraining, &c. a larger portion of the inteſtinal canal may be ſuperadded to that already in the tumor, and, until a ſtrangulation commences, the fæces muſt paſs through it. They may be accumulated there; the mere expanſion of air will diſtend the inteſtine to ſuch a degree that it may preſs againſt the border of the tendon and produce uneaſineſs and pain, and lay the foundation for a ſtrangulation. Whether the contents of an hernia preſs againſt the tendon, or the tendon againſt the tumor, the effects will be preciſely the ſame. But

very

very different will be the ſucceſs dependent upon the mode of treatment in this diſeaſe. If the ſurgeon be of opinion that the tendon preſſes upon the tumor, his chief intention muſt be to relax it. But if he thinks that the opening is already relaxed or dilated as much as it can be by the diſeaſe itſelf, he will clearly perceive that by reducing the tumor to the ſame ſize it was previous to the acceſſion of the ſymptoms, by condenſing the rarefied air, repelling the blood from the diſtended veins, and preſſing the contents of the excluded inteſtine into the abdomen, he will have the beſt chance of ſucceeding in the reduction.

If one plan is founded in reaſon the other is not. Whatever is calculated to relax ſtricture muſt do miſchief; and if emollient and warm applications are uſed to ſoften the parts, which, at that time, will not dilate any more, they will certainly be pernicious. By increaſing the ſwelling they will eventually increaſe the ſtricture; and what was theoretically intended to ſoften the parts will moſt effectually contribute to make them harder.

Whenever, in the caſe of an inteſtinal hernia, a ſtrangulation is occaſioned, the effects will be an obſtruction to that progreſſive motion by which the chyle is gradually propelled down the alimentary canal, and the free circulation of blood through the ſecluded part of the inteſtine will be prevented.

From the univerſal concurrence of the opinions of medical writers, it might be imagined that

nothing could be better eſtabliſhed than the propriety of large and repeated bleeding in the early ſtage of ſtrangulated herniæ: it is a direction from which no exception ſtands either with regard to age, ſex, or conſtitution.

The inteſtine is ſaid to be inflamed, and in a part ſo neceſſary to life, venæſection to a large amount is held forth as the moſt neceſſary remedy.

But it may be ſuſpected that the indiſcriminate uſe of the lancet will, in ſome caſes at leaſt, be pernicious. I have ſeen it often tried, but never with any ſucceſs. Amongſt the ſymptoms produced by this diſeaſe we are told that a hard, quick, and large pulſe is generally occaſioned, and that the patient will be found hot and feveriſh. I will not undertake to prove that this ſtate of the pulſe *never* occurs in a ſtrangulated rupture; but in the caſes which I have had an opportunity of examining, the patient has generally been in ſuch a ſituation that I have thought any evacuation by the lancet muſt have been prejudicial.

The moſt common appearances produced by an intercepted hernia are the following: The tumor which uſed to be ſoft and yielding is hard and painful. The lower part of the abdomen is alſo more tenſe than uſual; the patient is reſtleſs, pale, and languid; *the pulſe is low*, and very often (though not always) *ſlower* than in health; the extremities are covered with a clammy moiſture. Reſpiration is ſlow, and interrupted with frequent

hiccough. Worn out with inquietude, fatigue, and anxiety, the miſerable patient cares not to ſpeak, or if he does, he communicates his ideas by broken and incoherent ſentences. If the ſurgeon requires of him the hiſtory of his caſe, he will perhaps tell him, that the day before, while employed in the common avocations of life, he had a pain in his groin, and applying his hand there he found a ſwelling, which, at ſome former period had given him trouble, had returned. That he had, as uſual, endeavoured with his fingers to put it back without ſucceſs; that his pain increaſed, and he was ſick; that the night had been paſſed in the utmoſt diſtreſs. Perhaps, whilſt he is thus recounting his melancholy tale, he ſuddenly throws his hand out for a baſon, but before he can reach it the contents of his ſtomach are diſcharged upon the bed-clothes.

It may be alleged that I have here deſcribed ſuch ſymptoms as occur after the inflammatory ſtage is over, and when a gangrene is either threatened or actually formed. But this is by no means the caſe.

There are no ſymptoms by which a ſurgeon can with certainty be aſſured of the exiſtence of a mortified inteſtine. The ſymptoms here deſcribed may be preſent when the parts are mortified or not, as I am convinced by repeated experience. All the appearances may happen from what is called a ſlight inflammation in the inteſtine; and

when they have been preſent in a very ſmall degree only, I have ſeen the inteſtine completely gangrenous. It ſeems to me that what are called the ſymptoms of a ſtrangulated hernia are not ſo much produced by the inflammatory or mortified ſtate of the parts, as by that interception of the gut whereby its office of conveying the chyle or fæces is impeded. Soon after this happens, and when the periſtaltic motion is inverted, whether the inteſtine is inflamed or gangrenous, the ſymptoms will be produced. Theſe ſymptoms in general are ſuch as indicate immediate debility in the vital powers, and diſtreſs and dejection in the animal functions. If the circulation is depreſſed and weakened by the diſeaſe, why ſhould we debilitate more by bleeding? If the arteries of the part affected convey the blood to it with leſs force than uſual, ſhould that force be reduced? But perhaps it may be urged, that in ſome diſeaſes where the circulation is depreſſed, bleeding makes it more free, quickens and enlarges the pulſe. Admitting this to be a fact, ſhould we encourage an increaſed circulation in a part already ſurcharged with blood, whoſe fluids are hindered in their return to the heart by the reſiſtance they meet with from the borders of the tendon?

Let the cauſe of the ſtrangulation be what it may, the effects will be an interruption to the vermicular periſtaltic motion of the inteſtine, and an interception of the return of the blood from the

contents

contents of the hernia, the veins being compreſſed by the tightneſs of the parts will be ſwelled, and the contained blood be accumulated. The blood of the arteries will meet with ſome difficulty in circulating through their minute terminations in the venal ſyſtem; the veſſels, which in a healthy ſtate tranſmit only the pellucid fluids, will be dilated ſo as to admit the red particles, and many little extravaſions will be occaſioned in the cellular membrane. The reſiſtance to the arterial impetus will be every moment increaſing, whilſt the powers of the heart are leſſened by the diſeaſe. Hence the circulation is ſometimes wholly ſuſpended, and a gangrene very rapidly enſues. Upon diſſection the inteſtine frequently appears red, the very minute veſſels are as conſpicuous as if they had been filled with an injection by the anatomiſt. Having this appearance, it is ſaid to be a ſufficient proof that the diſeaſe had been highly inflammatory, and therefore the uſe of the lancet had been ſtrongly indicated. Perhaps there is not a more common error in theory, nor any one that furniſhes a more fruitful ſource of miſtaken practice, than the ſuppoſition that when a part appears *red* it is therefore inflamed. No ſpecies of inflammation is much more common than that of the tunica conjunctiva of the eye. It is attended with all the ſymptoms of inflammation, as pain, heat, tumor, pulſation, and an increaſed motion of the fluids through the parts affected, or thoſe that are in their immediate

neighbourhood. The tunica conjunctiva, which ſhould appear white, is now univerſally *red*. Like other inflammations this gives way to an antiphlogiſtic treatment, and large and repeated bleedings are neceſſary. But very different is that diſeaſe of the ſame membrane of the eye, where the veſſels of the parts are ſo relaxed as to admit the red particles of the blood *(errore loci)*. The eye is in this ſtate *much redder* than in the true inflammation, but the pain and heat are often very trifling, and the method which is found ſucceſsful in the genuine inflammation will be pernicious in this. The velocity of the blood not being increaſed in the veſſels of the part diſeaſed, it will be in vain to reduce the force of the circulation by bleeding. The experienced practitioner knows that this diſeaſe of the eye is only to be cured by ſtimulating the dilated veſſels, and by contracting their diameter till they refuſe admiſſion to the particles of red blood. In the ſtrangulated rupture alſo the ſecluded portion of the inteſtine looks red, not becauſe the velocity of the circulation is increaſed through the veſſels of the part affected, but becauſe the venal blood is intercepted in its return to the heart by a cauſe truly mechanical. The diſeaſe itſelf leſſens the velocity of the pulſe, and yet the ſymptoms are increaſing progreſſively; but there does not appear a ſtronger reaſon why reducing the force of the circulation will not cure this ſuppoſed inflammation, than its continuance after death,

death, ſome time before which period had taken place no arterial blood could have been propelled into the diſeaſed parts. Diſſection alſo informs us, that very frequently the diſeaſe is ſo truly local that the intercepted part only of the inteſtine appears of a red colour, or is found in a gangrenous ſtate. It may be remarked alſo, that thoſe ſymptoms which are, in a ſtrangulated hernia, ſaid to denote the inflammatory ſtate of the parts affected, exiſt equally certain in the weak and relaxed habit of body as well as the robuſt; in thoſe where habitual debility mark relaxed fibres, as in others whoſe conſtitutions are ſubject to phlogiſtic diatheſis. The changes of the body, which are the genuine conſequences of death, are often confounded with thoſe appearances that are ſuppoſed to denote the diſeaſed ſtate of the parts whilſt living. The inteſtine is often found in herniæ of a red colour, and from thence it is declared to be inflamed; but this appearance may be explained from that interception to the return of the blood occaſioned by the border of the tendon; it does not therefore neceſſarily prove that an inflammation had exiſted during life, and it is impoſſible that inflammation can exiſt in a dead body. When putrefaction is far advanced the inteſtinal canal generally becomes of a red colour, it may therefore be occaſioned by putrefaction or many other cauſes*. It has been before

* The ingenious anatomiſt Mr. *John Hunter* has very judiciouſly obſerved, that "an accurate knowledge of the appear-

before remarked that the ſymptoms attending theſe caſes by no means point out to us, with any certainty, the ſtate of the diſeaſed parts: And I have ventured to declare an opinion, that all, or moſt of them, are derived from the inverted periſtaltic motion of the inteſtine producing immediate debility, and thoſe other intervening ſymptoms which, unleſs timely relieved, uſually terminate in death.

" ances in animal bodies that die a violent death, that is in " perfect health, or in a ſound ſtate, ought to be conſidered as " a neceſſary foundation for judging of the ſtate of the body in " thoſe that are diſeaſed.

" But as an animal body undergoes changes after death, or " when dead, it has never been ſufficiently conſidered what " thoſe changes are; and till this be done it is impoſſible we " ſhould judge accurately of the appearances in dead bodies. " The diſeaſes which the living body undergoes (mortification " excepted) are always connected with the living principle, and " are not in the leaſt ſimilar to what may be called diſeaſes or " changes in the dead body: without this knowledge our " judgment of the appearances of dead bodies muſt often be " very imperfect or very erroneous: we may ſee appearances " which are natural, and may ſuppoſe them to have ariſen from " diſeaſe; we may ſee diſeaſed parts, and ſuppoſe them in a " natural ſtate; and we may ſuppoſe a circumſtance to have " exiſted before death which was really a conſequence of it; " or we may imagine it to be a natural change after death when " it was truly a diſeaſe of the living body. It is eaſy to ſee, " therefore, how a man in this ſtate of ignorance muſt blunder " when he comes to connect the appearances in a dead body " with the ſymptoms that were obſerved in life; and indeed all " the uſefulneſs of opening dead bodies depends upon the " judgment and ſagacity with which this ſort of compariſon is " made." Phil. Tranſact. vol. lxii. p. 447, and 448.

The

The diſſection of the tumor both in the living and the dead often corroborates this opinion. When the ſymptoms have been ſo urgent as to demand the operation for the bubonocele, it has been ſometimes obſerved, that the inteſtine has been only of a pale red colour *, and (what is called) ſlightly inflamed; and when the diſeaſe has proved fatal the ſame kind of alteration only has ſometimes been remarked. In theſe caſes the death of the patient can only be explained by the inverted periſtaltic motion having weakened the powers of life, and nothing can be more clearly evident than that large and repeated bleedings, where there is no inflammation to remove, muſt increaſe the debility, and therefore do much miſchief; and it may fairly be inferred, that as all the ſymptoms of ſtrangulated herniæ happen with equal violence,

* "In many caſes of ſtrangulated herniæ, where the operation has been the means of relief, although the *very worſt* ſymptoms have ſubſiſted for ſeveral days, yet, on laying the parts open, no appearance either of inflammation or gangrene have been detected." *Bell*'s Syſtem of Surgery, vol. p. 286.

"In many of thoſe upon whom the operation for the bubonocele is ſucceſsfully and timely performed, the inteſtine ſeldom bears marks of high inflammation unleſs the operation has been long delayed; nor do the ſymptoms of ſuch complaint uſually attend afterwards; the mortified part often does not exceed an inch, or an inch and a half, in length, and is almoſt always confined to that part of the gut which is on the outſide of the tendinons opening, all within the belly being ſound and fair." *Pott*'s Works, quarto edit. p. 286.

whether

whether the parts after death are found inflamed or not, that the fatal termination of this disease cannot be imputed to inflammation; that the red colour of the parts must generally be considered as an accidental circumstance; and when it does occur, it does not seem necessary to have recourse to inflammation to explain it. Numerous, likewise, are the cases which are recorded by the writers of medical observations, in which a small portion of the circular diameter of the gut had been lengthened into pouch, and engaged in a stricture which had proved fatal*. In these cases, as the whole annular substance of the gut was not protruded from the abdomen, the event can only be explained by supposing that a certain degree of irritation had produced an invertion of the peristaltic motion. As soon as this happens, the vital and natural functions are immediately disordered; from the constant vomitings which ensue no chyle can be absorbed by the lacteals; and superadded to that dejection and languor, which the disease specifically produces, the miserable patient, although he often desires fluids to satisfy his thirst, labours under all the effects of inanition. When an incarcerated hernia is reduced the good effects are sudden and immediate. The tension and pain abate, the

* Littre, Memoires de l'Acad. de Sciences, 1700.—*Mery*, Mem. de l'Acad. des Sciences, 1700.—Medical Essays, Edinb. vol. i. p. 183.—Mr. *Amyand*, Phil. Transact. No. 443.—Mr. *Else*, Med. Observ. and Enquiries, vol. iv. p. 334.

patient

patient becomes cheerful; his features, before ſunk and pallid, aſſume a more natural complexion; his pulſe, which had been weak and ſlow, becomes now fuller and ſtronger. This immediate change can only be explained by ſuppoſing that the blood from the ſurcharged veſſels of the part lately intercepted, from a mechanical cauſe now finds a free return to the heart, and that the periſtaltic motion again aſſumes its natural courſe. Were the ſymptoms occaſioned by inflammation, the good effects could not have been ſo ſudden, eſpecially when it is conſidered that, from the time the parts are ſet at liberty, the blood from the heart ruſhes upon the diſeaſed part with increaſed velocity. The tumor preſſing upon the lymphatics diſturbs their functions, and abſorption being thereby prevented, it is not uncommon to ſee an hernia complicated with the various kinds of hydrocele, and hence alſo a fluid within the ſac is frequently collected. Every part of the inteſtinal canal is certainly liable to inflammation; and it is poſſible that the portion of gut lying in an hernial ſac may be inflamed alſo; but this caſe is very uncommon, and happens chiefly in large old ruptures, where the orifice of the tendon is largely dilated, and where the diviſion of it by the knife would give no relief to the patient *. The ſymptoms

* The celebrated Profeſſor *Richten*, of Gottingen, has divided incarcerated herniæ into three ſpecies; the firſt of theſe, he

toms of this diſeaſe are much like thoſe produced by a ſtrangulated inteſtine, but they require a very different mode of treatment. The periſtaltic motion is inverted in both caſes. In the inflammation of the inteſtine the pulſe is often full, and the patient feveriſh; hence large and repeated bleedings are neceſſary, with other remedies, for inflammation. The warm bath is often uſeful, as it often happens that the tendon makes no unuſual preſſure upon the parts; neither its diviſion, or the reduction of the tumor into the belly, would procure any relief to the diſeaſe. My ingenious friend Mr. *Alanſon*, of Liverpool, to whom we are much indebted for improving the operative part of ſurgery, has, at my requeſt, directed his attention to this point. He informs me, "as to bleeding in "ſtrangulated herniæ, it has been the conſtant "practice here* to uſe this evacuation *ad deli-* "*quium*; to produce which ſooner the diſcharge "has been made by placing the patient in an erect "poſition. As ſoon as the deliquium happened

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he ſays, is occaſioned by accumulated fæces within the inteſtine. He obſerves that, in large old herniæ, this circumſtance is very apt to take place in the protruded portion of the gut, not only from the diminiſhed tone of the part, but alſo from its being deprived of the expelling power, occaſioned by the contraction of the abdominal muſcles. As ſoon as this accumulation happens the hernia increaſes in ſize, the belly becomes coſtive, and at length pain, and the other uſual ſymptoms of a ſtrangulated hernia ſucceed. Obſerv. Chirurg. Diſſert. de Herniis.

* Liverpool.

"the

" the taxis was tried during that ſtage, but I never " ſaw this method ſucceſsful, nor do I think bleed- " ing ever of the *ſmalleſt ſervice* in forwarding " reduction *."

Having reflected much and long upon this ſubject, I can entertain no doubt that, leſſening the ſmall remains of ſtrength which the unfortunate ſufferer of a ſtrangulated herniæ has by this abſurd practice, is extremely unfavourable for his recovery, ſhould the operation, as will generally be the caſe if other methods are not more ſucceſsful, be the only reſource. Moſt of the patients who are brought into public hoſpitals die after this operation; and upon enquiry (whatever other means have been employed), we are told that they have been *largely* and repeatedly bled.

It very often happens that the opening of the tendon is ſo much diſtended, eſpecially in ruptures of long continuance, that the gut does its office of tranſmitting the fæces in the ſcrotum, and no great preſſure being made againſt that or the omentum, the circulation of the blood through the prolapſed parts is not interrupted; and people, under ſuch circumſtances, paſs through life without any great inconvenience from this complaint:—but it ſhould ever be remembered, that, from a variety of cauſes, the moſt alarming ſymptoms may enſue, and therefore a patient having a rupture can, in no poſſible ſituation, be ſaid to be ſecure from danger. Every

* Vide Caſe iv.

kind

kind of hernia ſhould, if poſſible, be immediately reduced, and the parts prevented from receding by a proper bandage. When the reduction of the tumor is difficult, or when uneaſineſs, pain, or unuſual tenſion of the parts ſupervene, not a moment ſhould be loſt; for the cauſe and effects of the ſtrangulation co-operate with each other, and the difficulty of returning the inteſtine, &c. is continually increaſing. The firſt thing uſually attempted by the ſurgeon, if his aſſiſtance is had early in the diſeaſe, and before great pain or violent tenſion render it improper, is preſſure. By a gradual and well-regulated preſſure with his fingers upon the upper part of the tumor, he will very often reduce its ſize; the contents are, by degrees, preſſed through the opening of the muſcle, and a ſpeedy reduction is often the conſequence. This method will be aſſiſted by the poſition of the patient's body. Some tendinous fibres of the external oblique muſcle run down the anterior and upper part of the ſpermatic chord, and others communicate with the faſcia of the thigh. When the thigh of the affected ſide is bent, theſe tendinous fibres will be relaxed and put into a ſtate of non-reſiſtance. The hips ſhould be raiſed higher than the ſhoulders, becauſe, in this ſituation, the inteſtine may aſſiſt in drawing the excluded portion of the gut out of the groin. Or, perhaps, this purpoſe will be better anſwered by ſuſpending the patient's legs over the ſhoulders of a ſtrong

man.

man. This method, Mr. *Sharpe* * tells us, has often ſucceeded when other attempts for reduction have been ineffectually made. If the ſurgeon is not ſent for, till after the ſymptoms have made a conſiderable progreſs, he ſhould handle the parts with great caution and gentleneſs. In endeavouring to return the inteſtine, the preſſure ſhould be directed obliquely outward. If the tumor will not give way to preſſure, or if the parts are in ſuch a ſtate as, in the opinion of the ſurgeon, to render the attempt improper, it will then be adviſeable to try the effects of cold applications, by which the tumor will often be ſo much leſſened, that a repetition of the preſſure (which before had failed) will now be found effectual. I have often obſerved, after cold applications have been uſed, that the ſenſibility of the parts is diminiſhed, and the patient will bear a greater degree of preſſure without complaining, which before would have occaſioned the moſt diſtreſſing uneaſineſs. In my caſes and remarks in ſurgery, I have endeavoured to explain the manner in which cold acts upon ſtrangulated herniæ, and repeated experience has amply proved the utility of the practice. I have uſed and recommended a mixture of vinegar and water for this purpoſe, but that mixture having been found to poſſeſs a leſs degree of cold than either of them uncombined, I now prefer either vinegar alone, or a ſolution of crude ſal ammoniac

* *Sharpe*'s Crit. Enq. p. 21.

in

in the coldeſt water which can be procured. It is obſerved, that neutral ſalts, while in the act of ſolution, produce a remarkable degree of cold, it might therefore be uſeful to cover the parts firſt with the powder of crude ſal ammoniac, and afterwards apply cold water. By this method I have frequently ſucceeded in reducing ſtrangulated hernia, and at a period of the caſe when it was imagined the operation for the bubonocele had been indiſpenſably neceſſary *.

Since the publication of ſome inſtances † of the effects of cold in the reduction of ſtrangulated herniæ, I have been, by experience, confirmed in the good opinion I then entertained of this mode of practice ‡.

It frequently happens in mixed ruptures, after the inteſtine is ſet at liberty, that the omentum contracts adheſions, and remains ever after irreducible §.

Sometimes after the firſt trial of cold applications the ſurgeon is diſappointed in his attempts to reduce the prolapſed parts, but a perſeverance in the ſame method will enable him to ſucceed ‖.

After having bathed the part about a quarter of an hour with a ſolution of crude ſal ammoniac in the coldeſt water which can be procured, the ſurgeon ſhould endeavour, by a gradual preſſure

* Vide Caſe v. † See Caſes and Remarks in Surgery, p. 13.
‡ Vide Caſes vi. vii. viii. and ix. § Vide Caſe xv.
‖ Vide Caſe xvi.

made

made in the manner before directed, to return the contents of the tumor into the abdomen. If he does not ſucceed immediately, it will be prudent, before he adviſes the operation, to wait a few hours, during which time the application of compreſſes, wetted with the cold ſolution, ſhould be unremittingly made to the part affected. During this interval alſo, it will be proper to aſſiſt the external endeavours to reduce the ſize of the tumor, by exciting an increaſe of the periſtaltic motion of the gut, whereby it may be extricated from its confinement, and drawn into the cavity of the abdomen. Surgeons have endeavoured to fulfil this indication in two methods, neither of which can, with much propriety be uſed, if the ſymptoms of a ſtrangulated hernia were occaſioned by a *true inflammation* of the inteſtine.

It is an obſervation as old as the time of *Celſus*, that lenient cathartics increaſe the ſize of ruptures, and diſtend the abdomen. The experience of ſucceeding ages has found this to be true; and perceiving that thoſe purgatives which ſolicit the juices into the inteſtinal canal without much irritation add to the load, and therefore do miſchief, the moderns employ more draſtic medicines, with a view to ſtimulate the inteſtine into more forcible contractions. In nine caſes out of ten it will be found, that whatever cathartic medicines are employed, whether they are mild or irritating, the ſtomach will reject them, and the inverted periſ-

taltic motion (ſhould they paſs the ſtomach) will, in general, prevent their having any acceſs to the part affected. However, as ſomething in this way muſt be attempted, whenever I have not ſucceeded in the firſt endeavours, I have generally directed ſome pills, compoſed of Venice ſoap, ſocotorine aloes, and calomel, which will have a better chance of paſſing through the ſtomach than any fluid medicine whatever. From an attention to the ſymptoms of ſtrangulated herniæ, it ſhould ſeem that the periſtaltic motion of the inteſtinal canal, *above the impriſoned part*, is inverted, and, below it, totally *ſuſpended*. After the acceſſion of the pain and vomiting, the patient never paſſes a ſtool without the aſſiſtance of art; if a common glyſter is injected, the contents of that part of the canal below the ſtrangulation will, in general, be eaſily diſcharged. But this procures no kind of relief. However, as it is probable that ſtimulating the lower part of the gut will be as likely to extricate the excluded portion as ſtimulating the upper part, and as ſtimulants thus uſed can, with more certainty, be applied nearer the ſeat of the diſeaſe, they may be injected by the anus with a more rational proſpect of ſucceſs. No ſtimulus has hitherto been uſed for this purpoſe, with more advantage, than the fume of tobacco injected into the rectum. So efficacious was this application in the hands of the celebrated *Heiſter*, that in a very long and a very extenſive practice it always ſucceeded,

ceeded, and he never once had occaſion to perform the operation for the bubonocele. Succeeding practitioners have not been ſo fortunate: there will be caſes where no method hitherto known but the knife will ſave the life of the patient. The injection of the ſmoke of tobacco having, in ſome deſperate caſes, ſuperſeded the neceſſity of the operation, it ſhould always be tried before that is recommended *. A common glyſter ſhould be given before the ſmoke of tobacco is uſed. In ſeveral caſes of ileus I have ſeen bliſters applied to the abdomen ſucceed when every other method had failed; and by their ſtimulus upon the neck of the bladder and rectum the periſtaltic motion was (if I may be allowed the expreſſion) re-inverted. Perhaps, upon the ſame principle, bliſters applied upon the belly would be found uſeful in ſtrangulated herniæ. I have not yet tried this method, and therefore cannot recommend it from experience. The objection to this practice is, that many hours muſt elapſe before the bliſter can be ſuppoſed to irritate the neck of the bladder and rectum, and therefore, before any good can be expected from its uſe, the patient, by the delay, may be in ſuch a ſtate as to be irrecoverable by any method whatever.

If theſe methods do not ſucceed, I think it adviſable to try the combined effects of a ſteady and continued preſſure, by the application of

* Vide Caſe xv.

metallic ſubſtances, and which are of a colder temperature than the parts to which they come in contact. Thus a leaden weight or a plate of iron may be placed on the tumor, the hips of the patient being firſt raiſed to an angle of about thirty degrees, or which, perhaps, would better correſpond with the form of the tumor, two or three pounds of quickſilver, tied in a ſtrong bladder, might be employed with advantage. After this preſſure has been continued a few hours, the ſurgeon ſhould again endeavour to reduce the contents of the hernia. That this method will ſucceed when all others that I am acquainted with have been inefficacious I have had proofs, and which, I hope, will induce others to put it to the teſt of experiment *. Since the publication of the firſt edition of theſe obſervations, I have had little reaſon to place much reliance on purgative medicines. Whether adminiſtered in a liquid or a ſolid form, they are ſo ſoon rejected by the ſtomach that there is very little chance of reaching the affected part of the inteſtine. If they do not, they add to the diſtreſs the patient ſuffers. By means of an injection of an infuſion of tobacco a ſtimulus may, perhaps, be communicated to the ſeat of the diſeaſe, which may aſſiſt the preſſure neceſſary to be made. And if it ſhould appear neceſſary to produce general relaxation, by leſſening the action of the ſyſtem, it may be done more effectually and more immediately by the effects of tobacco, than

* Vide Caſes i. and ii.

by

by the uſual and, I fear, indiſcriminate employment of the lancet.

After the reduction of the tumor the ſymptoms in general immediately abate; and when it is conſidered from what a deathlike ſituation the patient has juſt eſcaped, it is really aſtoniſhing how very ſoon he recovers his health and ſpirits. His pulſe is remarkably increaſed in its ſtrength; and one might theoretically imagine, that the inteſtine, loaded as it is with blood, which had diſtended and burſt its veſſels, expoſed now to a more violent impetus from its arterial blood, muſt be more ſubject to the cauſe of inflammation than before. But experience proves that the ſymptoms of inflammation are not the conſequence. However, ſhould it happen that the pain continues, and any feveriſh ſymptoms ſupervene after the reduction, (a caſe which I muſt confeſs I have never ſeen,) then bleeding and the antiphlogiſtic plan of treatment will be clearly indicated. At all events, however, the patient ſhould pay great attention, for ſome days, to his diet, and be confined to mild liquid aliment; I have often thought it prudent to direct a ſolution of caſtor oil, diſſolved with the yelk of an egg, and made into an emulſion with peppermint water, and this has been continued till there have been ſeveral ſtools procured. If the method here recommended has been ineffectually purſued, and the ſurgeon finds, that, notwithſtanding his ſecond attempt to reduce the parts, he does not

ſucceed, there ſeems to be no other chance of recovery but that which the kniſe will afford.

Chirurgical writers have deſcribed that ſtate and degree of the ſymptoms when the operation for the bubonocele ſhould be recommended; they have alſo acquainted us that certain effects are produced by the inflammatory ſtate of the parts, and others as certainly demonſtrate a gangrene is either approaching or abſolutely formed. Now could theſe ſymptoms and theſe appearances exactly point out the ſtate of the parts compoſing the tumor, the ſurgeon would thereby be relieved from much embarraſſment. To be convinced of the abſolute *neceſſity* of performing any hazardous operation is a a very deſirable thing in the practice of ſurgery. It happens, however, in the caſes of ſtrangulated herniæ, that all the rules laid down for this purpoſe are uncertain and fallacious. Neither the kind nor the duration of the ſymptoms, whether ſeparately or collectively conſidered, will, with certainty, point out whether the inteſtine is in ſuch a ſtate as to give the patient any chance of recovery from the operation. I have performed the operation with ſucceſs on the eighth day from the commencement of the ſtrangulation, and have ſeen the moſt violent ſymptoms, which had continued ſeveral days, diſappear after the hernial contents have been returned into the abdomen by cold applications:— and a true mortification of the inteſtine may be produced in a few hours, attended with ſuch ſlight

ſymptoms,

ſymptoms, which could ſcarcely be ſuppoſed to denote that the ſecluded portion of the gut had received any material injury *.

As no certainty, therefore, can be derived from the ſymptoms, relative to the ſtate of the parts within a hernia, the moſt rational method will be to propoſe the operation as ſoon as the attempts which the ſurgeon has made for the reduction, have been found uſeleſs. Whenever it is apparent that no other plan but the operation will ſucceed, the ſooner it is performed the chance of recovery will be greater. In general the operation is deferred too long; and it ſhould always be remembered, that the inteſtine may be found mortified without any particular ſymptoms of *inflammation* preceding it.

In the operation it is ſtill a practice, with many ſurgeons, to draw up the ſkin before the firſt inciſion is made, but this ſurely muſt be quite unneceſſary to a man uſed to diſſection (and no other ſhould attempt this buſineſs). In old ruptures the hernial ſac is often much thickened, but in recent deſcents of inteſtine the ſac is generally thin, and therefore the operator ſhould often examine, with a probe, whether he has divided the ſac. We are told that, upon dividing it, a quantity of fluid will ruſh out; and though this is often the caſe, it ſhould be remembered, that ſometimes the inteſtine is in contact with the ſac, and there-

* Vide Caſe xxiii.

fore, unleſs the latter is divided in the moſt cautious manner, there muſt be ſome danger of wounding the gut *. The part of the ſac moſt ſafe to divide is the loweſt part; as, in mixt ruptures, the inteſtine uſually occupies the upper part. For ſome time previous to the operation no preſſure ſhould be uſed, as a fluid is frequently found in the hernial ſac which affords a protection to the contents of the tumor, and they might be wounded by the knife if that fluid was preſſed into the cavity of the abdomen. When the ſac is divided from the upper to the lower part, the ſurgeon ſhould examine the part which forms the ſtricture. In many caſes I am convinced, by experience, it will not be neceſſary to divide the tendon of the exernal oblique muſcle. If a finger can be paſſed under its border, a ſtricture will often be found an inch higher in the neck of the hernial ſac. This

* A conſiderable quantity of fluid is ſometimes found in the hernial ſac. The late Dr. *Monro* relates a caſe where the quantity of water contained in a ſac was ſix pounds. *Saviard* and *Le Dran* give different caſes of this kind. *Heiſter* calls it hydro-enterocele. Vide *Douglaſs* on the hydrocele, Mr. *Pott* on the hydrocele. *Monro*'s Works, p. 579. In *Bell*'s Syſtem of Surgery, p. 465, vol. i, are related two caſes of this kind, miſtaken for hydrocele.

Mr. *Alanſon* alſo informs me, that he has frequently obſerved a large quantity of fluid within the hernial ſac.

This ſpecies of hydrocele is particularly deſcribed by many ſurgeons of the preſent age, and it was alſo known to the ancients. An account of it is to be found in the writings of *Æginetta*, *Albucaſis*, and afterwards of *Fallopius* and others.

ſtricture

ſtricture is annular, is ſometimes thick and cartilaginous. It may eaſily be divided by a very ſlender curved knife with a blunt end; and the cutting edge ſhould extend only a third of an inch from the extremity. The point of this knife may be conducted upon the finger, and inſinuated into the contracted part; by a ſaw-like motion the ſurgeon will ſoon divide it, and then, if no adheſions have taken place, which very ſeldom happens, he will eaſily return the inteſtine, &c. into the abdomen *. In the female ſex the hernial ſac, in the bubonocele, is *immediately* under the ſkin, and on that account the diſſection ſhould be conducted in the moſt guarded manner. If, upon dividing the ſac, the omentum preſents, it ſhould be carefully unfolded, as a portion of inteſtine is frequently hid in it.

Should the omentum be diſeaſed it may very ſafely be removed, as I have found in ſeveral inſtances †. Before any attempts are made to reduce the inteſtine, the ſtricture, as it is called, ſhould be divided with the knife. When the ſuperior edge of the tendinous opening of the

* Vide Caſes xviii. xix. xx. and xxi.

† Several caſes of bad effects reſulting from ligatures upon the omentum are related by Monſieur *Pipelot*, Mem. de l'Acad. Royal de Chirurg. tom. iii. and by Mr. *Pott*, in his Treatiſe upon Herniæ.

When the contents of the hernia are returned into the abdomen, if the ſac is thickened and diſeaſed, it will be adviſable to cut off the lateral and anterior parts.

external

external oblique muſcle is divided with a probe pointed curved biſtory, obliquely outward and upward, the ſurgeon ſhould endeavour to paſs his finger into the abdomen, and if he finds a contraction in the neck of the ſac, that alſo muſt be divided before any attempts are made to reduce the inteſtine. Then that part of the gut which is next the abdomen muſt be returned firſt, and the operator ſhould preſs his fingers rather upon the meſentery than the inteſtine, for experience has proved that when it has been much diſtended it is very tender, and may be ruptured *. When it is neceſſary to remove any part of the omentum there will be no occaſion to paſs a ligature; but if the ſurgeon chooſes to do it, if he is careful that no part of the inteſtine is included, it is not probable that any particular inconvenience will ariſe from it.

In operating for the bubonocele we have been directed to avoid the epigaſtric artery, but this caution appears unneceſſary, as that veſſel is at a diſtance from thoſe parts which ought to be divided.

In the hernia femoralis, whether the inciſion of Poupart's ligament is carried outward or inward, there will be danger of wounding either the ſpermatic or epigaſtric artery; to avoid theſe the ſurgeon ſhould conduct the point of the curved

* From not attending to theſe cautions I have twice ſeen the inteſtine ruptured when it was not in a gangrenous ſtate.

biſtory

biſtory upon the point of his fore-finger, and the ligament ſhould be divided upward; and as the tumor, in this caſe, is not generally large, a ſmall degree of dilatation will, perhaps, be ſufficient for the reduction of the inteſtine. I have alſo purſued Mr. *Bell*'s directions with ſucceſs, having weakened Poupart's ligament by dividing the external ſtratum of fibres, which produced ſufficient room to return the inteſtine *. Mr. *Arnaud* contrived a broad hook to ſtretch the ligament, which may be tried before recourſe is had to the knife †.

If the inteſtine is found in a mortified ſtate, it will be proper to confine it from receding into the belly, and for this purpoſe a ligature ſhould be paſſed through the meſentery, by which it may be connected with one of the ſides of the inciſion.

The writers of medical obſervations ‡ have recorded many caſes where the patient has recovered

* Vide Caſe xiv.

† This ſpecies of hernia is often hard and ſmall, and being found in the neighbourhood of the lymphatic glands, is ſometimes miſtaken for a glandular tumor; a very remarkable caſe of this kind, which terminated fatally, is related by the late Mr. *Elſe*, in the Medical Obſervations and Enquiries, vol. iv. p. 355.

‡ *Morand*, de la Faye Not. ſur *Dionis*, p. 55.—*Mery*, Mem. de l'Acad. des Sciences, 1701.—*Cheſelden*'s Anatomy, 69. *Le Dran*, Obſ. 60.—*Courtial*, Obſ. 66.—Med. Eſſays, Edinb. vol. i. art. 20.—*De la Peyronie*, Mercure de France, Juillet, 1732.—*Ramdobrius*, Commerc. Norimb. 1731.—*De la Peyronie*, ſur la Cure des Hernies avec Gangrene.—Mem. de l'Acad. Royale de Chirurg. tom. i. p. 337.—*Dionis*, 352. 354.—*Heiſter*, 318.—*Bell*'s Syſtem of Surgery, vol. i. p. 328.

after

after a mortified inteſtine, but they bear a ſmall proportion to thoſe in whom it has proved fatal *; indeed this ſtate of the inteſtine muſt generally be expected to have a fatal termination if the diſeaſe extends within the abdomen. In all thoſe that have eſcaped, it is probable the gangrene was local and abſolutely confined to that part of the gut external to the abdominal aperture.

When the inteſtine is found in a mortified ſtate, if the patient ſhould be ſo fortunate as to recover, the diſeaſed portion of the gut muſt ſeparate from the ſound part, and for a conſiderable time the fæces will be diſcharged through the wound. We have been informed that in the generality of theſe caſes the fæces muſt be expelled during the patient's life, but experience has proved that the event is ſometimes more fortunate, and that this very diſagreeable ſituation is not neceſſarily the general reſult. Let the quantity of the protruded part of the inteſtine in a rupture be what it may, and ſhould the whole of that portion mortify and ſlough off, the opening through which it paſſed is ſmall, and therefore both the ends of the gut muſt be in contact, or nearly ſo; and ſometimes, alſo, it fortunately happens, they adhere to the neck of the hernial ſac.

* The celebrated *Rau*, in opening a hernia, finding a gangrene in the parts, laid down his knife, and proceeded no farther in the operation, abandoning his patient, who died the next day. *Heiſter*'s Surgery, p. 816.

In

In the proceſs of healing, the wound every day contracts its ſides, and, with them, the edges of the inteſtine approximate, till at length they may either coaleſce or unite in ſuch a manner with the cicatrix that the continuation of the canal may be preſerved, and the fæces diſcharged at the anus. The caſes which I have ſeen of recovery from mortified inteſtine terminated in this manner, and the wounds were completely healed without any ſucceeding inconvenience *.

Syſtematic writers upon herniæ have taken much pains to diſtinguiſh them from other diſeaſes; but it muſt be confeſſed, that, notwithſtanding all their care on this account, the young and inexperienced practitioner will often find himſelf in a ſtate of uncertainty and embarraſſment. And indeed the circumſtances are ſo ambiguous, the relation of the patient ſo little to be depended on, that the boaſted tactus eruditus fails, and the veteran in the profeſſion is obliged to confeſs the uncertainty of his opinion. In the bubonocele, the tumor being connected with the ſpermatic proceſs, ſubject itſelf to various tumors and diſeaſes; and the contents of the hernia being often found in contact with the teſtis, it is no wonder that difficulty ſhould ſometimes occur in determining, with accuracy, the exact nature of the caſe. The encyſted hydrocele of the ſpermatic proceſs may ſometimes be confounded with the bubonocele; and the hernia

* Vide Caſes xxv. xxvi. and xxvii.

congenita

congenita may, from the ſimilarity of their appearances, poſſibly be miſtaken for an hydrocele of the tunica vaginalis.

The encyſted hydrocele of the ſpermatic proceſs, like the bubonocele, occaſions a tumor in the groin; it is ſometimes alſo as ſuddenly produced: By preſſing againſt, or appearing to enter *within* the border of the tendon of the oblique muſcle, it will give to the ſurgeon the idea of communicating with the cavity of the abdomen. A fluctuation of the fluid within is laid down by ſurgical writers as a diſtinguiſhing mark to diſcriminate the two diſeaſes; but this is, in general, ſo exceedingly obſcure, that very little information is to be obtained. Nor does the hiſtory of the diſeaſe reflect any great light upon it. In both caſes the tumor appears firſt in the groin, is frequently ſuppoſed to be occaſioned by blows, or ſome violent exertions of the body.

If, however, after its firſt appearance, the tumor is capable of being returned into the abdomen, which a hernia, without ſtrangulation, moſt generally is, or if the ſpermatic proceſs can be felt above it, no doubt of its nature can remain *.

The appearances of the hydrocele and the hernia congenita, are, in many reſpects, ſimilar. It ſometimes happens, that the water in the hydrocele diſtends the tunica vaginalis, and preſſing againſt the opening of the external oblique muſcle pre-

* Vide Caſe xxviii.

vents the ſurgeon from feeling the upper part of the ſpermatic chord, or its veſſels. In the hernia congenita, the contents of the tumor being within the tunica vaginalis, and therefore in contact with the teſticle; in both diſeaſes the teſtis is generally felt in the inferior part of the tumor, but at ſome diſtance from the bottom of the ſcrotum. If the hydrocele has been of long continuance, the tunica vaginalis will be much diſeaſed, and a fluctuation of the contained fluid, of courſe, leſs evident. But if the ſurgeon will attend to a few circumſtances he will ſoon be enabled to clear up the difficulty. The hernia begins in the groin, the tumor is, in general, increaſed by ſneezing or coughing; it frequently deſcends ſlowly into the ſcrotum, and ſometimes recedes into the belly. In the hydrocele the enlargement is always firſt perceived in the inferior part of the tunica vaginalis, and proceeds upward. The ſpermatic proceſs is often to be felt in a natural ſtate above it, and an experienced examiner will often determine by the touch, that a fluid exiſts within. There are, likewiſe, other diſeaſes of the ſpermatic chord, not hitherto deſcribed by chirurgical authors, which may be miſtaken for herniæ *.

A ſchirrous teſtis produces an enlargement of that gland, and frequently the diſeaſe ſpreads throughout the whole extent of the ſpermatic proceſs, occaſioning a tumor in the groin, com-

* Vide Caſe xxix.

municating

municating with the cavity of the abdomen. To the eye, this diſeaſe appears like an old rupture. But the ſwelling firſt appearing in the glandular part of the teſtis, its gradual enlargement, the tumor of the groin being ſubſequent to that of the teſticle; the darting lancinating pain which often accompanies it, the varicoſe ſtate of the veins of the ſcrotum when the tumor is large, and which often burſt and occaſion a profuſe hæmorrhage, the upper part of the chord being, in many caſes, ſtill to be felt, the reſiſtance and induration of the tumor will, in general, leave no room to doubt the preciſe nature of the complaint*. The young practitioner ſhould be on his guard when he is about to give an opinion in theſe, often, very obſcure diſeaſes.

* Vide Caſes xxx. and xxxi.

APPEN-

APPENDIX.

I am obliged to the Surgeons who attended, for the reports of the circumſtances which occurred in the two following caſes, previous to the time I ſaw the Patients.

CASE I.

" A WOMAN aged thirty-five, had been afflicted " with an inguinal rupture four years. During " this interval, upon any unuſual exertion it de- " ſcended lower, but in a recumbent poſture it " generally receded until the month of January " 1800, when, in conſequence of a hard labour on " the 12th, it protruded more than before, and " in a few days after became ſtrangulated. Linen " cloths wetted with a ſolution of muriated am- " monia were applied to the tumor, and ſhe was " directed to take frequently a mixture compoſed " of caſtor oil, &c. The next day no evacuations " having been procured, five grains of calomel " were given in a bolus, and ſome hours after-

" wards a ſtimulating cathartic. This alſo proving " ineffectual, a glyſter prepared of the infuſion of " tobacco was injected, but without affording relief, " and the bad ſymptoms increaſing, I requeſted " ſhe would get further aſſiſtance, and Dr. Marſh " being conſulted, he recommended a warm fo- " mentation which was uſed with no better ſucceſs. " On the third day Mr. Rann ſaw the patient " with Dr. Marſh and myſelf. It was determined " we ſhould have recourſe to cold applications " again, and Mr. Rann propoſed applying ice, " which was accordingly done, and continued till " the fourth day. During the laſt night the pa- " tient had been in a delirious ſtate, and the bad " ſymptoms ſtill continuing, Mr. Wilmer was de- " ſired to ſee her. J. BARTON."

Upon examination I found the upper part of the tumor extremely hard, and not yielding in the leaſt to preſſure made with my fingers, I was apprehenſive that nothing but the operation would afford a chance of recovery. I was deſirous firſt of trying the effects of cold applications combined with continued preſſure, and for this purpoſe placed a two pound leaden weight upon the hernia, the hips of the patient having been firſt conſiderably raiſed. In half an hour attempts were made to reduce it, but though the tumor appeared to be ſomewhat leſſened, they did not at that time ſucceed. The weight was replaced and ordered to

be continued till our next viſit, which was about four hours after; and then the contents of the hernia were without difficulty returned into the abdomen. The bad ſymptoms by degrees diſappeared, and though ſhe has had at times returns of the rupture, has continued free from any ſymptoms of ſtrangulation.

CASE II.

" WILLIAM GARNER of this city, aged 42, in " conſequence of exertion in unloading a timber " waggon, had a hernia of three years ſtanding, " which had been of little inconvenience to him " till Auguſt 11, 1801, on which day he com- " plained of pain in his belly, the inteſtine became " ſtrangulated, and by his uſual endeavours could " not be replaced; he however kept his complaint " ſecret until the 13th, when Mr. Smalley, in my " abſence, ſaw him, not being able to reduce it " by the taxis he bled him largely, ordered a " tobacco glyſter, ſome calomel and Epſom ſalts " and crude ſal armoniac diſſolved in cold water, " to be applied to the part with doubled cloths. " The pain of the abdomen was great, his vomiting " frequent, but his pulſe, on the whole, good. I " I ſaw him in the evening, and found his ſituation " much the ſame. He was ordered a bolus with " calomel and opium, and an opening powder with

" ſtrict injunctions to repeat the cold wet cloths " frequently. In the morning of the 14th he con- " tinued much the ſame. Having had no ſtool " another tobacco glyſter was adminiſtered, which " cauſed great nauſea and faintneſs, but no eva- " cuation. In the middle of that day you were " ſo obliging to ſee him with me, when a cold " ſmoothing iron was ſubſtituted for the wet cloths, " ſome cathartic pills with opium and a ſtimulating " glyſter were directed. The next morning the " tenſion and ſize of the tumor being ſomewhat " diminiſhed, and the man's ſtrength apparently " not much leſſened, the operation was agreed to " be deferred till ſome further cauſe ſhould ſeem " to demand it. On the 16th, the tumor was ſtill " leſs, the ſame remedies were made uſe of, and " on account of the pain in the abdomen a large " bliſter was applied there. About midnight I " was called to him on account of the tumor " having diſappeared. I found on examination, " no trace of the hernia; the poor man ſeemed " better, and great hopes were entertained of his " recovery; in leſs than two hours, however, the " pain of the abdomen returned, and before the " noon of the 17th, he died. J. H. RANN.

" *Coventry, April* 20, 1802."

The day after his death the body was opened by Mr. Cook, in preſence of Mr. Rann, Mr. Cole, and myſelf.

The

The ileum was much inflamed throughout its whole length, that part of it oppoſite the orifice of the ſac, and which probably had been engaged in it, was examined with minute attention, but it did not appear more diſcoloured than any other part of the inteſtine.

The hernial ſac was empty, and perfectly free from inflammation, as was the peritoneum lining all the neighbouring parts.

Although this caſe terminated fatally, the ſucceſs, as far as it regards the return of the contents of the hernia, was complete, and the following inferences may be deduced from it:

1. That the diſeaſe under which the patient laboured was in the firſt inſtance enteritis, and that the part of the inteſtine in the hernial ſac being enlarged by inflammation became ſtrangulated.

2. That a conſiderable preſſure may be made by a heavy metallic ſubſtance during more than twenty hours upon an inflamed inteſtine without occaſioning gangrene.

3. That the return of the parts was accompliſhed without producing peritoneal inflammation either in the hernial ſac, or adjoining parts, which probably would have been the caſe if the operation had been performed, and the patient had died,

CASE III.

Sept. 1, 1779, Mr. Harrold, ſurgeon of this city, deſired me to viſit a man 35 years of age, who had a ſtrangulated hernia. The ſymptoms had continued three days, the tumor had been fomented, various cathartic medicines and tobacco glyſters had been adminiſtered without effect. The patient was taken out of bed, and cold water at intervals thrown upon the tumor, which occaſioned ſuch a ſudden collapſe of the parts, that when he was placed in a recumbent poſture, the contents of the hernia were eaſily returned.

CASE IV.

[Communicated by Mr. Alanson.]

In the year 1775, a man aged 22, of a robuſt conſtitution, was brought into the Infirmary, with a ſcrotal hernia, ſomewhat larger than his hand; it extended, and was large up the abdominal ring: he had been afflicted with a ſmall hernia many years, which he had neglected; and this addition to the complaint was occaſioned by his ſtraining to lift a heavy weight. Two days had elapſed before I ſaw him, the tumor was very tenſe and tender to the touch; he was now *bled ad deliquium*, and that this might take place with more certainty he

he was placed in an erect position: the deliquium happened when he had loſt a *quart* of blood. He was now immediately placed in a favorable poſture for reduction, and every reaſonable attempt to return the contents of the tumor were tried ineffectually, and manual efforts were made, whilſt different poſitions were employed without ſucceſs. Mr. *Alanſon* recovered this man by the knife.

CASE V.

[Communicated by Dr. STORER.]

" SIR,

" I can have no doubt that your own practice " muſt have furniſhed you with many undeniable " proofs of the utility of the method lately recom- " mended by you in treating incarcerated herniæ. " The caſes you have publiſhed are concluſive; " yet, I am perſuaded, it will not be diſagreeable " to you to be poſſeſſed of the following additional " teſtimony in its favour:—Some weeks ſince I " was deſired to viſit the wife of a butcher in this " town, who had, for many years, been ſubject to " a hernia inguinalis of the right ſide, which ſhe " was in uſe to reduce herſelf, and was in general " ſupported by a truſs of her own contrivance. I

" found her labouring under all the ſymptoms of " ſtrangulated hernia in the moſt extreme degree. " She had violent pains extending from the part " toward the region of the ſtomach, and through " the whole abdomen, which was tenſe and ſore to " the touch; frequent vomiting of fœtid matter, " and obſtinate coſtiveneſs. The tumor itſelf was " harder than I had ever ſeen in ſimilar caſes, and " ſo ſore, from the frequent attempts which the " ſurgeon had made to reduce it, that it was " neceſſary to avoid all further handling of the " parts. She had already been upwards of fifty " hours in this ſtate. Warm fomentations, emol- " lient poultices, and the general remedies com- " monly in uſe, had proved ineffectual. In this " ſituation, before propoſing the operation for the " bubonocele, which, but for your method, I " ſhould have done immediately, I reſolved to " give a trial to cold applications, and in order to " aid that collapſe of veſſels by which, I preſumed, " they were to operate, I directed bleeding to be " *repeated* to ſuch amount as I thought my patient " ſtill able to bear. After this thick compreſſes " of linen, dipt in vinegar and water cold, were " to be applied to the tumor, and frequently " repeated. The bleeding procured no relief; a " purgative glyſter which had been injected, re- " turned without effect. But, happily, after the " application of the fourth compreſs, the tumor " ſuddenly and *ſpontaneouſly* returned into the " abdomen.

" abdomen. The pain and vomiting ſoon ceaſed,
" and a gentle laxative next day reſtored her to a
" perfect ſtate of health, which ſhe ſtill enjoys.

" I am ſo entirely ſatisfied that the good effects in
" this caſe were ſolely owing to the cold applica-
" tion, that I am reſolved upon every future
" occaſion to have recourſe to it.

" As there is good reaſon to believe that appli-
" cations will operate with more or leſs power, in
" proportion to their coldneſs, and we know that
" artificial cold may be produced when there is no
" ſnow, I thought it worth while to determine,
" with exactneſs, what mixtures or ſolutions might
" be employed with the greateſt proſpect of
" ſucceſs, in caſe water of the common tempera-
" ture ſhould fail. The reſult of theſe trials made
" in an airy room, without fire, and with a pocket
" thermometer, graduated to *Fahrenheit*'s ſcale,
" was as follows:

" Air in the room - -	57°
" Simple water - - -	49
" Vinegar and water, equal parts -	50
" Saturated ſolution of crude ſal ammoniac " in ſimple water - -	42
" Solution of ſal ammoniac in vinegar and " water - - - - -	45½
" Solution of nitre in ſimple water -	43
——— in vinegar and water	46
" Solution of ſea ſalt in ſimple water -	46
——— in vinegar and water	50

" Theſe

" Theſe ſolutions, though they gradually ap-
" proached to the temperature of the air in the
" room, preſerved their relative degrees of heat
" for a full hour after the experiments were made.
" From the reſult it appears, that a ſaturated ſolu-
" tion of crude ſal ammoniac in ſimple water, as
" producing the greateſt degree of cold, is the
" beſt adapted to the purpoſe in queſtion; and
" though it may be proper to uſe it freſh diſſolved,
" I have obſerved that, except it be kept in a
" very warm room, it preſerves longer its lower
" temperature than other fluids; a property upon
" which its efficacy, as a diſcutient, not impro-
" bably depends. I cannot account for all the
" mixtures into which vinegar entered, being the
" hotteſt, I can only ſay, that it was the reverſe of
" what I expected.

" I am, &c. &c. &c. JOHN STORER.

" *Grantham, 13th of May* 1780."

CASES VI. VII. VIII. and IX.

[Communicated by Mr. ALANSON.]

" I have met with three caſes of ſtrangulated
" herniæ ſince I wrote to you laſt; they had been
" miſmanaged, that is, the patients had been
" poulticed, fomented, or had taken ſtrong purges.
" They were all eaſily reduced by cold appli-
" cations, and afterwards the aſſiſtance of the
" hands.

" hands. I am clearly of opinion that when re-
" duction can be accompliſhed without the opera-
" tion, cold is the beſt preparative and aſſiſtant we
" can employ; that more caſes will yield to this
" application and the tobacco glyſter than to
" every other means. That when warm fomen-
" tations and poultices have been uſed unſucceſs-
" fully, aſſiſted by bleeding, the warm bath,
" common glyſters and purgatives, which are the
" means ſtill employed by ſome ſurgeons, we may
" frequently ſucceed by the application of cold.
" This ſeems to have a pecular property of allay-
" ing the tenderneſs of the parts, of diminiſhing
" the bulk of the tumor, and enables us to apply
" the taxis in caſes which, before this application,
" would not admit of the leaſt aſſiſtance in this
" way. I have heard of two caſes in which cold
" applications have been found ſucceſsful; in the
" firſt, the patient's caſe was ſo deplorable that he
" was placed on the table with a view to the
" knife; the other happened in Lancaſter, to
" which Mr. *Baxendale*, a late pupil of mine, was
" called, and ſucceed d by cold applications. The
" following caſe which I have received from Mr.
" *Blundell*, ſurgeon of this place, will, I doubt not,
" give you pleaſure:—Auguſt 4, 1784, I was
" deſired, about eleven in the forenoon, to ſee a
" poor man, aged 53 years, who had been labour-
" ing under a ſtrangulated hernia ſince three days
" before. At my arrival the account I received

" was,

" was, that he had been viſited by another gentle-
" man about ſeven o'clock the preceding evening;
" that moſt of the ordinary means in theſe caſes
" had been made uſe of, ſuch as *bleeding ad deli-*
" *quium*, caſtor oil, glyſters, warm bath, fomenta-
" tions, &c. without effect, and afterwards re-
" peated in the morning to as little purpoſe.
" Fearing the ill conſequences that were likely to
" follow any further attempts in the ſame way, on
" account of the particular tender ſtate of the
" parts, I altered the plan from the warm to the
" cold applications, viz. by pouring large baſons
" full of cold water upon the part till it began to
" loſe its chilling effect, which was in about three
" quarters of an hour. This method anſwered my
" moſt ſanguine expectations, not only in very
" conſiderably diminiſhing the bulk of the tumor,
" but likewiſe by enabling me to handle it without
" the ſmalleſt inconvenience, which juſt before he
" was ſcarcely capable of bearing the weight of
" my hand. I now put in practice the common
" means by the hand, which are generally made
" uſe of in theſe caſes, and was ſo fortunate, in
" about two hours, to effect my purpoſe, which I
" muſt in a great meaſure aſcribe to the very good
" effects the cold had upon it."

CASE

CASE X.

May 28, 1787, I was called upon by Mr. *Freer*, ſurgeon of this city, to viſit Mr. *W*——, who had a ſtrangulated rupture. The deſcent happened two days before, ſince which time he had had no ſtool. The ſymptoms were a ſoreneſs of the abdomen, hiccough, a frequent rejection of the contents of the ſtomach, great proſtration of ſtrength, thirſt, brown tongue, an anxious deſpondency in his countenance, and his *pulſe weak, and remarkably ſlow*. At nine o'clock in the morning we directed compreſſes to be applied to the part affected, and frequently renewed, dipped in the coldeſt water that could be procured, in a quart of which was diſſolved an ounce of crude ſal ammoniac. Pills of extractum catharticum calomel and opium, were given every hour, and a glyſter was injected, compoſed of an infuſion of two drachms of the leaves of tobacco in eight ounces of water. At twelve o'clock I viſited him again. The tumor was reduced in its dimenſions; his countenance had reſumed its natural appearance; he had lately paſſed a ſtool, and believed he ſhould ſoon have another. Although the tumor was ſmaller and ſofter, it was found, upon trial, to be irreducible. The cold applications were continued, and another injection was ordered. At eight o'clock in the evening he was much in the ſame ſtate as before.

The

The hiccough was more frequent; and the attempts that were then made to return the contents of the hernia were as ineffectual as before. Ordered a draught, containing thirty drops of tinctura thebaica.

At ſix o'clock the next morning we found no material change. The cold application and pills were continued. At nine in the evening the patient was free from danger. The hiccough, we were told, had been troubleſome the greateſt part of the day; that about an hour before we ſaw him he had deſired ſome ſago, after which he vomited violently; and he then perceived the rupture was reduced, which, upon examination, we found to be the caſe. This tumor appeared to be an entero-epiplocele. The inteſtine was reduced the firſt day of our attendance, when moſt of the bad ſymptoms left him. The hiccough was occaſioned by the impriſoned omentum, which, by the violent contraction of the ſtomach in vomiting, was at length diſengaged.

CASE XI.

December 1, 1774, I viſited the Rev. Mr. *K*—— in Leiceſterſhire. He had then the uſual ſymptoms of ſtrangulated hernia. A tumor in the groin had two days before been ſuddenly increaſed. Nothing had paſſed through the inteſtinal canal

ſince

ſince this acceſſion to the contents of the hernia. He vomited and hiccoughed often, had great pain in the tumor as well as in the hypogaſtric region, and his pulſe was extremely low and weak. Mr. *Jervis*, ſurgeon, of Lutterworth, had attended him from the beginning, and, after having employed tobacco glyſters, fomentations, &c. made ſeveral attempts to reduce the parts without ſucceſs.

Mr. *Jervis* propoſed to our conſideration the operation for the bubonocele. It was firſt agreed to try the effects of cold applications. The weather was ſevere at this time: compreſſes of linen, dipped in cold vinegar, were applied to the tumor, and as often as they became warm were removed, and freſh ones uſed in their place. The patient was ſoon ſenſible of a retraction of the parts within the hernia, and we could quickly after perceive that the tenſion and induration of the tumor were conſiderably diminiſhed. Upon attempting then to reduce the inteſtine with the fingers, the air contained within was obſerved to move firſt, and ſoon after, all the contents of the hernia were returned into the cavity of the abdomen with the greateſt eaſe.

CASE

CASE XII.

September 27, 1775, I was ſent for to Mrs. *M*——, of Withybrook, in the county of Warwick, to adviſe with her ſurgeon concerning the neceſſity of performing the operation for the bubonocele.

The tumor was ſmall and painful: ſhe had been ill three days: her pulſe was quick and weak: her tongue covered with a brown mucus: ſhe vomited often, was coſtive, and much fatigued with a hiccough. She had been bled, clyſters had been repeatedly injected, warm fomentations had been applied, and endeavours frequently made to reduce the hernia, but without the deſired effect.

By means of compreſſes wetted with vinegar applied cold, and by gently preſſing the parts with my fingers, in a ſhort time the contents of the hernia were completely reduced, and the patient ſoon recovered.

CASE XIII.

October 1, 1776, I was called to *J. D.* of Stoke, near this city, labouring under a ſtrangulated rupture, I directed cold applications, and endeavoured to return the inteſtine, but could not ſucceed at that time. The compreſſes were directed

rected to be continued and frequently changed during the enſuing night. Before the morning the contents of the hernia had ſpontaneouſly receded into the abdomen.

CASE XIV.

February 4, 1777, the late Mr. *Harrold*, ſurgeon, of this city, deſired me to ſee a patient with him who had a femoral hernia in a ſtate of ſtrangulation. He had been bled, and to the tumor warm fomentations had been applied. He had no paſſage through the inteſtinal canal during three days, and vomited every thing he took. Cold water having been applied to the tumor during half an hour, the contents of the hernia were then eaſily returned into the belly.

CASE XV.

A gentleman had for ſome years been ſubject to a bubonocele, the deſcents of which were always preceded by a retraction of the teſticle on that ſide into the groin. He perceived this one day when he was riding on horſeback, and finding the rupture was down, he made an immediate attempt to reduce it, by placing himſelf on his back, but without ſucceſs. It became painful, and a ſtrangu-

lation enſued. Mr. *Bucknell*, ſurgeon of Rugby, was called upon to aſſiſt him, and who tried ſeveral methods to relieve him, but without ſucceſs. February 23, 1786, I was deſired to attend him with Mr. *Bucknell*. The tumor was hard and painful. Saltpetre diſſolved in water was applied cold to the part, and the ſmoke of tobacco was ordered to be injected into the rectum. In the evening there was no other change than that the tumor was leſs painful. The tobacco ſmoke had not been applied, the neceſſary apparatus for which not being procured before this time. It was now tried, and before it had been uſed half a minute, the patient called for the cloſe-ſtool, had an evacuation, which relieved all the ſymptoms: part of the tumor had receded into the belly, but the reſt was in the ſcrotum, and has remained ever ſince irreducible.

CASE XVI.

September 19, 1787, I was deſired to meet Mr. *Williams*, a ſurgeon of Rugby, at Woodſcott, in the county of Warwick. The patient was a middle-aged man, with a crural hernia on the left ſide. He had laboured under the ſymptoms of ſtrangulation eight and forty hours; and during the whole of the preceding day, had been under the immediate care of Mr. *Williams*. Cold was applied to the part during the whole of that day, and

and attempts made by the hand for reduction without ſucceſs. Mr. *Williams* ordered the continuance of it during the night; and when we viſited the patient together in the morning, there was nothing to be done but to order a truſs, the rupture having been ſpontaneouſly reduced ſome hours before we arrived.

CASE XVII.

I was ſent for to Leiceſter to conſult with Dr. *Kerr*, of Northampton, in the caſe of a lady who had a ſtrangulated exomphalus. Every attempt had been made during the two preceding days to effect a return of the prolapſed parts. Cold applications had been, during the greateſt part of the time, applied in vain; but theſe being continued, a reduction of the contents of the tumor had taken place ſome hours before our arrival.

CASE XVIII.

A man, aged about thirty, who had been ſubject at times to a hernia during many years, complained of violent pain about the umbilical region, attended with coſtiveneſs and vomiting. The ſwelling could not as uſual be reduced by preſſure. Having, ineffectually, tried the modes uſually had

recourſe to in theſe caſes, and having had no better ſucceſs from cold applications, I requeſted the aſſiſtance of Mr. *Harrold*. The operation was agreed upon. After I had laid open the ſac, and divided the border of the tendon, I cut off a large quantity of diſeaſed omentum; there was a fold of inteſtine which could not, on account of *ſuppoſed* adheſions, be returned. As this was the firſt operation of the kind I had then been engaged in, and being taught to believe that ſtrictures in the neck of the ſac were not to be met with, the wound was dreſſed in the uſual way, and twelve hours after the patient died.

Upon diſſection of the part a ſmall duplicature of the ileum was found ſo ſtrongly embraced by the neck of the ſac that it could not be diſengaged till the ſtricture was divided by the knife. The part forming the ſtricture being hard, firm, and thickened.

CASE XIX.

April 3, 1774, *J. C.* of this city complained of pain in the inferior part of the abdomen, which was followed by vomiting and coſtiveneſs.

On the third day of his illneſs I firſt ſaw him, and was informed that he had a ſwelling in his left groin, which was then become painful; and that various methods had been ineffectually tried for his relief. After having uſed cold applications to the part,

part, I endeavoured to procure a reduction of the hernial contents but without ſucceſs.

The patient was reduced much, and the ſymptoms had made an alarming progreſs, I therefore deſired a conſultation might be had. In the afternoon of the third day, Dr. *Simſon* and Mr. *Harrold* joined me in opinion that the operation for the bubonocele could not any longer be prudently delayed. After the hernial ſac was opened, and the tendon of the external muſcle divided, it was found impoſſible to return the inteſtine into the cavity of the belly. The part prolapſed appeared to be a duplicature of the ileum extremely inflamed, with many little extravaſations of blood between its coats.

I paſſed my finger within the ſac and perceived a ſtricture in its neck an inch higher than the opening of the tendon, which forcibly reſiſted the return of the inteſtine.

Having ſecured the inteſtine with my finger, I with ſome difficulty forced the obtuſe point of the curved knife through the ſtricture and divided it. The inteſtine was then eaſily returned, and the patient recovered perfect health without the intervention of any particular occurrence.

CASE XX.

Auguſt 14, 1779, I was deſired to viſit *T. W.* a ſtrong middle-aged man at Radford, a village near this city. I found him complaining of great pain in his belly. His countenance had a melancholy aſpect; he had been ſick, and his pulſe was much weaker and ſlower than natural. He informed me that he had a rupture from his infancy, which had heretofore given him no uneaſineſs; that it very often deſcended in the day when he was at work, and as often returned, without any aſſiſtance, when he was in bed. During a conſiderable period, however, before he had occaſion for my aſſiſtance, the contents of the rupture had remained in his belly; until the preceding day, when, having exerted himſelf at a laborious employment, he felt the ſwelling ſuddenly return, and pain and uneaſineſs immediately enſued. Upon examining the parts I found the tumor occupied the right ſide of the ſcrotum, and the teſticle was not to be perceived below it. The tumor was hard and painful. Having placed him in a proper poſition, I made ſome attempts to reduce the hernia, but without ſucceſs. Cold applications were directed to be applied to the part, the ſmoke of tobacco to be injected into the rectum, and ſome pills of extractum catharticum, opium, and calomel were directed to be taken every hour.

Auguſt

Auguſt 15. The bad ſymptoms were much increaſed; the night had been paſſed with much inquietude. No paſſage by the anus. The tenſion of the groin and abdomen were undiminiſhed. The powers of life were weaker. The circulation was languid; he was frequently affected with hiccough, and he vomited often. Endeavours were again uſed, after the application of cold to the tumor, to effect a reduction; but all attempts of this kind were as fruitleſs as before, and appeared only to increaſe his pain. In conſultation with Mr. *Harrold*, a very eminent ſurgeon of this place, the operation appeared to us the only chance for life; it was therefore done immediately. After I had divided the hernial ſac from the edge of the abdominal tendon, to the inferior part of the ſcrotum, a conſiderable quantity of diſeaſed omentum appeared in view; it did not adhere in any point. When the omentum was turned off from the lower part of the ſcrotum, the tunica albuginea of the teſtis appeared in view. The omentum being expended at its upper part, next the border of the tendon, a ſmall duplicature of inteſtine *of a red colour* appeared incloſed in it. The omentum was ſo much thickened and diſeaſed, that it was thought improper for reduction: we therefore cut it off. The tendon of the external oblique muſcle was then divided obliquely outward. And although this dilatation was largely made, we could not

return the prolapſed inteſtine into the abdomen. Paſſing my finger within the neck of the hernial ſac, I diſcovered at its orifice, at leaſt an inch higher than the border of the external tendon, a circular ſtricture, which prevented the return of the parts. I conveyed the point of a curved biſtory on the inſide of the fore finger of my left hand, and divided it; after which the inteſtine was reduced with much eaſe. After the operation he was ordered to take an opiate, and to obſerve great attention in his diet.

Auguſt 16. The patient was much relieved in all reſpects; his pain was almoſt gone, the tenſion of the belly much diminiſhed. The vomiting ceaſed, and he had in the night two ſtools. From this time he continued to mend, the wound digeſted kindly, and, in the ſpace of a month, was entirely healed. The practical information obtained from this caſe is, that in the operation for the bubonocele the ſurgeon ſhould carefully examine the neck of the hernial ſac after he has divided the tendon, and before he removes the omentum (if the ſtate he finds it in makes it neceſſary) he ſhould be careful that he does not injure any part of the inteſtine which may happen to be engaged in it.

CASE

CASE XXI.

Mr. *Jervis*, of Lutterworth, requeſted me to viſit a patient with him in that neighbourhood who had a ſtrangulated hernia, the ſymptoms of which had continued three days. Mr. *Jervis* had employed the uſual methods for reduction without ſucceſs. We agreed upon the operation; and as the man appeared in a very dangerous ſtate, it was performed in the middle of the night.

The tumor extended to the lower part of the ſcrotum; it conſiſted of a fold of the ileum of a dark colour, and a conſiderable quantity of diſeaſed omentum. I dilated the border of the tendon, cut off the protruding part of the omentum, but could not then return the inteſtine. Paſſing my finger higher I perceived a ſtricture in the *neck of the ſac*, and with a ſlender probe-pointed knife divided it. The patient had an evacuation by the bowels ſoon after, and in a ſhort time recovered.

CASE XXII.

June 26, 1799, I was deſired to meet Dr. *Lambe* and Mr. *Blenkinſop*, ſurgeon at Warwick, in a caſe of femoral hernia. The patient was an elderly woman; the ſymptoms had continued ſeveral days. The tumor was very ſmall and hard; it appeared like an indurated gland, and

was

was ſituated under Poupart's ligament. Every rational attempt, aſſiſted with cold applications, had been made to reduce the inteſtine, but without ſucceſs; and there ſeemed to be no other chance than that which the operation allowed. But the patient was ſo reduced, her pulſe ſo weak, and the general aſpect of the caſe ſo diſcouraging, that I thought it would only accelerate her diſſolution, and therefore declined it. The body was opened by Mr. *Blenkinſop* in the preſence of Dr. *Lambe*. The protruded part of the gut was a ſmall fold of the ileum of a dark purple colour, and ſo univerſally adherent to the hernial ſac, that it would have been impoſſible to divide one with the knife without injuring the other.

CASE XXIII.

November 10, 1780, I was ſent for to conſult with Mr. *Barker*, an eminent and ingenious ſurgeon at Coleſhill, in the caſe of a man about fifty years of age, of a good habit of body. I was acquainted that he, ſome years before, had a rupture, which he had often reduced himſelf, but that its return became at one time difficult, and the ſwelling giving him pain, he had recourſe to Mr. *Barker*'s aſſiſtance, who relieved him, and reduced the rupture. After this time no deſcent happened till the day before I viſited him. He was then digging

ging in his garden, and he perceived a return of his old complaint. He went to bed, and endeavoured to puſh the ſwelling up as uſual, but he could not ſucceed, and the attempt gave him uneaſineſs. He applied to Mr. *Barker*, who endeavoured by various means to procure a return of the hernial contents without ſucceſs. Upon examination I found the tumor extremely hard, the patient had ſome uneaſineſs in the abdomen, and now and then appeared ſick. His pulſe was alſo in force and velocity below the healthy ſtandard. Excluſive of theſe ſymptoms there were no other appearances that denoted danger, either immediate or remote. We bathed the tumor well with a ſolution of crude ſal ammoniac in cold water; after which Mr. *Barker* and myſelf made frequent attempts, by manual aſſiſtance, to paſs the contents through the opening of the oblique muſcle, but without ſucceſs. Diſappointed in theſe endeavours, and unwilling to leave the patient, who lived a conſiderable diſtance from me, in a ſtate of inſecurity, with his ſurgeon's approbation I propoſed the operation. It was immediately performed. The inteſtine was found black and completely gangrenous, and the patient died the ſucceeding night.

CASE

CASE XXIV.

Mrs. ——— of Coleſhill, had for a conſiderable period a ſmall tumor in the upper part of the thigh, which in a recumbent poſture diſappeared. The ſwelling became at length fixed and painful; coſtiveneſs, vomiting, &c. enſued. Mr. *Barker* had taken every proper method to reduce the contents of the hernia. Tobacco glyſters had been injected, and cold applications almoſt conſtantly uſed. On the *eighth day* from the commencement of the ſymptoms of ſtrangulation, ſhe conſented to the operation. After the hernial ſac was opened, a ſmall portion of inteſtine appeared in view, I endeavoured to return it without dividing Poupart's ligament, but it bore ſo hard upon it that I could not ſucceed. To prevent any danger of wounding the epigaſtric artery, I weakened the ligament by dividing only the external fibres by ſlight inciſions, in the manner recommended by Mr. *Bell*, the inteſtine was then eaſily returned, and the patient ſoon after recovered a perfect ſtate of health.

CASE XXV.

June 21, 1771, I was deſired to viſit Mrs. *S*——, of this city, aged ſeven and forty. A few days before ſhe had been ſeized with ſymptoms of

of colic, which ſhe had been ſubject to. She was much reduced, vomited often, complained of pain in the abdomen, her pulſe intermitted, and, upon the whole, the caſe appeared extremely dangerous. She informed me that ſhe had a rupture at the navel, which, on examination, was found tenſe, and a livid ſlough, of the ſize of a ſhilling, occupied the centre of the tumor. Dr. *Simſon*, an eminent phyſician of this city, directed ſuch internal remedies as the caſe ſeemed to require, and to the tumor was applied a warm antiſeptic fomentation.

22d. The patient was nearly in the ſame ſtate as on the preceding day, only the ſlough had extended its dimenſions, and was beginning to ſeparate at its inferior border. The ſame plan was purſued.

24th. The ſlough was more ſeparated, and a large quantity of fœces diſcharged through the opening. The fomentation was conſtantly applied.

26th. The ſlough came away, the opening large, and a portion of the annular ſubſtance of the inteſtine, of conſiderable extent, diſcharged alſo; the patient was now much relieved in all reſpects.

30th. Continued to mend; diſcharge of fœces continued through the opening, which was much contracted, and the tumor almoſt gone. The ſtools began to be diſcharged by the rectum.

From this period the wound contracted every day, the diſcharge of the fœces through it leſſened gradually,

gradually, and in ſix weeks it was perfectly cicatriced. During the cure great attention was paid to keep the ſore as clean as poſſible; and a diet, conſiſting of broths, &c. which yielded the ſmalleſt quantity of fæces, was ſtrictly attended to. Mrs. *S*——, after this caſe happened, lived ſix years, and then died of pulmonary complaint.

CASE XXVI.

Auguſt 20, 1779, I was deſired to viſit Mr. *P*——, a farmer at Barnacle, in the county of Warwick. I diſcovered two openings in the groin, juſt below Poupart's ligament, through which the ſœces were daily diſcharged. Some weeks before the time I viſited him, he had ſymptoms of ſtrangulated hernia, for which he had been attended by a ſurgeon in his neighbourhood; the tumor in the groin burſt, and a large diſcharge of excrementitious matter had enſued, by which he was much relieved. I enjoined him to keep in bed, to lie on his back, applied ſome lint and ſticking plaſter over the ſores, with a compreſs and bandage. Every morning a glyſter was injected to ſolicit the ſœces by the rectum, and his diet conſiſted of nouriſhing broths, &c. By purſuing this plan the ſores gradually contracted; in the ſpace of ſeven weeks they were entirely healed, and no particular inconvenience ſucceeded.

CASE

CASE XXVII.

[Communicated by Mr. ALANSON.]

" In the month of July 1779, I was called to a " patient in a neighbouring village. She was a " healthy woman, about forty years old; ſhe com- " plained of a tumor, which was about the ſize of " a hen's egg, in her groin; ſhe could not tell " exactly how long ſhe had been afflicted with it, " but did not conſider it as a complaint of any " conſequence. It became painful and tender to " the touch, and ſhe was ſeized with pain, vomit- " ing, and coſtiveneſs. Application was made to " a medical perſon, who treated the tumor as an " abſceſs, and informed her it would come to " matter: he aſſiduouſly gave her medicines as " though ſhe had the iliac paſſion. She went on " under the ſymptoms of a ſtrangulated hernia " eleven days, her diſorder not being underſtood " or properly treated. Dr. *Binns* was now called: " he immediately made her friends acquainted with " the real ſtate of the buſineſs, and deſired a ſur- " geon might be called. I was ſent for, and ſhe " fell jointly under our care. Her pulſe, tongue, " and general aſpect reſembled that of a patient in " the laſt ſtage of a putrid fever, and ſhe appeared " as if ſhe had but a ſhort time to live; ſhe " faultered in her ſpeech, and ſeemed nearly " exhauſted. Her belly was exceedingly hard to

" the touch, and enlarged; ſhe was conſtantly
" vomiting up moſt offenſive fœcal matter; the
" tumor retained the marks of having been highly
" inflamed, and its centre, for about the ſize of a
" ſhilling, was a gangrenous ſlough. Without any
" hopes of ſucceſs I divided the eſchar, and con-
" tinued the inciſion the whole length of the tumor,
" with a view to diſcharge the contents of the in-
" teſtines, and give her ſome eaſe, by removing
" the tenſion of the belly. A prodigious quantity
" of fœcal matter and wind was diſcharged ſo
" offenſive that no perſon could for ſome time
" bear to remain in the room. Poultices of
" carrots, and antiſeptic waſhes, and fomentations
" were directed to the part, and ſaline draughts in
" the effervescent ſtate inwardly. In ſhort, the
" patient daily recovered. She was allowed a
" liquid nutritious diet: this, nearly as ſoon as
" taken into the ſtomach, paſſed through the
" wound unaltered. She was directed, therefore,
" to take only a little at a time, and to repeat it
" frequently; and reſtorative glyſters of milk and
" broth were frequently injected into the rectum.
" The internal ſurface of the wound appeared for
" ſome time a confuſed, putrid, ſloughy maſs;
" however, in eight or ten days, the anterior part
" of the hernial ſac, with the whole anterior ſur-
" face, and the whole of the peritoneal coat of the
" protruded inteſtine ſeparated, having the muſ-
" cular fibres more clear and diſtinct than could

" have

" have been done by an accurate diſſection. The
" fœces diſcharged through an aperture which lay
" where the fold of the inteſtine was in contact,
" and cloſe to the abdominal ring. It was curious
" to obſerve the conſtant periſtaltic motion of the
" protruded inteſtine, which had a continual and
" vermicular motion like that of a crawling worm.
" In about three weeks ſome part of the fœces firſt
" began to go paſt the wounded inteſtine, and ſhe
" had a diſcharge *per anum:* this daily increaſed,
" and diminiſhed at the wound, till the opening of
" the inteſtine totally cloſed. A difficulty, ap-
" parently, of conſiderable importance took place;
" the wound daily contracted, and conſequently
" drew the folded inteſtine together, or, in other
" words, the cavity in which it lay became ſo
" ſmall, that we were fearful it would be ſtrangu-
" lated in the wound, and the extremity of the fold
" was puſhed conſiderably above the ſurface of the
" ſkin. On maturely conſidering the caſe we
" thought it moſt prudent to let nature have her
" way, and go as far as ſhe was able towards com-
" pleting the cure before we called in the aſſiſtance
" of art. When the part was completely healed
" and cloſed, ſo that only a cavity, large enough
" to contain the inteſtine, projecting above the
" ſurface, remained, we had thoughts of applying
" a moderate preſſure by a lead weight, properly
" adapted to force the inteſtine within the limits of
" the wound, keeping the body in an horizontal

" poſition: this propoſal was debated when the " patient was preſent. At our next viſit we found, " what we had not reſolution to attempt, had been " ſucceſsfully done by our patient: ſhe applied a " three pound lead weight over compreſſes, pro- " perly adapted to the wound, and by this means, " without the ſmalleſt degree of pain or danger, " reduced and retained the inteſtine below the " ſkin, which had now an opportunity of forming " over the wound, which agreeable event ſoon " took place, and the patient's general health " completely returned. She remains at this day " perfectly well, and has been able to uſe very " laborious exerciſe, by which ſhe earns her live- " lihood."

CASE XXVIII.

January 3, 1783, a gentleman, about twenty-five years of age, applied to me on account of a rupture he had in the right groin. A conſiderable time before, he had a ſmall ſwelling in that part, and he acquainted me that he had applied to an eminent ſurgeon of London, who had procured a truſs for him; that ſometime after he had uſed it, he perceived his rupture return, and the next morning the ſwelling was increaſed to four times its uſual ſize. When I examined the part I perceived the ſpermatic proceſs occupied by a large tumor,

tumor, which ſeemed to extend under the tendon of the external oblique muſcle. It had much the appearance of a hernia, and it gave to the fingers the ſame kind of ſenſation which an inteſtinal rupture generally does. The tumor was manifeſtly affected by ſneezing and coughing: it was found, upon trial, irreducible, and the attempts made to return it, produced pain and uneaſineſs. No ſymptoms of ſtrangulation appeared; the patient had ſtools, and was neither ſick nor very much indiſpoſed. His buſineſs required him to go to London, I therefore adviſed him, for the preſent, to lay aſide the truſs, and to apply a common ſuſpenſory bandage. When he was in London he conſulted Mr. *Sharpe*, who, having very diligently examined the ſtate of the tumor, and ſuſpecting a fluid within it, made a ſmall puncture, through which a conſiderable quantity of watery fluid was diſcharged. The fulneſs of the ſpermatic proceſs immediately ſubſided, but the ſmall ſwelling which originally appeared in the groin, was ſtill perceptible. This was by preſſure reduced, and a proper elaſtic truſs being applied, retained it within the abdomen.

It appears from the preceding hiſtory, that a ſmall deſcent of inteſtine was, in this caſe, complicated with an hydrocele of the ſpermatic chord, and that the latter was probably occaſioned by the preſſure of the truſs, which had bruiſed or ruptured the lymphatics of that proceſs.

CASE XXIX.

April 10, 1778, I was ſent for to Rugby, in the county of Warwick, to conſult with an eminent phyſician and a ſurgeon, in the caſe of an elderly gentleman who, as I was informed by letter, had a ſtrangulated rupture. I found him in a weak ſtate in bed; the whole ſpermatic proceſs was occupied by a tumor which preſſed againſt or paſſed under the tendon of the external muſcle. The tumor throughout its whole extent was tenſe and painful wherever I preſſed my fingers againſt it; and had all the external appearance of an hernia. But had it been an hernia, and in an inflamed ſtate, it was natural to ſuppoſe that ſymptoms of a ſtrangulated inteſtine, or diſeaſed omentum, muſt have been produced. He had neither hiccough, vomiting, nauſea, coſtiveneſs, or any ſymptom indicating ſtrangulation. He had a natural ſtool every day during his confinement: the parts were in conſtant pain, and he was feveriſh. I was acquainted, that many years before, he had a rupture, and wiſhing to conceal it from his friends, had undertaken a journey to London, where the tumor was reduced, and a truſs applied; after the application of which the parts remained in their natural ſtate; that about a fortnight before, his truſs being worn out, he ordered another to be made under his own direction, and ſoon after he had applied it, he felt pain

and uneaſineſs in the part, which had continued and increaſed. The pad of the truſs, upon examination, was found as hard as a tennis ball. It was agreed that he ſhould loſe ſome blood at the arm, take cooling and ſaline medicines, and be treated in the antiphlogiſtic manner. Upon viſiting my patient two days afterward, I found a dark coloured ſlough beginning to form upon the part, againſt which the pad of the truſs had preſſed. He complained of much pain, uneaſineſs, and difficulty in the paſſing of his urine. In about a week from the time I firſt ſaw him he died.

In this caſe no doubt can be entertained but that the preſſure of the hard pad of the truſs, ill made, and injudiciouſly applied, occaſioned a contuſion of the ſpermatic proceſs, which, inflaming, terminated in a gangrene; and it is probable, alſo, from the ſymptoms, that the diſeaſe accompanied the vas deferens in its way to the poſterior part of the bladder, and occaſioned the painful and difficult diſcharge of urine.

CASE XXX.

September 13, 1783, Mr. *Harrold*, ſurgeon of this city, deſired me to viſit an elderly man with him, who had many preſſing ſymptoms of a ſtrangulated hernia. We found the groin and right ſide of the ſcrotum occupied by an oblong tumor,

which, upon examination, was diſcovered to be hard and unequal in its ſurface. Upon preſſing the part, or the inferior region of the abdomen, the patient complained of much ſoreneſs; he had a dejected countenance, a brown tongue, vomited frequently, and ſometimes had a hiccough. He had had, by the anus, no paſſage during the laſt five days, although calomel and other cathartic medicines had been given to procure ſtools. He informed us, that he had been ſubject to a rupture on that ſide ſeveral years; that he had generally ſucceeded himſelf in reducing it, but that it had been conſtantly down during the laſt month. A very aukward truſs, invented by himſelf, and which, by its ſtructure, was calculated to make a very improper and irregular preſſure upon the diſeaſed parts, we found upon the tumor. We directed a glyſter, compoſed of ſal catharticus amarus, and an infuſion of the leaves of tobacco, to be adminiſtered; but this was rejected almoſt as ſoon as it was given. The *extreme* hardneſs of the parts left us little room to entertain hopes of reduction by the taxis, aſſiſted by the means in common uſe. The caſe was dangerous; the ſymptoms were urgent; and we reſolved upon the operation. Before we concluded on this meaſure, we perceived, *as we imagined*, the teſtis in a natural ſtate beneath the inferior part of the ſcrotal ſwelling. I began an inciſion half an inch above the tumor, and continued it to the bottom of the ſcrotum. In diſſect-

ing

ing the parts I diſcovered that the tumor was a ſchirrous teſtis, and the ſpermatic chord was diſeaſed, and ſo much thickened, as to be equal in diameter to the teſticle itſelf. The upper part of the tunica vaginalis was adherent to the tunica albuginea of the teſtis, the lower part contained a fluid, into which projected the lower portion of the epididymis degenerated into a ſoft ſubſtance, as large as the teſtis, and which deceived us at our firſt examination. Caſtration was performed, and the ſpermatic chord was cut off cloſe to the opening of the tendon of the external oblique muſcle, but the diſeaſe extended too far within the abdomen, and the man was too much exhauſted by the previous pain he had ſuffered, to give that operation any chance of ſucceeding.

The hiſtory we received of thoſe circumſtances, by which the patient had deceived himſelf and us, the ſymptoms which, at the time we ſaw him, indicated a ſtricture upon the inteſtinal canal; the form of the tumor, its extending under the opening of the abdominal tendon, and the enlarged ſtate of the lower part of the epididymis, all contributed to miſlead our opinion, and to deceive our judgment.

CASE XXXI.

April 5, 1783, I was desired to visit a man, about fifty years of age, with Mr. *Harrold*, an ingenious surgeon of Atherstone, formerly a pupil of mine. He had a large painful tumor in the groin and scrotum. It was unequally hard; in some parts appeared to contain a fluid. The upper part of the spermatic process was not to be perceived, the tumor pressing against the tendon of the oblique muscle. An eminent surgeon in the neighbourhood had visited the patient, and declared the case to be a rupture. We were informed that the swelling began at the lower part of the scrotum, proceeding upward; and we entertained so little doubt of the case being a true schirrus of the testis, that we proposed castration as the only remedy. We were the more induced to this, because we entertained hopes from an obscure fluctuation we imagined we perceived in the upper part of the tumor, that some kind of fluid was contained there. Nor were we deceived. Mr. *Harrold* performed the operation; and in dissecting the upper part of the chord, several ounces of a watery fluid were discharged; the testicle was truly schirrous, and weighed upwards of two pounds. The patient recovered, and the wound was completely cicatriced.

CASE XXXII.

Auguſt 20, 1784, I was deſired to viſit a middle-aged man at Monk's-Kirby, in the county of Leiceſter. He had the ſymptoms of a ſtrangulated hernia. He had been two days under the care of Mr. *Bates*, a ſurgeon in the neighbourhood, who ordered to the hernia the application of warm fomentations, &c. Mr. *Jervis*, of Lutterworth, had been ſent for the night before I ſaw the patient, and after bleeding and cold applications had been uſed, ineffectually endeavoured to procure a reduction of the parts. The man remembered that in his early childhood he had a rupture, which had been cured; ſaid that about ſix or ſeven years paſt he had a ſwelling in his groin, which had never been very troubleſome to him; but that a few days before I ſaw him, by ſome ſudden exertion, the ſwelling had ſuddenly increaſed. We agreed upon the operation for the bubonocele, which was performed by Mr. *Jervis*. The ſwelling occupied the whole ſcrotum. The teſtis on that ſide was not perceptible. Upon dividing the hernial ſac a conſiderable quantity of water iſſued out. A large fold of inteſtine, *very dark coloured*, was found in contact with the teſtis. The tendinous opening of the muſcles was dilated, and the inteſtine was returned fairly into the belly, of which I convinced myſelf by an examination with the

the finger. There was ſtill a very conſiderable thickneſs and tumor of the ſpermatic chord, and whilſt we were examining it, through an opening ſo ſmall as not to admit the obtuſe end of the probe, a jet of a thin brown fluid, of an offenſive ſmell, broke out, and continued many minutes. It ſtopt ſuddenly; and, upon the patient's expreſſing a deſire of going to the cloſe-ſtool, it returned again. We formed various conjectures, none of which were very ſatisfactory, of the cauſe of this phenomenon. The wound was treated in the uſual way, and the man ordered to-bed; but the diſcharge of the fluid I have deſcribed made its way through the dreſſings and bandages. All the bad ſymptoms that preceded the operation continued after it, and the patient ſunk very faſt; he had no paſſage per anum; and in about thirty hours died. Upon diſſection, Mr. *Jervis* found the portion of the ileum, which he had returned from the ſcrotum, lying near the groin, much recovered in its complexion; tracing the inteſtine forward, he was ſurpriſed to perceive, at the diſtance of ten inches from the part juſt deſcribed, another portion of inteſtine ſtill engaged in the groin. Upon accurate examination, he found, that it was contained in a ſac, which had been puſhed into the ſpermatic proceſs. Thus, in this caſe, there had been a double hernia, one a common enterocele, the other the hernia congenita; the former had been relieved by the operation, the other had not. The

inteſtine

inteſtine within the ſac was much diſeaſed; was pretty generally adherent to it; and the part through which the fluid had been diſcharged at the time of the operation; both the inteſtine and the ſac were diſcovered to be in a ſloughy ſtate.

I have lately been favoured with the following Communication from Mr. ALANSON.

" *Ormſkirk, Aug.* 1, 1802.

" I am glad to find you intend to publiſh a " ſecond edition of your Obſervations on Herniæ, " as, I believe, you will ſtrengthen and throw new " light on what you have heretofore advanced " upon this ſubject. It will alſo give me an op- " portunity, by your permiſſion, of deſcribing a " new ſpecies of hæmatocele, which, I believe, is " without a precedent in the hiſtory of medicine. " At leaſt it has not occurred to me, that either " the ancient or modern records of ſurgery have " furniſhed ſuch a caſe. I ſhall alſo embrace the " preſent occaſion to relate a very ſtriking caſe, " where, in a ſtrangulated hernia, the ſtricture was " found *in the neck of the hernial ſac.* Having " performed the operation for the bubonocele in " ſixty-one inſtances, beſides being often preſent " with other ſurgeons, I have had frequent occa- " ſions to obſerve and demonſtrate the exiſtence of

" this

" this ſpecies of ſtricture, and, had it been neceſ-
" ſary, could have furniſhed you with many more
" inſtances of it. Permit me to conclude with a
" propoſal to reduce ſtrangulated herniæ by a
" method not uſually practiſed."

Caſe of a ſingular Hæmatocele.

" Mr. *H*——, of Everton, near Liverpool, received a wound from a thruſt of a ſharp-pointed penknife, which paſſed the length of the blade. The wound was ſituated below the cheſt on the left ſide, and immediately diſcharged a conſiderable quantity of blood, which brought on fainting, with the moſt extreme degree of languor, cold ſweats, and a pulſe ſcarcely perceptible. Mr. *Elliſon*, ſurgeon of the family, attended, dreſſed the wound, and treated the caſe in every reſpect judiciouſly. At five o'clock the next morning, the ſymptoms continuing with increaſed debility, and danger of immediate diſſolution, Dr. *Brandreth* was conſulted, and ſoon after I was called. We were at a loſs to account for the urgency of the ſymptoms, as the external loſs of blood was not ſufficient to occaſion ſuch extreme reduction of ſtrength, the patient being a ſtrong, ſtout, healthy man. It will be ſufficient, for the preſent purpoſe, to add, that he recovered very ſlowly; and three weeks elapſed before we could declare him out of danger. On the fourth day after this time, I was called and informed, that Mr. *H*—— laboured under ſymptoms

toms of ſtrangulated hernia. Leeches and cooling repellent topics had been applied, a purging mixture ordered, and attempts made to reduce it without ſucceſs. The tumor was large and extended from the opening of the external oblique muſcle, which was enlarged, and the diameter of the neck of the tumor was larger than common. It was tender, and would not admit much preſſure from the hand. The vomiting was urgent and very diſtreſſing; the belly tenſe and painful. Clyſters, calomel, and the conſtant application of cold water, with gentle attempts for reduction, were recommended. At our next viſit we found he had paſſed more ſtools than is uſual in a ſtrangulated hernia, or diſcharged by glyſters from that part of the inteſtine below the ſtricture. Although we could not exactly determine the nature of the caſe, we were unanimouſly of opinion it was time to open the tumor. The urgency of the vomiting, tenderneſs of the belly, and increaſed ſoreneſs, with an inflammatory bluſh on the ſwelling, directed our judgment. I made a long inciſion through the ſkin, and cautiouſly went on into the hernial ſac, proceeding to divide the whole from the ring to the bottom of the ſcrotum. The contents formed a ſolid heterogeneous maſs of a dark colour, much reſembling the ſolid ſubſtance contained in an old aneuriſmal ſac. It ſeemed compoſed of diſeaſed omentum and coagulated blood. The adheſions, which were general and ſtrong, between the omentum

tum and ſac, being next ſeparated, and, upon an accurate examination, it appearing certain that no inteſtine was engaged in it, I therefore drew down more of the omentum through the ring, ſo as to be able to divide it in the ſound part, and the whole contents of the tumor were cleared away. The edges of the wound being approximated were retained by ſuture, but a dependent opening was left at the lower part for the paſſage of any blood from the wounded omentum, or diſcharge which might be expected to take place from the ſurface of the hernial ſac, too much affected to admit of a ſpeedy union by adheſive inflammation. The reſtoration of the patient's health and cure of the wound went on without any interruption worthy of notice. This man had for many years been ſubject to an omental hernia; the ſac became the receptacle of internal hæmorrhage from the wound made by the penknife; the thin parts being abſorbed, the coagulable lymph united with the omentum, and formed a large compound coagulum, which very generally adhered to the hernial ſac."

Caſe of ſtrangulated Hernia, occaſioned by a Stricture of the Sac.

"*Thomas Wood*, of Warrington, was admitted into the Liverpool Infirmary for a ſtrangulated hernia. The tumor was of a long narrow form, extending from the ring to the bottom of the ſcrotum. The patient was a thin, pale, and very delicate

delicate man. He had been afflicted with a hernia from early infancy, had worn a truſs, and was thought to be cured; but, for a long time, he had a fulneſs in his groin, attended with ſoreneſs. As all the means uſually had recourſe to in theſe caſes had been tried previous to his admiſſion, recourſe was had to the operation. The hernial ſac contained a ſmall quantity of water, and a fold of the inteſtine ileum, which was ſomewhat inflamed and diſtended, but otherwiſe tolerably ſound. All circumſtances ſeemed favourable for reduction, yet gentle and continued efforts for that purpoſe did not ſucceed. The opening of the abdominal tendon was now freely divided, but reduction was ſtill impracticable. The inteſtine could be paſſed up only in part; and upon diſcontinuing the preſſure, it fell down again immediately. I then paſſed my finger within the abdominal cavity, where I found a ſtricture of a ſmall ſize, rigid, and firm in its texture, harder and more griſtley than a membrane, and nearly the whole length of my finger beyond the entrance into the cavity of the abdomen. The whole difficulty was now apparent, as alſo that of completing the operation. It ſeemed impoſſible to ſucceed without again dividing the abdominal ring very freely, ſo as to give room for the finger and knife to paſs. This being completed, my friend and colleague Mr. *Parke*, took hold of and ſtrongly pulled down the ſac, and brought the ſtricture, though with difficulty, ſo low that it could be diſtinguiſhed

diſtinguiſhed by the eye. It was ſo tight and complete that it was impoſſible to place the end of my finger between the gut and the ſtricture, ſo as to enable the end of the knife to act or divide with ſafety. The difficulty alſo was increaſed by that part of the ſac, for ſome diſtance below the ſtricture narrow, and of a pyriform ſhape, being ſo filled up with inteſtine that the folds could not be kept off the edge of the knife. To obviate this danger I covered the edge of the knife with ſlips of plaſter, and replacing my finger, placed the probe end of the knife a little ſhort of the extremity of the nail, and, by degrees, dividing one fibre after another, by repeated gentle ſtrokes of the knife, the ſtricture was at laſt divided.

The patient recovered. This was the moſt difficult, tedious, and dangerous buſineſs I ever went through in the operative way; and from which many uſeful practical hints may be deduced. It was a caſe of congeneal hernia; and the patient had long worn a truſs during the younger part of his life. In all the caſes I have met with (which have been many) where the ſtricture was formed in the ſac, I believe the hernia has been of the congeneal kind, and has been occaſioned by the cicatricula or point where the tunica vaginalis ſhould have cloſed on the teſticle and its appendages; or, where, in a common hernia, the caſe had been of long ſtanding, and a truſs had been generally worn. Under theſe circumſtances the entrance into the

ſac

ſac may be ſo conſtricted, and become ſo hard and thick, as to form a conſiderable ſtricture without much aſſiſtance from the abdominal tendon; and it is probable that ſurgeons have been frequently deceived; and when they have divided ſtrictures in the neck of the ſac, have imagined they had enlarged the opening of the tendon. I could have furniſhed you with many caſes where the ſtricture was in the ſac only, where I have either operated or been preſent, but preſume what has been ſaid will be ſufficient to convince the unprejudiced.

" I have long been an advocate for early operation in caſes of ſtrangulated herniæ, and cannot accuſe myſelf of having trifled away the life of a patient from delay, and a confidence in fruitleſs expedients too long continued. When the ſtricture is conſiderable, and has produced vomiting, the uſual exhibition of cathartics is always injurious, fatiguing, and inefficacious. The only means which promiſe ſucceſs are, placing the patient in a proper poſition, the continued application of cold water, aſſiſted by well-timed manual preſſure, and the influence produced in the nervous ſyſtem by the debilitating effects of the ſmoak or infuſion of tobacco injected into the rectum. During the action of this, very obſtinate ſtrangulated herniæ have returned. On a ſimilar principle I have for ſome time paſt been of opinion, that the moſt

efficacious remedy, adminiſtered internally, will be found in giving as large doſes of opium as are compatible with the ſafety of a patient's life. During the action of this, placing the patient in the moſt favourable poſition, let the hand be applied ſo as to aſſiſt the return of the protruded parts by a ſteady, firm, and continued ſupport. If this plan ſucceeds, the effect will be ſpeedy. It will not conſume too much of that precious time which is always running on againſt the life of a patient who is ſo unfortunate as to labour under a ſtrangulated hernia."

THE END.

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