Practical observations in surgery : illustrated with cases / by William Hey, Esq. F.R.S., member of the Royal College of Surgeons, in London.

PRACTICAL OBSERVATIONS IN SURGERY, ILLUSTRATED WITH CASES.

BY

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PREFACE.

Soon after I had entered upon the Medical Profeſſion, I began the cuſtom of committing to paper ſuch caſes, which occurred in my practice, as ſeemed rare, or peculiarly inſtructive; hoping that the peruſal of them might aſſiſt me in the diſcrimination and cure of diſeaſes.

The following *Practical Obſervations* are chiefly drawn from theſe records. I have ſelected ſuch as appeared to me the moſt uſeful, and ſuch as, I hope, are not altogether unworthy the public notice.

The reader will not find in the following pages many excurſions of fancy, or much theoretical reaſoning: he muſt be content with plain facts, recited in a plain manner.

The papers have been drawn up amidſt frequent interruptions, and ſometimes at conſiderable intervals. I have laboured to be perſpicuous; though I have often found it difficult to deſcribe a diſeaſe, or an opera-

tion, in a manner that ſhould clearly convey my meaning.

Where I have happened to differ in opinion from the authors whom I have quoted, I have endeavoured to expreſs my opinion in terms that ſhould give no offence. I have aimed only at truth and utility.

The advantages of writing hiſtories of diſeaſes, while they are preſent to our view, are ſo great, that I would ſtrongly recommend the practice to all who are engaged in the medical profeſſion, but eſpecially to young practitioners. The peruſal of caſes written by one's ſelf is attended with this advantage, that the ſenſe of the author is always underſtood: and my own experience leads me to obſerve, that uſeful deductions may be drawn from faithful hiſtories, many years after they were written, which did not occur at the time of writing.

Some caſes which I had written, have been ſuppreſſed, as the ſubjects of them have been anticipated by other writers. One diſeaſe which I have deſcribed, and to which I have ventured to give a name, had not been noticed by any author, with whoſe works I was acquainted, when I had nearly finiſhed my paper on that ſubject. I find, however,

that

that one form of it has been obſerved by Mr. Burns, of Glaſgow, who has given a deſcription of it, under the title of *ſpongoid inflammation*. Our conjoined accounts, will, I hope, throw conſiderable light upon the ſubject.

It will afford me pleaſure if the following ſheets ſhould be the means of alleviating, in any degree, the diſtreſſes of the afflicted.

CONTENTS.

ERRATA.

Plate II. fig. 2. The letter *b* points out that part of the bone which covered the lateral ſinus, p. 20.

p. 26, line 2, for "or" read "of."
71, laſt line but one. The *h* in "had" imperfect.
74, l. 23, for "peration" read "operation."
79, l. 3, for "care" read "cure."
141, l. 24, for "undoubted" read "undoubtedly."
153, l. 26, for "downards" read "downwards."
154, l. 7, for "theſe" read "thoſe."
161, l. 3, for "neceſſiy" read "neceſſity."
l. 12, dele "to."
267, l. 8, dele the full point after "ruber."
304, l. 16, for "Bromfield" read "Bromfeild."
336. dele "Caſe" as the catch-word.
378, l. 1, for "puois" read "pubis."
411, l. 16, for "coct." read "cochl."
439, l. 21, for "began" read "begun."
462, l. 5, for "of" read "by."
495, l. 7, for "vomitting" read "vomiting."

Since the firſt chapter was printed off, I have uſed ſome ſaws made by an ingenious mechanic in Leeds, which worked with more eaſe than any I had uſed before. They were made very thin, and the teeth were a little *ſet off* like the teeth of common ſaws.

CHAP. I.

On FRACTURES *of the* SKULL.

IT muſt appear evident to every one, who conſiders the great advantages which we receive from thoſe ſtrong coverings, with which our all-wiſe Creator has ſurrounded the brain, that no portion of them ought to be removed, in the treatment of injuries of the head from external violence, unleſs ſuch removal is neceſſary for the cure of the patient.

That excellent ſurgeon, the late Mr. Pott, ſtrenuouſly recommended the exciſion of a circular portion of the ſcalp, in all caſes where the application of the trephine became neceſſary; and as the opinion of ſuch an author muſt have great weight in ſettling the practice in theſe caſes, I ſhall examine the grounds of this opinion, being perſuaded that it is rarely, if ever, neceſſary to remove any portion of the ſcalp, while it remains in a ſound ſtate.

In Mr. Pott's works* we find the following directions: "If the integuments are not "wounded, or if the wound made in them be "ſo ſmall as not to admit a proper examina- "tion of the bone, and the circumſtances of "the caſe are ſuch as render ſuch inquiry ne- "ceſſary, a portion of the ſcalp ſhould be re- "moved. The manner of doing this has for- "merly been the occaſion of much difference "of opinion; but there can be no doubt "about the greater propriety of removing a "piece of the ſcalp for this purpoſe, by an "inciſion in a circular form, it being that "form which muſt afford the cleareſt view. "If there be no wound, the point ſtricken "ſhould be made the centre of the inciſion; "if there be a wound, ſuch wound ſhould be "made the centre of the piece to be removed; "and ſuch piece ſhould always be of ſize ſuf- "ficient to render the application of the tre- "phine eaſy."

Let us now examine the practice here recommended. If the ſcalp is not wounded, or the wound is ſmall, it is impoſſible to know the extent of the fracture, or the place where the trephine may be applied with the greateſt advantage. Allowing therefore, for argu-

* Vol. I. p. 157. oct. ed.

ment's

ment's ſake, that it is neceſſary to remove a portion of the ſcalp for the purpoſe of applying the trephine; it is impoſſible to know, till the courſe and extent of the fracture have been aſcertained, in what place this circular inciſion of the integuments is to be made. But when the extent of the fracture has been aſcertained, by a ſimple inciſion of the integuments, made along the courſe of the fracture, the removal of a circular portion of the ſcalp becomes unneceſſary. For if the fracture and conſequent inciſion are extenſive, a gentle ſeparation of the divided parts will afford ample room for the application of the trephine. If the fracture is of ſmall extent, a crucial diviſion of the ſcalp will be ſufficient for that purpoſe.

I have a farther objection to the method propoſed by Mr. Pott. I conſider it not only as unneceſſary, but injurious. For, ſuppoſing a circular portion of the ſcalp to be removed where the trephine is applied, there will then remain nothing to cover the dura mater, when the wound is healed, but a tender cicatrix; whereas, if the integuments (except the pericranium) had been preſerved whole in that part, they would in ſome meaſure have ſupplied the loſs of bone, and would have af-

forded in future a conſiderable degree of protection to the brain, which by the removal of the cranium is unavoidably expoſed to danger.

I conſider the preſervation of the ſcalp as a material advantage to a patient who has ſuffered a fracture of the ſkull; not only with relation to the benefit which that natural covering of the brain may afterwards afford him, but alſo with relation to the effect which ſuch preſervation has in expediting the cure. In many caſes, the ſcalp may be applied immediately to the cranium and dura mater, after the removal of ſuch part of the bone as is neceſſary to be removed: and where the immediate application is improper, the ſcalp may be kept ſeparate for a time, without injury to the patient, till the parts underneath it are brought into ſuch a ſtate as will admit a reunion.

If the exciſion of a portion of the ſcalp be conſidered as neceſſary, when a ſingle application of the trephine is to be made; for the ſame reaſon ſuch exciſion muſt be repeated, or enlarged, when the extent of the fracture requires a repeated application of that inſtrument. It is eaſy to conceive what a devaſtation of the ſcalp muſt be made in a very extenſive

tenſive fracture, by a ſurgeon who conducts himſelf agreeably to this doctrine. The late Mr. Gooch, who was an excellent ſurgeon, applied the trephine thirteen times in one caſe, and for that purpoſe removed the whole portion of ſcalp covering the fractured part of the cranium. An inſpection of the Plate, in which this fracture is repreſented, is ſufficient to convince any experienced ſurgeon how tedious the cure muſt have been, and how greatly the patient would have been benefited by the preſervation of the ſcalp, if ſuch preſervation had been practicable.

It is well known by every experienced ſurgeon, that the exiſtence of a fracture cannot always be aſcertained till the cranium is expoſed to view. Suppoſe then a ſurgeon called to a patient labouring under the uſual ſymptoms of a fracture of the ſkull, where there is no wound, nor inequality in the ſurface of the cranium, to be perceived; how is he to act in ſuch a caſe? According to the directions given by Mr. Pott, it ſeems that he ought to make a circular exciſion of the ſcalp, where the injury has been received, for the purpoſe of aſcertaining the exiſtence of a fracture. "If "there be no wound, the point ſtricken "ſhould be made the centre of the inciſion."

I am certain, however, that the ſurgeon whoſe practice is conformable to this direction, muſt not unfrequently have reaſon to cenſure the temerity of his own conduct, in depriving a patient, without neceſſity, of a portion of ſcalp, where a ſimple inciſion only was needful.

I had occaſion, when I was a young man, to witneſs an error of this kind in a ſurgeon whoſe abilities I reſpected. A circular portion of the ſcalp was removed, under the expectation of finding a fracture of the cranium, to the mutual regret of the ſurgeon and patient, as a tedious dreſſing of an unneceſſary wound was the conſequence. This circumſtance ſtruck me forcibly, and led me to uſe great caution in removing any portion of the ſcalp without an indubitable neceſſity.

If an unneceſſary removal of the ſcalp ought to be avoided in the treatment of fractures of the ſkull, it is of ſtill greater importance to preſerve every portion of the cranium, which the ſafety of the patient does not compel us to remove.

The only inſtrument now in general uſe, for ſawing out any portion of the cranium, is the trephine, or trepan. I ſpeak of theſe as one, as they differ only in the manner of working.

working. The uſe of this inſtrument cauſes an unneceſſary deſtruction of the cranium, and in other reſpects is attended with inconvenience. The piece of bone ſawed out by the trephine muſt be of one figure, whatever be the form of the fracture; and the quantity of bone removed muſt be generally greater (ſometimes conſiderably greater) than the caſe requires.

The purpoſes for which any portion of the cranium is removed are, to enable the ſurgeon to extract broken fragments of bone, to elevate what is depreſſed, and to afford a proper iſſue to blood or matter that is, or may be, confined. I will conſider each of theſe purpoſes with reſpect to the application of the trephine.

When a broken fragment of bone is driven beneath the ſound contiguous part of the cranium, it frequently happens, that the extraction cannot be executed without removing ſome of the unbroken part, under which the fragment is depreſſed. This might generally be effected with very little loſs of ſound bone, if a narrow portion of that which lies over the broken fragment could be removed. But ſuch a portion cannot be removed by the trephine. This inſtrument can only ſaw out a

circular piece. And as, in executing this, the central pin of the ſaw muſt be placed upon the uninjured bone, it is evident, that a portion of the ſound bone, greater than half the area of the trephine, muſt be removed at every operation. When the broken and depreſſed fragment is large, a repeated application of the trephine is often neceſſary, and a great deſtruction of ſound bone muſt be the conſequence.

When the injury conſiſts merely of a fiſſure with depreſſion, a ſmall enlargement of the fiſſure would enable the ſurgeon to introduce the point of the elevator, ſo as to raiſe the depreſſed bone. But a ſmall enlargement of the fiſſure cannot be made with the trephine. When it is neceſſary to apply the elevator to different parts of the depreſſed bone, a great deal of the ſound cranium muſt be removed, where a very narrow aperture would have been ſufficient.

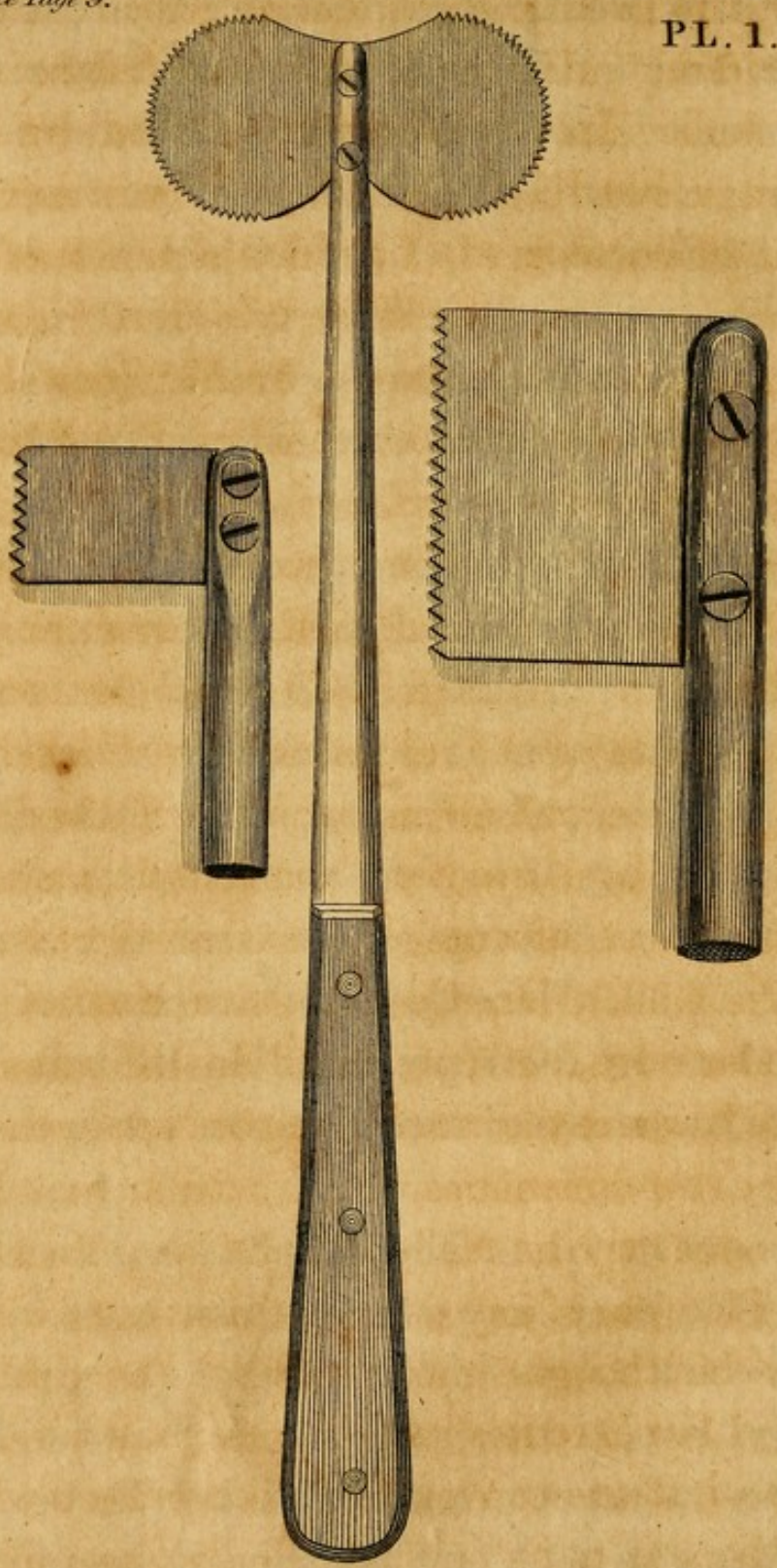
The ſame reaſoning will apply to the caſe of openings made for the purpoſe of giving a diſcharge to extravaſated blood, or matter.

If a ſaw could be contrived, which might be worked with ſafety in a ſtraight, or gently curvilineal direction, it would be a great acquiſition to the practical ſurgeon. Such a ſaw

I can

To Face Page 9.

PL. 1.



I can now with confidence recommend, after a trial of twenty years, during which time I have rarely uſed the trephine in fractures of the ſkull. Its uſe has been adopted by my colleagues at the General Infirmary in Leeds; and will be adopted, I ſhould hope, by every ſurgeon who has once made trial of it.

It was firſt ſhewn to me by Mr. (now Dr.) Cockell, an ingenious practitioner at Pontefract, to whom the public is indebted for the diſcovery, or revival, of this excellent inſtrument. A ſaw, formed on the ſame principle, is repreſented in Scultetus's Armamentarium chirurgicum; but I underſtood Dr. Cockell to ſay, that the inſtrument which he ſhewed me was of his own invention, and that he had uſed it with great advantage in extenſive fractures of the ſkull. Dr. Cockell's ſaw had a ſemicircular edge, as repreſented in the annexed Plate*, where the ſize of the figure is two-thirds of the real dimenſions of the inſtrument. But the edge may be made ſtraight, (as is ſhewn in the Plate) or of any degree of convexity which may be thought moſt uſeful. The ſtraight edged ſaw executes its taſk with greater readineſs; but the convex edge is neceſſary when the bone is to be ſawed in a curvilineal direc-

* Plate I.

tion.

tion *. It is alſo uſeful when the thickneſs of that part of the cranium which is to be ſawed out is very unequal.

This inſtrument is worked with eaſe, if the preſſure made upon it by the hand is light. It ſaves much time in caſes of extenſive fracture, where the repeated application of a trephine would have been needful; and it may be uſed with leſs danger of wounding the dura mater, if the ſame precautions are uſed, in examining from time to time the depth of the groove, as is neceſſary in the uſe of the trephine.

I ſhall not enter at large upon the treatment of injuries done to the head by external violence; but ſhall refer my reader to the many excellent treatiſes and obſervations which have been already publiſhed on that ſubject. I ſhall only give a ſhort ſketch of my own practice, as far as relates to the preſervation of the ſcalp and cranium.

* The ſaws here repreſented were made by Mr. Savigny, in London. Thoſe with a ſtraight edge are drawn the real ſize of the inſtrument, and were ordered by my colleagues at the General Infirmary, Meſſrs. Logan and Chorley. It has been ſuggeſted to me by an ingenious friend, that the edge of the ſaw ought to be ſomewhat thicker than the remaining part, that it may work more eaſily in the groove.

When

When I am called to a patient labouring under the ſymptoms of a fractured ſkull, if I find no wound in the ſcalp, upon examining the head when ſhaved, I make an inciſion through the ſcalp in the part where a fracture is moſt to be ſuſpected. If no fracture appears, I take ſo much blood from the divided arteries, as the ſtate of the patient ſeems to require, and then unite the lips of the wound.

If the bone is fractured, I enlarge the wound by a ſimple inciſion along the courſe of the fracture, tracing the fiſſure, or fiſſures, through their whole extent, unleſs they are continued to the baſis of the ſkull, or where their limits cannot be explored. I do this either by cutting carefully upon the fiſſure, if it is ſmall; or, if it is wide, and the pericranium much ſeparated, by placing the back of my knife upon the fiſſure, and ſlitting open the integuments, as the courſe of the fracture directs. Having thus expoſed the whole extent of the fracture, avoiding all unneceſſary detaching of the pericranium; and having obſerved what is neceſſary to be done, for removing broken fragments, raiſing depreſſed bone, or giving iſſue to confined matter; I ſaw

off

off ſuch pieces of the cranium as require to be removed, while the integuments are held back by the aſſiſtants.

The line, in which the ſaw is to be moved, is firſt marked out by drawing it gently along the bone in the proper direction; or the ſurgeon may fix the courſe of the groove, by placing the nail of his thumb or fingers upon the cranium, as a guide to the ſaw. It happens not unfrequently that the fiſſure itſelf may be made the groove in which the ſaw is worked; and in this caſe no more bone is removed than that which the injury done to the head has rendered uſeleſs, as in the following caſe:

CASE I.

In 1781, a ſon of Mr. Chriſtopher Topham, of Leeds, aged fourteen years, received a blow upon his head, from a piece of brick thrown at him. He vomited frequently on the two firſt days after the accident, and then retained his food. His parents, not apprehenſive of the real nature of the injury, did not ſend for me till the fourth day after the accident. He had then a conſiderable degree of fever, but was ſtill able to walk about his room, though ſome portions of the brain were lying amongſt the hair.

Upon

Upon examination, I found a fracture of the right parietal bone, of an oval figure, two inches and a quarter in length, and an inch and half at its greateſt breadth. To this extent the bone was depreſſed, but not ſeparated from the contiguous part of the cranium. Near the middle of the fractured part, where the depreſſion was the greateſt, there was a hole, and there the broken edges of the bone had pierced the dura mater, and wounded the brain. The bone was not depreſſed beyond the extent of the fracture. With the convex-edged ſaw I took out the depreſſed bone, by making the exterior fiſſure to be the groove in which the ſaw was worked, without the loſs of any portion of uninjured bone, except a very ſmall part at each extremity of the fracture, where it was neceſſary to bring the grooves to a point*. The removal of the depreſſed bone in this caſe would probably have required the application of a trephine at four places.

The ſuperiority of an inſtrument, which will enable the ſurgeon to remove ſuch a piece of bone, without any other loſs to the patient, than of the part rendered uſeleſs by the in-

* See Plate II. Fig. 1.

jury,

jury, muſt be obvious to every one. The time taken up by the operation was alſo conſiderably ſhortened, and leſs danger of wounding the dura mater was, in my opinion, incurred.

A fungus, about the ſize of a large nutmeg, aroſe from the brain, and had a ſtrong pulſation. I made no preſſure on the fungus, but only applied mild dreſſings, generally dry lint. At the end of three weeks the fungus was reduced nearly to a level with the reſt of the wound, which then healed ſpeedily.

In extenſive fractures, where a long portion of bone is depreſſed, the advantages ariſing from the uſe of this inſtrument require no laboured comment. The following caſe will make them ſufficiently manifeſt.

CASE II.

In 1784, I was ſent for to Garforth, a village about ſeven miles from Leeds, to the ſon of a collier, aged thirteen years, who had ſuffered a fracture of the ſkull, from the fall of a coal in the ſhaft of a coal-pit. The boy had vomited frequently, but continued ſenſible. There was a contuſed wound on the left ſide of his

head, about three inches in length. I enlarged this wound, and traced the fracture through its whole extent. It began in the frontal bone, a little above the temporal muſcle; croſſed the coronal ſuture at right angles, running obliquely backwards and downwards, acroſs the left parietal bone, to the occipital ſuture a little above the maſtoid proceſs. On the anterior part of the parietal bone the fracture was broad, and ſeveral broken pieces were depreſſed. In the remaining part, the fiſſure was wide; but the cranium remained at its due level. In my notes, made during my attendance on this patient, I find it remarked, that it would have required eight or nine perforations of the trephine, in order to remove the depreſſed pieces, and enlarge the fiſſure; whereas I was able to take out all the depreſſed pieces, without applying the ſaw beyond the breadth of the fracture, except where I thought it proper to enlarge the fiſſure a little; and this was effected by a longitudinal diviſion of the bone on one ſide of the fiſſure.

The dura mater was found covered with coagulated blood where the bone was broken into fragments. Beneath the poſterior part of the fracture, where there was merely a gaping fiſſure, without depreſſion of the cranium,

nium, I found a lacerated wound of the dura mater, two inches in length.

I did not remove any portion of ſcalp in this operation.

An oblong fungus aroſe through the aperture in the dura mater; but with ſimple dreſſings, without preſſure, the fungus retired as the cicatrization advanced, and the boy got well, without having loſt any portion of the ſcalp, or any part of the cranium, except the broken fragments, and a narrow ſtrip of bone which lay over the wound of the dura mater.

My uſual method of dreſſing after the operation has been, to cover the dura mater with lint, and to lay down the flap of ſcalp upon the lint, till granulations have ariſen from the dura mater, and filled up the cavity made by the loſs of bone. I have then placed the flap in immediate contact with the inferior granulations, and ſupporting it with plaſters, have thereby promoted a ſpeedy union of the parts. But ſince Mr. Mynors of Birmingham, publiſhed a caſe, in which he laid down the ſcalp upon the dura mater, without any intervening dreſſings, I have ſeveral times, in favourable caſes, followed this method with advantage, and have even united the divided integuments

by

by ſtitches of the interrupted ſuture. But this method is not proper in all caſes. Where the dura mater is lacerated, and portions of the brain are coming away, it muſt evidently do miſchief. So alſo in fractures, where the termination cannot be aſcertained, I ſhould decline ſuch a practice.

When I have attempted to bring about the adheſive proceſs in the firſt inſtance, I have not been able to prevent ſome degree of ſuppuration, but if the wound had a depending orifice, the matter eſcaped between the ſtitches, and the divided ſcalp healed with a very narrow cicatrix. When the orifice of the wound has not been favourable for the iſſue of the purulent matter, an abſceſs has ſometimes formed near the fracture, and has required an inciſion of the integuments. But this is a much leſs inconvenience than that of leaving the dura mater uncovered by the ſcalp, when it had loſt its natural covering of bone. Moſt of the caſes, in which I have uſed Mr. Mynors's method, have been fractures of the os frontis.

The following caſe affords an inſtance of the ſafety and advantage of this method.

CASE III.

Auguſt 9th, 1800. I was called to the ſon of Thomas Wood of Birſtal, aged ten years, who, by falling into a ſtone quarry the preceding evening, had fractured his ſkull. He had remained inſenſible ſince the accident.

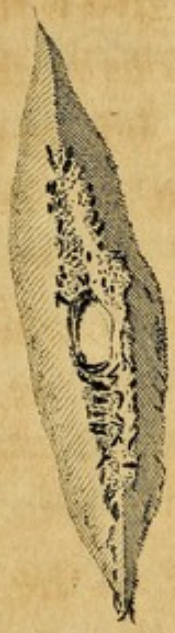
There were two tranſverſe fiſſures in the upper part of the os frontis, on the left ſide. One of them was between two and three inches in length; the other was ſhorter. Juſt above theſe fiſſures, the bone was depreſſed tranſverſely about two inches, as if it had been ſtruck with the edge of a ſtone. The bone was not broken where it was depreſſed, but was driven inwards, ſo as to form at the bottom a narrow furrow, or groove. With the ſtraight-edged ſaw I cut through the bone at the bottom of the furrow, and alſo at the loweſt fiſſure. I took away the intermediate bone, and then raiſed that portion of the cranium, above the furrow, which yet remained depreſſed. The dura mater was not injured. I drew together the integuments, and united them by the interrupted ſuture.

The boy was delirious and reſtleſs, frequently ſhouting during the operation. He had been bled by Mr. Booth, the ſurgeon who

To face Page 19.

PL. 2.

Fig. 1



was attending him. I directed a purgative to be given, and the ſaline draughts after its operation. I adviſed the application of a bliſter to his head, with bleeding by leeches, if the delirium ſhould continue *.

11th. He was much better, but had not regained his underſtanding completely. He was more calm, and could give a rational anſwer ſometimes to the inquiries made of him.

I did not viſit him again, but was informed by his ſurgeon, that he ſoon regained his underſtanding, and was able on the 10th day after the operation to walk from his father's houſe, which was a public one, to that of a neighbour, to avoid the noiſe of a large company.

The wound was healed on the 26th day after the operation.

Fig. 1. in Plate II. repreſents that portion of the parietal bone, which was removed by the circular ſaw, in the firſt of the preceding caſes. This fractured portion was conſiderably depreſſed from its circumference, where it remained attached to the ſound part of the parietal bone. It was fiſſured alſo in various directions, and had a hole formed in it near its middle, where the letter *a* is placed. Before the drawing was taken, (which is a mere

* Theſe means were not uſed.

outline) the bone was reduced to a flat ſtate by preſſure. An inſpection of the figure will ſufficiently demonſtrate the great advantage of an inſtrument, which could remove ſuch a broken piece of bone, ſtill adhering firmly at its circumference to the ſound part, without any loſs of ſound bone, except a very ſmall part at each extremity of the fractured portion. As it was neceſſary to bring the grooves, in which the ſaw moved, to a point, at each extremity of the fractured portion, the loſs of a minute quantity of ſound bone was unavoidable; but this was trifling, compared with the quantity deſtroyed at every operation, by the uſe of the trephine.

Fig. 2. Repreſents the edge of a portion of the os occipitis, which it was neceſſary to remove in an extenſive fracture of that bone, that paſſed acroſs one of the lateral ſinuſes.

Not to enlarge at preſent upon the impoſſibility of removing ſo long a piece of bone with the trephine, without deſtroying a great deal of ſound cranium, by the frequent application of that inſtrument, I ſhall only remark, that the annexed figure ſhews how difficult it would have been to ſaw out ſo unequal a piece of bone with the trephine, without injuring the dura mater. By means of the ſaws above repreſented,

repreſented, I took out this piece without the leaſt injury to the lateral ſinus. I uſed the ſtraight ſaws till I had got through the thinner parts of the bone, and then divided the thick parts by means of the convex-edged ſaw, which will ſafely divide a narrow ridge of bone, as it does but touch the part with two or three teeth at once.

Though this inſtrument is principally uſeful in fractures of the ſkull, yet its uſe is not confined to ſuch caſes. It may be applied for the removal of bone under ſuch circumſtances as will not admit the uſe of a common ſaw. I found it to be a convenient inſtrument in one of the following caſes of caries in the tibia, and have annexed two figures of the piece of bone, which it enabled me to remove, for the purpoſe of exploring a deep ſeated caries in the tibia of a young lady, whoſe caſe I ſhall relate.

Fig. 3. and 4. give an exterior and interior view of the wedge of bone, which was ſawn out of the tibia of the young lady, whoſe caſe is related in the next article.

ABSCESS *in the* TIBIA *with* CARIES.

CASE I.

TOWARDS the concluſion of the year 1786, a young lady from Richmond, in Yorkſhire, conſulted me, on account of a ſmall tumour in the anterior and middle part of the tibia. It had exactly the appearance of a common node; and had ſuch a degree of ſoftneſs in its centre, that I apprehended a ſmall quantity of fluid was contained in it; though that could not, from the thickneſs of the perioſteum, be diſtinctly felt. The account which ſhe gave me of her diſorder was as follows:

In the preceding May ſhe had a fever, which continued about four weeks; at the expiration of which, a violent pain began to affect her leg. The pain continued without intermiſſion during ſix weeks, and then abated upon the appearance of a ſmall tumour on the ſhin. She could then walk about with little or no uneaſineſs: but ſneezing or coughing cauſed a painful ſenſation in the tumour. She was, in other reſpects, in perfect health.

I recom-

I recommended the trial of ſome means to effect the diſperſion of the tumour; and with this view I directed Plummer's pill, with the decoction of Mezereon, and applied mercurial ointment to the part, covering the tumour, in the intervals of this application, with ceratum ſaponis. By the uſe of theſe means the tumour became leſs, and the uneaſineſs was diminiſhed; ſo that the young lady thought herſelf nearly well. But before the expiration of winter the tumour began again to increaſe in bulk; and in the ſummer 1787, ſhe returned to Leeds to put herſelf intirely under my care.

The tumour was then larger and ſofter, and there remained not the leaſt hope of curing my patient without diſcharging the matter, and afterwards treating the caſe as the ſtate of the perioſteum and tibia might require.

Upon laying open the tumour, I found the perioſteum diſeaſed, and thickened; ſeparated from the tibia, and including a ſmall quantity of purulent matter. The ſurface of the tibia was rough, as far as the matter had covered it; and in the centre of the rough part there was a hole equal in bore to a gooſe's quill, which penetrated the bone in a direct line about a quarter of an inch.

As the bone was firm in the rough part, and reſiſted the preſſure of a probe, I thought it right to try whether the ſurface, upon expoſure to the air, would not produce good granulations; and, therefore, after removing ſo much of the perioſteum as I found in a morbid ſtate, I dreſſed the wound ſimply.

Upon continuing this treatment about a fortnight, I became ſenſible, that more matter iſſued from the wound than the ſurface of it ought to have produced. Suſpecting that the hole above mentioned might lead to ſome cavity in the bone, I plugged it up with lint, and found, on removing the plug the next day, that more purulent matter flowed out than the perpendicular cavity of the bone could contain. I made an examination with a bent probe, and diſcovered a horizontal cavity connected with the perpendicular one, and running both upwards and downwards in the longitudinal direction of the bone. It was now clear that the bone was affected with an internal caries; but it was impoſſible to aſcertain the extent of the caries by ſuch an examination.

Nothing now remained to be done, which could afford a rational hope of curing this diſeaſe, except amputation of the limb, or a bold

bold attempt to explore fully the extent of the internal caries, and to remove the diſeaſed part of the bone. I explained the caſe fully to my patient, who ſubmitted intirely to my judgment the means to be uſed for her recovery. She had apparently a good conſtitution; and, excepting the caries of the bone, was in perfect health. I determined therefore to avoid, if it were poſſible, disfiguring this young lady by an amputation. I was ſatisfied that ſhe would not reproach me on account of my ineffectual endeavours to preſerve her limb, if my attempt to remove the diſeaſed part of the bone ſhould prove unſucceſsful.

I began the operation by diſſecting off the granulations of fleſh which had ariſen from the bone, and then ſawed out, by means of a circular headed ſaw, a wedge of the tibia two inches in length, which I had previouſly marked at each extremity of the longitudinal cavity in the bone. This wedge was half an inch in breadth, and a quarter of an inch in thickneſs, and conſiſted intirely of the laminated part of the bone. The removal of this portion of the tibia brought to view a caries of the cancelli almoſt as extenſive as the length of the piece which I had ſawed out. With

different

different trephines, ſuited to the breadth of the caries, I removed the diſeaſed cancelli of the bone quite through to the oppoſite lamella, as this part of the bone was carious throughout its whole thickneſs.

As the caries extended itſelf in various directions, it was not poſſible to remove the whole of it with a trephine, without removing alſo a large portion of the ſound part of the bone. But this I wiſhed to avoid as much as poſſible. By the aſſiſtance therefore of a ſtrong ſharp pointed knife, I purſued the caries in every direction, until I had removed every part which had an unſound appearance.

This operation took up more than two hours; yet the young lady bore it with the utmoſt patience and fortitude. I dreſſed the cavity in the bone, and the reſt of the wound, with dry lint, in the moſt ſimple manner. The whole ſurface was ſpeedily filled with good granulations, and a complete cure was obtained without any exfoliation.

The limb which was diſeaſed has now as much ſtrength as the other; and no uneaſineſs is produced even by violent exerciſe.

REMARKS.

REMARKS.

Upon a review of this caſe, I am inclined to think, that an abſceſs was formed within the tibia in conſequence of the fever which ſhe had in May 1786. During the continuance of the fever, ſhe had no particular pain in her leg; but upon the decline of the fever the pain commenced, and continued violent for ſix weeks. It ſeems moſt probable, that during this time the matter was making its way through the anterior lamella of the tibia, and that the pain abated ſoon after the matter had perforated the bone; for it ceaſed immediately upon the appearance of a tumour on the ſhin. It is ſurpriſing that ſuch a perforation ſhould have been made through ſo firm a part of the bone, without any extenſive caries in the lamella; eſpecially as the lamellated part of the tibia was remarkably firm and thick. The perforation appeared as if it had been made with a gimlet. The pain was ſo great during this operation of nature, that my patient aſſured me, and that immediately after the removal of the carious part of the bone, that ſhe had ſuffered more pain during the whole of the ſix weeks above mentioned,

tioned, unleſs when ſhe was aſleep, than I had cauſed during the operation neceſſary for removing the unſound bone.

CASE II.

Hannah Croſt, a ſtout young woman, aged fifteen, was admitted an in-patient of the General Infirmary at Leeds, in the beginniug of the year 1792. She had a ſcabby eruption on one of her hips, and a ſmall ulcer in the leg. As the ulcer ſhewed no granulations of fleſh, yet diſcharged daily a quantity of purulent matter, I examined it with a probe, and found that the bone was carious beneath. Upon preſſing the integuments, which ſurrounded the ulcer, againſt the tibia, I could diſtinctly feel a roughneſs in the bone, extending to the breadth of a ſhilling, with a depreſſion in the middle of the rough part. I divided the integuments as far as this roughneſs extended, and found a circular portion of the tibia to be carious, and to have a hole in the middle of it, out of which iſſued purulent matter. The patient had felt very little pain in her leg previouſly to her admiſſion into the Infirmary; and when firſt admitted took little notice of the ulcer in her leg.

I thought

I thought it adviſable to treat this patient in the manner which had proved ſo ſucceſsful in the preceding caſe; and, having divided the integuments upwards and downwards, until the whole of the caries was expoſed, I proceeded to remove the diſeaſed parts of the bone.

I firſt took away the central part, where the abſceſs was formed in the tibia, by the help of a trephine. The lamellated part of the bone, ſurrounding the hole out of which the matter chiefly iſſued, was in this caſe carious; but the diſeaſe did not run deep into the cancelli of the bone. Above and below this central part, the caries ſeemed to be intirely confined to the lamella, and extended, in the whole, about ſix inches. After ſawing out, with the trephine, the part principally affected; I removed the reſt of the caries with ſharp gouges, cutting off every portion of bone which had a morbid appearance.

The operation was tedious, but amply repaid my patient for the pain which it gave her, by the preſervation of her limb. The diſeaſed parts of the bone were ſo completely removed, that there was not the leaſt exfoliation during the progreſs of the cure; and

the

the wound was intirely cicatrized at the expiration of ten weeks.

Meſſrs. Lucas and Logan attended, and gave me their aſſiſtance at the operation.

I have treated ſome other caſes of caries in the tibia in the ſame manner, and with equal ſucceſs. Where the extent of the caries is not ſo great as to prevent a complete removal of the morbid part, this method is extremely uſeful, and far ſuperior to the uſe of the potential or actual cautery.

The trephine is not wanted where the cancelli of the bone are not affected with the caries. The diſeaſed parts of the lamella may be removed with gouges, or ſmall chiſſels. Granulations of fleſh will then ariſe from the ſound parts of the bone, and become united with the integuments, which ought to be preſerved as far as is poſſible.

A WOUND *of the poſterior* TIBIAL ARTERY.

AS the ſaws above deſcribed were found to be extremely uſeful in this caſe, and as the operation, by which the cure was effected without amputation of the limb, was never before performed within the compaſs of my knowledge, I ſhall relate the particulars of the caſe, though the patient did not come immediately under my own care.

June 22d, 1801. John Appleyard, a collier, aged fifty-four years, was admitted an in-patient of the Leeds Infirmary, under the care of Mr. Logan, on account of a wound in his leg, made with a ſharp pick-ax, the 15th inſtant. The wound had bled violently at the firſt, but the hæmorrhage ceaſed in a ſhort time, and did not return till near the expiration of a week. Mr. Logan was then deſired to viſit the poor man at his own houſe; but the hæmorrhage, though it had been again violent, had ceaſed before his arrival.

Mr. Logan, finding that the pick-ax had paſſed into the man's leg between the tibia and fibula, and had made a deep wound, in which, without dilatation, the bleeding veſſel could

could not be diſcovered, recommended a removal of the patient to the General Infirmary.

24th. I ſaw the patient with Mr. Logan. The wound was then plugged up by pieces of ſpunge, which the houſe apothecary had applied, upon an appearance of returning hæmorrhage. There was at this time no bleeding; and the leg being in an inflamed ſtate, we judged it beſt to apply a mild poultice, and to defer an enlargement of the wound till the inflammation ſhould have ceaſed.

July 1ſt. The hæmorrhage returned, but was immediately checked by the application of a tourniquet. Mr. Logan called a conſultation of the ſurgeons, and as the inflammation of the leg had now ceaſed, it was determined to make an attempt to ſecure the bleeding veſſel. After the removal of the ſpunge, the wound was carefully examined. It admitted a finger to paſs readily behind the fibula to the ſide of the tendo Achillis, at which place the wound approached near the ſkin. As it was impoſſible to diſcover the wounded veſſel through the orifice at which the pick-ax had entered, it was thought proper to make a wound on the back part of the leg by the ſide of the tendo Achillis, where the integuments

felt

felt thin. Upon ſlackening the tourniquet, the blood guſhed out at both the wounds, and appeared ſo clearly to flow from a veſſel deeply ſeated behind the fibula, that there ſeemed to be no hope of diſcovering and ſecuring the veſſel by means of an inciſion made on either ſide of the fibula. In this dilemma it occurred to me, that the late Mr. Gooch had propoſed the removal of a portion of the fibula, in ſuch a caſe as the preſent, to prevent the neceſſity of amputating the limb. I mentioned this thought to my colleagues, who approved of the propoſal, and the operation was immediately performed by Mr. Logan.

After making a proper diviſion of the integuments, the peronæi muſcles were ſeparated from the bone ſufficiently to admit of the removal of a piece two inches in length. It was impoſſible to perform this part of the operation with a common ſaw, without cutting through the peronæi muſcles. The uſe of a trephine would have left four ſharp projecting points of bone, which would have required the aſſiſtance of the ſtrong bone nippers. But the ſaws above deſcribed took off the bone without injury to any of the contiguous ſoft parts,

and without leaving any projecting point of bone.

The removal of the bone gave us a complete view of the wounded artery, in which a hole had been made by the point of the pickax, at the diſtance of three inches above the joint of the ancle. The veſſel was tied both above and below the orifice, and after the divided integuments were in part united by ſutures, the leg was placed in a fracture box.

The patient recovered without any bad ſymptom.

CHAP. II.

On the CATARACT.

MY original deſign in the following obſervations was to lay before the reader ſuch remarks on the practice of *couching*, as my own experience had enabled me to make; without entering upon a diſcuſſion of the comparative merits of that operation, and the more faſhionable one of *extraction*. But as Baron Wenzel has given, what I eſteem to be, a very erroneous account of the diſadvantages of the former operation; and as Mr. Ware, the tranſlator of the Baron's work, appears to coincide with this author in his opinion on the ſubject; I have judged it neceſſary to make ſome remarks on the Baron's objections, and to compare the real diſadvantages of the two methods of operating for the cure of the Cataract.

I had finiſhed my obſervations before Sir James Earle's *Account of a New Mode of Operation* fell into my hands; and as I have had no opportunity of ſeeing Sir James's operation,

or even his inſtrument, I ſhall make no reflections on his work, but ſincerely wiſh, that his new mode may be found ſuperior in utility to any that has been hitherto practiſed.

The term *Cataract*, when applied to the eye, is uſually defined to be, *an opacity of the cryſtalline humour, or its capſule.* This definition gives a juſt idea of the nature of the diſeaſe, but leads to an incorrectneſs in language, when ſpeaking on the ſubject. *Opacity*, being only a quality of the cryſtalline, cannot be depreſſed or extracted. It is the cryſtalline itſelf, or its capſule that is the ſubject of operation. We ought, therefore, to ſay, that the term *cataract* either expreſſes an opacity of the cryſtalline, or the cryſtalline itſelf in an opake ſtate. After this definition, we can ſpeak with propriety of breaking, depreſſing, or extracting a cataract.

My own experience having led me to prefer the mode of depreſſion, I ſhall lay before my reader ſuch obſervations on that method of operating, as a practice of thirty-three years* has enabled me to make; and ſhall

* I entered upon the profeſſion of Surgery in the year 1759, but did not begin to perform this operation till the year 1768. Since that time, the caſes of Cataract which have come under my care have been ſomewhat numerous.

ſubjoin

ſubjoin a few caſes to illuſtrate theſe obſervations. Theſe, I hope, will not be altogether uſeleſs to thoſe practitioners who may chooſe to operate after this method, which appears to me to be both more eaſy, and more ſafe, than the common method of extraction.

Before I enter upon theſe obſervations, it may not be amiſs to make a few anatomical remarks on the ſtructure of the eye, as far as relates to the operation of *couching*. Theſe are the more neceſſary, as ſome of the lateſt and beſt writers on the operation have delivered opinions, or directions, inconſiſtent with the ſtructure of the eye.

A ſurgeon, who undertakes this operation, ought to have a clear idea of the ſtructure and ſituation of the cryſtalline humour, and its capſule; of the iris; and alſo of the manner in which that part of the eye, called its *poſterior chamber*, is formed.

The cryſtalline may be conſidered as conſiſting of two plano-convex lenſes, of unequal bulk and convexity, joined together by their flat ſurfaces. The larger and more convex part of the cryſtalline lies ſunk in a cavity formed in the anterior part of the vitreous humour; while the ſmaller and leſs convex portion projects a little before the anterior

ſurface of that humour. That part of the cryſtalline, which may be conſidered as the place where theſe two unequal portions unite, lies contiguous to the brim of the cavity formed in the vitreous humour. From this brim goes off the capſule which covers the anterior part of the cryſtalline. And although the poſterior portion of the cryſtalline is alſo inveloped by a capſule, yet it is this anterior covering chiefly, which, in ſpeaking of the cataract, is denominated its *capſule*.

The cryſtalline humour is of firm conſiſtence at its centre, but becomes gradually ſofter towards its circumference, where it approaches nearly to the ſtate of a fluid. The centre of the cryſtalline is ſituated in its poſterior portion.

That part of the iris which lies between the ciliary ligament and the cryſtalline, is covered on its poſterior ſurface with thick projecting folds or plaits, called the *ciliary proceſſes*. Theſe proceſſes adhere ſlightly to the anterior part of the vitreous humour, by the intervention of a black ſubſtance (immediately to be deſcribed) in their courſe from the ciliary ligament to the brim of that cavity in which the cryſtalline lies. At this brim they terminate, where they are attached to the circumference of the capſule

capſule of the cryſtalline. The remaining part of the iris lies looſe before the cryſtalline, and at a very ſmall diſtance from it; a minute quantity of the aqueous humour, which flows through the pupil, being only interpoſed between them.

The poſterior ſurface of the iris, as well as the ciliary proceſſes, is covered with a black ſubſtance, which, on account of the ſlimy ſtate in which it is found after death, is uſually called *pigmentum nigrum.* It might with greater propriety (as the late Dr. Hunter obſerved) be called *membrana nigra*, ſince it appears to conſtitute a fine membrane in the living ſubject. By this latter name I ſhall diſtinguiſh it, when I have occaſion to mention it in the following obſervations.

The *poſterior chamber* of the eye is that ſpace, which lies between the iris and the capſule of the cryſtalline. As the ciliary proceſſes adhere on all ſides to the circumference of the capſule, the tranſverſe diameter of the poſterior chamber muſt be exactly equal to that of the cryſtalline. The diſtance between the iris and the cryſtalline muſt be extremely ſmall, for as the latter projects a little before the vitreous humour, and as the former is brought very near to that humour by the

attachment of the ciliary proceſſes, the iris and cryſtalline muſt be nearly in contact with each other. Indeed, they ſeem to be kept aſunder merely by that minute quantity of the aqueous humour which flows through the pupil, and which ſerves to tranſmit to the exterior part of the cryſtalline the moſt oblique rays of light which can enter the pupil.

The cryſtalline humour is ſituated, not within, but behind, the poſterior chamber of the eye. If it is moved directly upwards or downwards, its place in the vitreous humour will be changed; but it will not be brought into the poſterior chamber. If it is moved directly forwards, it may be made to paſs through the poſterior chamber, and in this tranſit the different parts of it, in ſucceſſion, will occupy the poſterior chamber; but the whole of the cryſtalline can never lie in the poſterior chamber. When the cryſtalline is moved horizontally forwards, by a needle introduced into the vitreous humour behind it, the iris does not advance ſufficiently to permit the cryſtalline to remain between it and the anterior part of the vitreous humour; but the pupil becomes dilated, and the cryſtalline, as it advances, paſſes into the anterior chamber of the eye.

When

When authors ſpeak of depreſſing the cryſtalline in the poſterior chamber of the eye, they forget that the tranſverſe diameter of the cryſtalline, and that of the poſterior chamber, are the ſame; conſequently, that it is impoſſible to depreſs the cryſtalline in the poſterior chamber*.

When they ſpeak of introducing a broad couching needle into the poſterior chamber of the eye, they ſeem to forget that the iris and cryſtalline are nearly in contact with each other. If the cutting edges of the ſpear-ſhaped needle are placed horizontally in the poſterior chamber, for the purpoſe of depreſſing the cataract, the anterior edge muſt wound the iris, unleſs it be placed directly oppoſite the pupil, where the iris is deficient.

* If all that part of the eye which lies behind the iris be called the *poſterior chamber*, the cataract may then be ſaid to be depreſſed in that chamber; but this is not the proper anatomical meaning of the term, which ſignifies, as Winſlow has obſerved, a ſubdiviſion of that part of the eye occupied by the aqueous humour.

"On donne le nom de chambres de l'humeur aqueuſe à ces deux eſpaces, & on les diſtingue par rapport à la ſituation, en chambre anterieure & en chambre poſterieure.——La poſterieure, qui eſt cachée entre l'uvée & le cryſtallin, eſt fort etroite," &c.

The

The point of a needle, which has penetrated the coats of the eye behind the ciliary ligament, cannot be brought into the poſterior chamber without paſſing through the cryſtalline. But it will become viſible to the operator, even in a cataractous eye, before it has entirely paſſed through the cryſtalline: for that being generally rendered opake only in its central part, the needle becomes viſible as ſoon as it has paſſed this part, if the capſule remains tranſparent.

When the cryſtalline humour becomes opake, the central part ſeems always to be the firſt affected. From the centre the opacity extends in all directions towards the circumference, but rarely, if ever, reaches the circumference. For if that were the caſe, unleſs the capſule contained a tranſparent fluid ſurrounding the cryſtalline, a mere opacity of this humour would be ſometimes attended with total blindneſs, which, I believe, never happens without ſome other morbid affection of the eye. The ciliary proceſſes advance on all ſides as far as the circumference of the cryſtalline; therefore no rays of light can fall upon the retina without paſſing through the cryſtalline.

I can-

I cannot take upon me to ſay, whether there is, or not, in the human eye during life, a minute portion of tranſparent fluid, ſurrounding the cryſtalline, and contained within its capſule, through which the moſt oblique rays of light may paſs; but this conſideration may be neglected, and we may ſpeak of the cryſtalline as filling the capſule, without incurring any practical error.

In the operation of couching, the cryſtalline can only be moved into ſome part of the vitreous humour, different from that in which it is naturally ſituated, unleſs it is brought into the anterior chamber. It cannot be lodged *beneath* the vitreous humour, as a valuable modern author ſpeaks; for that humour is every where in contact with the retina, and fills up the cavity formed by the coats of the eye.

As the needle, which I now uſe in the operation of *couching*, differs ſomewhat from any that I have ſeen, and appears to me to poſſeſs ſome advantages over the ſpear-ſhaped needle, which is moſt commonly uſed; I have given a figure of it, both in its natural ſize, and alſo when magnified

for

for the purpoſe of ſeeing its parts more diſtinctly *.

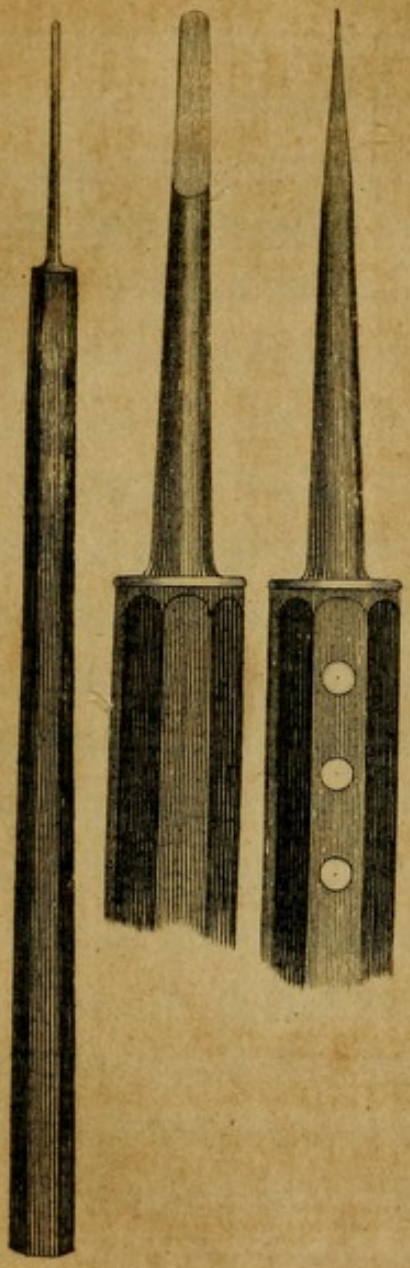
The length of the needle is ſomewhat leſs than an inch. It would be ſufficiently long if it did not exceed ſeven-eighths of an inch. It is round, except near the point, where it is made flat by grinding two oppoſite ſides. The flat part is ground gradually thinner to the extremity of the needle, which is ſemicircular, and ought to be made as ſharp as a lancet. The flat part extends in length about an eighth of an inch, and its ſides are parallel. From the place where the needle ceaſes to be flat, its diameter gradually increaſes towards the handle. The flat part is one-fortieth of an inch in diameter. The part which is neareſt the handle is one-twentieth of an inch. The handle, which is three inches and a half in length, is made of light wood ſtained black. It is octagonal, and has a little ivory inlaid in

* In 1768, I had an opportunity of ſeeing ſeveral operations performed by Dr. Hilmer, an itinerant oculiſt. He made uſe of a ſmall round needle, which appeared to me ſuperior in point of ſafety to the common one, which is larger, and made with a ſpear-ſhaped extremity. I immediately adopted the form of his inſtrument, making ſuch alterations in it afterwards, as I judged likely to increaſe its utility.

the

To face Page 44.

PL. 3.



the two ſides which correſpond with the edges of the needle.

The advantages which this inſtrument appears to me to poſſeſs, above the common ſpear-ſhaped needle, are theſe:

1. It is only half the length of the common needle, and this gives the operator a greater command over the motions of its point, in removing the cryſtalline from its bed, and tearing its capſule. It is alſo of ſome conſequence, that the operator ſhould know how far the point of his needle has penetrated the globe of the eye, before he has an opportunity of ſeeing it through the pupil; as it ought to be brought forwards when it has reached the axis of the pupil. Now he may undoubtedly form a better judgment reſpecting this circumſtance, when the length of his needle does not much exceed the diameter of the eye, than when he uſes one of the ordinary length, which is nearly two inches. The ſhortneſs of the needle is peculiarly uſeful, when the capſule is ſo opake that the point cannot be ſeen through the pupil.

2. As this needle becomes gradually thicker towards the handle, it will remain fixed in that part of the ſclerotis to which the operator has puſhed it, while he employs its point in de-

preſſing

preſſing and removing the cataract. But the ſpear-ſhaped needle, by making a wound larger in diameter than that part of the inſtrument which remains in the ſclerotis, becomes unſteady, and is with difficulty prevented from ſliding forwards againſt the ciliary proceſſes, while the operator is giving it thoſe motions which are neceſſary for depreſſing the cataract.

On the ſame account the common ſpear-ſhaped needle may ſuffer ſome of the vitreous humour to eſcape during the operation, whereby the iris and ciliary proceſſes would be ſomewhat diſplaced, and rendered flaccid; whereas the needle which I uſe, making but a ſmall aperture in the ſclerotis, and filling up that aperture completely during the operation, no portion of the vitreous humour can flow out ſo as to render the iris and ciliary proceſſes flaccid.

3. This needle has no projecting edges: but the ſpear-ſhaped needle, having two ſharp edges, which grow gradually broader to a certain diſtance from its point, will be liable to wound the iris, if it be introduced too near the ciliary ligament with its edges in a horizontal poſition. I have been informed, that, in an operation performed by one of the moſt

eminent ſurgeons in the metropolis, now deceaſed, the iris was divided as far as the pupil. If the operator, in order to avoid this danger, introduces his needle with its edges in a vertical poſition, he will divide the fibres of the ſclerotis tranſverſly, and by thus enlarging the wound will increaſe the unſteadineſs of the inſtrument. Beſides, however the needle be introduced, one of its ſharp edges muſt be turned towards the iris in the act of depreſſing the cataract; and, in the various motions which are often neceſſary in this operation, the ciliary proceſſes are certainly expoſed to more danger, than when a needle is uſed which has no projecting edge.

4. It has no projecting point. In the uſe of the ſpear-ſhaped needle, the operator's intention is to bring its broadeſt part over the centre of the cryſtalline. In attempting to do this, there is great danger of carrying the point beyond the circumference of the cryſtalline, and catching hold of the ciliary proceſſes, or their inveſting membrane, the *membrana nigra*. This accident is the more probable, as the point of the needle muſt unavoidably be directed obliquely forwards, and this motion, if carried too far, brings the point into

into contact with the ciliary proceſſes, as they ſurround the capſule of the cryſtalline.

A needle, made according to the figure given in the annexed plate, will paſs through the ſclerotis with eaſe. It will depreſs a firm cataract readily, and break down the texture of one that is ſoft. If the operator finds it of uſe to bring the point of the needle into the anterior chamber of the eye (which is often the caſe) he may do this with the greateſt ſafety, for the edges of the needle will not wound the iris. In ſhort, if the operator, in the uſe of this needle, does but attend properly to the motions of its point, he will do no unavoidable injury to the eye; and this caution becomes the leſs embarraſſing, as the point does not project beyond that part of the needle by which the depreſſion is made, the extreme part of the needle being uſed for this purpoſe.

The appearance of a cataract has been ſo often deſcribed, that I ſhall not trouble my readers with a repetition of the deſcription. A careful ſurgeon, who underſtands the anatomy of the eye, will not often miſtake this diſeaſe. There is, however, one ſtate of the eye, which may lead an experienced practi-

tioner into doubt, or may even cauſe him, without the greateſt circumſpection, to form a wrong judgment. In ſome perſons, that part of the eye which is ſeen through the pupil does not appear black as uſual, but has a grey appearance, or is of a dark pearl colour. This is ſo like the appearance of an incipient cataract, that, if the ſight of the perſon is diminiſhed, a ſurgeon may be induced to form a wrong prognoſtic. The appearance which I have deſcribed occurs in one ſpecies of amauroſis, to which perſons advanced in age are particularly ſubject. It occurs alſo in ſome middle aged perſons whoſe ſight is defective. In examining attentively the eyes of ſuch perſons, one may obſerve, that the part which puts on a greyiſh caſt is ſituated at a greater diſtance behind the pupil than an incipient cataract, and that it has a more poliſhed or ſhining appearance.

We have no certain criteria by which it can be known, previouſly to an operation, whether a cataract is ſoft or hard*. Thoſe propoſed for conſideration by Mr. Pott† are not to be relied upon. Some of the moſt firm cataracts,

* I have generally found a dark coloured cataract in old perſons to be of a firm conſiſtence.

† Pott's Chirurgical Works, vol. iii. p. 222.

which have occurred in my practice, were neither formed haſtily, nor preceded by pain in the head. On the other hand, two cataracts, which came on the moſt rapidly of any that I have ſeen, and which ſeemed to have been formed almoſt inſtantaneouſly, were found to be ſoft. The ſubject, in one of theſe caſes, was a married woman, who had enjoyed perfect ſight until the time of her fifth labour. Immediately after her delivery ſhe became ſenſible of a conſiderable defect in her ſight, and could afterwards diſcern no object diſtinctly. Soon after ſhe had got abroad, her huſband brought her to Leeds, and conſulted me. I found a cataract formed in each eye, and, upon operating a ſhort time afterwards, the cataracts were found to be uniformly ſoft.

When a cataract is complicated with a complete amauroſis, or a total opacity of the cornea, the removal of the diſeaſed cryſtalline muſt be fruitleſs. But in partial affections of the eyes from theſe complaints, a patient may receive ſuch a degree of ſight from an operation as yields much comfort, though it falls ſhort of diſtinct viſion. An univerſal adheſion of the iris to the capſula of the cryſtalline

argues

argues ſuch a morbid ſtate of the eye, that an operation cannot be undertaken without conſiderable doubt reſpecting the event, though the operation is not hereby rendered wholly improper. In this caſe, the iris ſhews no motion upon a ſudden expoſure to light, the pupil uſually remains contracted, and is often irregular in its form. I have repeatedly operated with ſucceſs where the adheſion was partial, by proceeding with great caution. In this caſe, the pupil is contracted and dilated, by varying the degree of light thrown upon the eye. Sometimes when the pupil is circular in a ſtrong light, it will, when dilated in an obſcure light, aſſume an irregular form, and thereby point out the ſituation and extent of the adheſion.

Though it would be improper to perform the operation of couching, when the eye is in a ſtate of inflammation; yet perſons affected with the Lippitudo bear the operation much better than one would expect from the appearance of the eyes in that diſeaſe. I have never rejected a patient on this account, but have repeatedly performed it with ſucceſs, and with very little ſubſequent inflammation, when numerous veſſels of the conjunctiva were tur-

gid with blood, and the eye-lids thickened, provided this ſtate of the organ was habitual.

I do not recommend an operation, if the diſeaſe is confined to one eye, while the ſight of the other eye remains perfect. Nor am I haſty in recommending the operation in caſes of cataract from external injury, as blows, or punctures of the cornea; having been led from experience to form the ſame opinion of the diſeaſe, when originating under ſuch circumſtances, which the late Mr. Pott entertained*. I apprehend that, in ſuch caſes, the capſule of the cryſtalline is generally the ſeat of the diſeaſe; and I have had the pleaſure of ſeeing the opacity diſappear gradually, without the uſe of any other means than thoſe which were proper for removing the inflammation. Such an event, however, does not always follow; and ſometimes where the ſight is ultimately reſtored without an operation, the reſtoration advances by very ſlow degrees. My late colleague at the General Infirmary, Mr. Lucas, relates a caſe† in which "the "opacity began to diſſipate in a month" after the accident, which was a blow upon the eye,

* Pott's Chirurgical Works, vol. iii. p. 230.

† Med. Obſ. and Inquiries, vol. vi. p. 264.

"and

" and in three months the patient could ſee " with that near as well as the other eye." I have ſeen two caſes, where the opacity continued a year before the natural tranſparency of the capſule began to be reſtored. In the laſt caſe of this kind which I ſaw, the patient had been blind of the injured eye four years before the opacity began to diſappear.

When the cataract is *congenital*, the eyes have often an irregular motion, as if the patient was looking at two diſtinct objects at the ſame time. The operation is rather more difficult in ſuch patients, on account of the unſteadineſs of their eyes; but it may be performed with ſafety, when the patient is ſo far advanced in years as to underſtand the deſign of the operation, and has been taught to deſire it. I once attempted to couch the eyes of a child two years old, the ſucceſs of which operation will be related*; but I have always, except in this inſtance, refuſed to operate on ſo young a ſubject.

The habit of perſons afflicted with cataracts is ſo different, that no general rule can be laid down reſpecting the manner of preparing a patient for the operation. In ſome caſes, the loſs of a little blood may with propriety

* See Caſe 8.

be added to laxatives, and a ſtrict regimen. In other caſes, there may be ſuch conſtitutional debility as to forbid any reduction. In general, I do but require my patients to abſtain from animal food and fermented liquors for a few days, and give one doſe of a gentle purgative.

During the *operation*, the patient ſhould be ſeated in a chair ſomewhat lower than that on which the operator ſits, that the arm of the operator may not be much elevated. An elevated poſition of the arm ſoon produces fatigue, and renders the hand leſs ſteady. The eye of the patient ſhould be expoſed to the light of one window only, and that ſhould admit no more light than is neceſſary for ſeeing the interior parts of the eye diſtinctly. If the patient's head is placed a little obliquely to the light, the picture of the objects reflected by the cornea (which often prevents a diſtinct view of the cataract) is thrown to one ſide of the pupil, and then creates no impediment to the operation. A horizontal light is in this operation preferable to a ſky-light. The head of the patient muſt be kept erect, or inclined a little forwards, by an aſſiſtant who places one hand upon the forehead, and another

ther under the chin, ſupporting at the ſame time the occiput by a pillow interpoſed between it and the breaſt of the aſſiſtant. The eye, which is not the immediate ſubject of the operation, ſhould be kept ſteady by a proper bandage, and by a gentle preſſure from that hand of the aſſiſtant which is placed upon the forehead. If a ſpeculum oculi is not uſed, the operator may ſupport the upper eye-lid with the thumb of one hand, and with the ring finger of the other hand, which holds the needle, depreſs the lower eye-lid till he has introduced the needle. After that, it is more convenient to have the lower eye-lid held down by an aſſiſtant. The tarſus ſhould be turned a little inwards, and the eye-lids gently preſſed againſt the edge of the orbit, and the globe of the eye. I have found the common ſpeculum oculi to be inconvenient, and I have never tried that which is recommended by Mr. Benjamin Bell *. The patient ſhould be directed to turn his eye inwards, as if he were looking at his noſe, that the part in which the puncture is to be made may preſent itſelf to the operator, and that the conjunctiva may be put upon the ſtretch. If the conjunctiva remains wrinkled where the needle enters the eye, the operator will find his in-

* Bell's Syſtem of Surgery, vol. iii. p. 244, plate XXX.

ſtrument ſo entangled as greatly to impede the regularity of his motions.

The needle, being beſmeared with oil, ſhould be puſhed ſuddenly through the coats of the eye. The direction in which this is done is of ſome conſequence, eſpecially if a ſpear-ſhaped couching needle is uſed. The needle ſhould not be puſhed through the ſclerotis in a direction parallel to the iris; for preſſure made in that direction is apt to give a rolling motion to the eye, and thereby alter the courſe of the needle. If the eye be made to roll towards the noſe, the point of the needle will then be directed towards the iris, and the operator will be in danger of wounding it. This danger may be avoided by piercing the ſclerotis with the point of the needle directed towards the centre of the eye. By this method the eye is rendered ſteady, and the needle will paſs through its coats without any danger of wounding either the iris or ciliary proceſſes.

When the needle has pierced the coats of the eye, it muſt be puſhed forwards in the ſame direction, till ſo much of the inſtrument is introduced, that its point, when brought forwards, will reach the centre of the cryſtalline. This part of the operation, as I have

already obſerved, may be performed with greater exactneſs by the uſe of a ſhort needle. If the length of the needle is little more than the diameter of the eye, the operator will be greatly aſſiſted in judging when the point of his inſtrument has advanced to the axis of the pupil, which correſponds with the centre of the cataract. It is not abſolutely neceſſary, that the needle ſhould be introduced at one determinate diſtance behind the ciliary ligament. Indeed, the want of ſteadineſs in the eyes of ſome patients renders this impracticable: But I conſider the diſtance of about one-ſixteenth of an inch to be the moſt convenient. The operation may be performed with greater eaſe and ſafety, when the needle pierces the ſclerotis near the ciliary ligament.

So far the operation muſt be conducted in the ſame manner, whatever be the ſtate of the cataract. The remaining part of the operation muſt be varied according to the circumſtances of the diſeaſe.

If, in bringing forwards the point of the needle, I perceive the cataract to advance, and dilate the pupil; I then know that the cataract is firm, and that the needle is in contact with its poſterior part. The preſſure uſed in bringing forwards the cataract, ſometimes cauſes the

the point of the needle to ſink ſo far into the cryſtalline, and to become ſo much entangled in its more tenacious part, that the depreſſion may be completed though the inſtrument has not been ſeen through the pupil. When, therefore, the appearance which I have mentioned takes place, I do not perſiſt in bringing forwards the point of the needle, leſt the iris ſhould be injured by the too great dilatation of the pupil; but I depreſs the point, and at the ſame time carry it backwards. If this motion of the needle removes the cataract from its place, the operation is uſually concluded without any farther trouble.

If the cataract does not follow the motion of the needle, I cautiouſly bring forward its point through the ſofter part of the cryſtalline, till I can ſee my inſtrument through the pupil, and then proceed in my attempts to effect the depreſſion. In theſe attempts I always move the needle backwards as well as downwards; for the operator ought always to be ſure, that his needle is behind the ciliary proceſſes when he moves it upwards or downwards. Before I withdraw the needle, I uſually elevate its point a little, to ſee whether the cataract riſes again when the preſſure is removed. If it does, the preſſure is renewed once or twice,

and

and the needle is then withdrawn. I always endeavour to lodge the cataract below the place where my needle entered the vitreous humour, and withdraw the needle in a direction nearly parallel with the axis of the pupil.

Though I do not think it adviſable to perſiſt in preſſing an entire cataract into the anterior chamber, when the advance of the cataract cauſes a large dilatation of the pupil; yet after the needle has wounded the capſule, a firm cataract, or at leaſt its nucleus, will ſometimes ſlip through the pupil without the deſign of the operator. This has been conſidered by ſome authors, as a diſagreeable circumſtance, and has been ranked amongſt the objections to the operation of couching *. On the contrary, it ought to be conſidered as a favourable event, ſince the cataract always diſſolves in the aqueous humour, and finally diſappears without any injury to the eye. This, at leaſt, has been the event in every caſe of the kind which I have ſeen. I have ſix or ſeven times ſeen the whole opake nucleus fall into the anterior chamber of the eye, and very frequently ſmall opake portions. Indeed, if the cataract could, in all caſes, be brought into the anterior

* Memoires de l'Academie de Chirurgie, tom. ii. 579. Warner's Caſes, ed. 3. p. 76—92. Bar. Wenzel.

chamber

chamber of the eye, without injury to the iris, it would be the beſt method of performing the operation. But this is not uſually practicable; the ſoftneſs, as well as the bulk of the cataract preſenting an obſtacle to this proceſs.

If the cryſtalline, or rather its capſule, is found to adhere in part to the iris, great caution ſhould be uſed in our attempts to deſtroy the adheſion; as it is much more ſafe to repeat the operation after a gentle attempt, than by continuing the uſe of force to riſque the danger of an inflammation. It is uſeful in this caſe to lift up the cataract with the needle, as elevation may be ſucceſsful, where depreſſion has failed. Mr. Warner ſucceeded at the fourth operation, in deſtroying an adheſion of the iris*; and I have repeated the operation oftener than four times with advantage, rather than incur the hazard of inflammation, which might have left my patient in total blindneſs.

Hitherto the cataract has been conſidered as firm, and capable of bearing the preſſure of the needle; but in the greater number of caſes, which have fallen under my care, the cataracts have been found ſo ſoft as to permit

* Warner's Caſes in Surgery, ed. 3. p. 62.

the

the needle to paſs through them in all directions. In this ſtate of the diſeaſe I do nothing more than break down the texture of the cataract, and endeavour to puncture, or tear off, a portion of the capſule, that the aqueous humour may flow in upon the broken cataract. In doing this, it is common to ſee ſome fragments of the cataract fall, through the pupil, into the anterior chamber of the eye. I am always glad to ſee this take place, as I then know that there is a paſſage opened for the admiſſion of the aqueous humour, and that thoſe opake fragments, which have paſſed through the pupil, will ſoon diſappear.

Sometimes the cataract is ſo uniformly ſoft, that the paſſage of the needle through it makes no alteration in its appearance. This ſpecies of cataract was conſidered by the late Mr. Sharp and Mr. Warner as incurable*. In this opinion theſe excellent authors were certainly under a miſtake; for I find that although an uniform ſoftneſs of the cataract may require a more frequent repetition of the operation, it affords no permanent impediment

* Sharp's Operations of Surgery, ed. 7th. 163—165. Warner's Caſes in Surgery, ed. 3d. p. 73.

to

to the cure. Upon repeating the operation in ſuch caſes I have often found, that the firſt operation had produced more effect than at the time of operating it appeared to produce. The cataract, upon a ſubſequent operation, appears more broken, and irregularly opake. Some portions may now be removed, which before appeared immovable; ſome fall into the anterior chamber; and the remainder becomes gradually diſſolved in its original ſituation.

When both eyes are affected with a cataract, I uſually operate upon them both at the ſame time; nor have I ſeen any reaſon for diſcontinuing this practice.

I always operate upon the right eye with my left hand. A ſurgeon may eaſily acquire the power of uſing his left hand in this operation, if he accuſtoms himſelf to bleed with the left hand, whenever a proper opportunity offers.

After the operation, I cover both the eyes, though one only may have been couched, with a broad piece of linen, ſpread with unguentum ceræ, and faſtened to a ribbon tied round the head. The patient's face ſhould not be expoſed to a ſtrong light, nor to the heat of a fire, till the tenderneſs of the eyes is gone off. A ſtrict

regimen

regimen ſhould be obſerved for a few days; and a gentle laxative may uſually be given with advantage.

When the nature and variety of the parts wounded in couching are conſidered, a perſon not accuſtomed to this operation might reaſonably conclude, that it would uſually be followed by a conſiderable degree of inflammation. Yet I can with truth aſſert, that when it is performed in the manner above deſcribed, the uſual conſequence is nothing more than a tenderneſs of the eye, which goes off by degrees, if the patient uſes the proper cautions. Frequently the eye appears as free from inflammation as it did before the operation, excepting a ſlight redneſs in the conjunctiva, where the puncture was made. Nor is the operation itſelf attended with that degree of pain which one might reaſonably expect. It is commonly ſpoken of by the patient as inconſiderable. A lady, whom I couched in this town, was aſked by her daughter immediately after the operation, what degree of pain ſhe had felt. Her reply was this: "I expected to have felt "an acute pain, though of ſhort duration; "but I did not. I only felt as if ſomething was "preſſing againſt my eye."

Though

Though the inflammatory affection, which is immediately ſubſequent to the operation, is generally ſlight, yet it muſt be confeſſed, that it is ſometimes conſiderable; and I have alſo obſerved, that the patient's eye is more ſuſceptible of inflammation, from any irregularity, for two or three weeks after the operation. Some of the worſt attacks of inflammation, which I have ſeen, have come on at ſo diſtant a period; when the patient, preſuming upon the comfortable ſtate in which he found himſelf, has incautiouſly expoſed his eye to a cold blaſt of air, or has caught cold by any other means.

In caſe of ſubſequent inflammation, I place the greateſt dependance upon the evacuation of blood from ſome branch of the temporal artery. The quantity and frequency of the evacuation muſt be directed by the circumſtances of the caſe; but it ought to be uſed freely till the inflammation begins to ſubſide. Purgatives, and other cooling remedies ſhould be added. Warm ſoft water, directed in a gentle ſtream acroſs the eye, abates the pain in the acute ſtage of the inflammation. When that has ſomewhat ſubſided, the face, the neck, and head, if not covered with hair, ſhould be frequently waſhed with cold water.

Sometimes,

Sometimes, when the eye is not inflamed, the patient feels pain in the forehead, juſt above the eye-brow, which is now and then accompanied with ſickneſs or retching. This complaint is the moſt effectually relieved by an opiate.

I have ſeen a few inſtances where the eye, upon being examined ſome days after the operation, has appeared to be affected with an amauroſis. The pupil has been found largely dilated, and the patient has had a weak perception of light. I know not how to account ſatisfactorily for this accident, which, as far as I have ſeen, is more alarming than dangerous. In the few caſes of this kind which have fallen under my notice, bleeding has appeared to relieve the complaint; the iris has by degrees regained its contractile power, and the retina has been reſtored to its natural ſenſibility. One patient, indeed, who came to the General Infirmary from Bridlington, to whom this circumſtance occurred, refuſed to ſtay in the houſe till the complaint had ceaſed, and returning home in cold weather, before the inflammatory tendency had ſubſided, had afterwards, as I was informed, a ſevere attack of inflammation. His preſent ſtate I do not know. Another, whoſe caſe I ſhall relate,

was attacked with a temporary amauroſis, after ſhe had regained her ſight, and had left the Infirmary*.

It would ſcarcely be neceſſary to mention the riſing again of the cataract, when enumerating the conſequences of the operation, but that ſome good authors have conſidered this as a circumſtance, which affords an important objection to the operation of couching, and renders it fruitleſs. This circumſtance may require a repetition of the operation, but throws no hindrance in the way of the cure.

* Since theſe obſervations were written, a caſe has occurred, in which the pupil became largely dilated after the operation, and did not regain its natural form. I couched both the eyes of an elderly man in the General Infirmary; and while I was operating upon the right eye, the cataract broke in pieces, and fell into the anterior chamber, at the moment in which I was depreſſing it with my needle. I imagine that I did not direct my needle ſufficiently backwards in the act of depreſſing, but incautiouſly touched the lower part of the iris, in conſequence of the obſcurity which at that inſtant took place, and hid my inſtrument from view. A conſiderable degree of inflammation ſupervened in that eye, and the pupil remains too much dilated, and vertically oblong. The patient ſees very well with the left eye; and even with the right can read a moderate ſized print, when aſſiſted with two pairs of ſpectacles.

This is the only accident of the kind (as far as I recollect), which has occurred to me during the whole courſe of my practice.

If the cataract, though riſen again into view, appears detached, ſo as to move ſenſibly and readily in the vitreous humour, with every motion of the head, it will generally, by degrees, ſubſide and finally diſappear without any farther aſſiſtance.

In two caſes I was led to ſuſpect, that the removal of the cataract had detached a ſmall portion of the membrana nigra from the ciliary proceſſes. In both theſe inſtances, the patient could ſee diſtinctly immediately after the operation; but in the courſe of a week the ſight became obſcure, though there was no ſubſequent inflammation, no opacity in the cornea, nor morbid dilatation of the pupil. The cataracts were firm, and were eaſily depreſſed; nor did they appear to have riſen again. One of theſe patients complained that objects appeared blue to her; but her ſight remained ſufficiently good to enable her to do the ordinary buſineſs of her houſe. The other patient came from Cumberland, and I have had no opportunity of knowing what degree of ſight he continued to enjoy.

A frequent and moſt important conſequence of the operation, and one that ſucceeds the method of extraction, as well as that of depreſſion, is an opacity of the capſule of the

cryſtalline. This *ſecondary* cataract will appear when no inflammation has ſucceeded the operation. It will ſometimes diſappear by the effect of time, as in caſes of cataract from blows or punctures; but this event is often ſlow, and always uncertain. If time does not remove this diſeaſe, recourſe muſt be had to the needle. When an aperture has been made in the centre of the capſule, at the time of the depreſſion, and remains ſo large as to enable the patient to ſee diſtinctly, the opacity of the ſurrounding part of the capſule need not be regarded. But if any opake portions occupy the axis of the pupil, and do not ſoon ſhew ſome return of tranſparency, it is proper to repeat the operation, for the purpoſe of breaking aſunder, or removing, the opake portions.

When portions of the opake capſule hang floating in the poſterior chamber of the eye, it is difficult to pierce, or lay hold of them. The attempt to remove them muſt be made in different directions, yet with great caution, leſt the iris ſhould be injured. I have ſometimes ſucceeded in detaching theſe portions by moving my needle upwards, when the motion downwards has failed to lay hold of them.

When the capſule appears in croſs threads like net-work, the inſtrument will readily break them aſunder. Sometimes the capſule has a conſiderable degree of elaſticity, and ſprings up again immediately with force after being depreſſed. When fragments of this kind are near the circumference of the cryſtalline, and do not materially interrupt the paſſage of the rays of light, it is the moſt prudent method to leave them, leſt the ciliary proceſſes ſhould be injured by tearing them off.

As the opacity of the capſule, which forms the ſecondary cataract, is uſually diminiſhed in ſome degree by time, I conſult the inclination of my patients with reſpect to the time and frequency of theſe ſecondary operations. A labouring man, who has a family to maintain by his work, will not perhaps regard a frequent repetition of the operation, that he may the ſooner return to his labour. Perſons of a higher rank often prefer a delay. The lady, whoſe deſcription of the pain ariſing from the operation I have already mentioned, had a ſecondary cataract in each eye. She choſe to have the operation repeated upon one eye, and to wait the effect of time upon the other. Both methods ſucceeded; but there was no

return of tranſparency in the capſule of that eye for which the needle was not employed, till about ſix months after the depreſſion of the cataract. A gentleman of my acquaintance, from whom the late Baron Wenzel extracted two cataracts, had a ſecondary cataract in both eyes. The opacity continued two years after the extraction of the cataracts. After that time I had no opportunity of examining his eyes, but was informed that his ſight had improved before his death, which happened about two years after I laſt ſaw him. I never knew but one inſtance in which the broken fragments of the capſule coaleſced, and became reunited. This caſe I ſhall relate.

I have often ſeen, in perſons who have been couched, and ſometimes in thoſe who have never had a cataract, a tremulous motion of ſome tranſparent ſubſtance in the anterior chamber of the eye. May not this be owing to ſome portion of the vitreous humour which has paſſed through the pupil? I never ſaw any degree of opacity in this ſubſtance, nor does it ſeem to create any impediment to perfect viſion.

The vitreous humour does not appear to ſuffer the leaſt injury by the paſſage of the needle or cataract through it. If there was

any

any tendency in this humour to become opake, we ſhould frequently ſee this conſequence enſue from the operation of couching. But no ſuch conſequence, I believe, was ever known to enſue. On the contrary, this humour ſeems to be in as proper a ſtate for the tranſmiſſion of light after the operation, as it was before.

Surgeons, who undertake the operation of couching, ſhould not be induced by their deſire of completing the cure at one operation, to uſe long continued efforts to depreſs or break down a cataract. By ſuch efforts there is great danger of injuring the eye. It has been too much conſidered as a matter of diſgrace to the operator, if ſight has not been immediately reſtored to the patient. The fear of this diſgrace has probably conſigned many an unhappy ſufferer to irremediable blindneſs. A cautious procedure, though more ſlow in its progreſs, will more ſurely arrive at the deſired end. Neither the pain, nor the danger attending the operation, is great, if it be conducted with caution; and when a patient has been informed of the operator's deſign, and finds leſs inconvenience from the operation than his fears had led him to expect, he will ſeldom object to that treat-

ment which affords him the greateſt hope of regaining the bleſſing of ſight. When cuſtom has reconciled our patients to hear without ſurprize, that a repetition of the operation is often neceſſary to effect a cure; they will no more think this circumſtance a diſparagement to the art, than when they hear that repeated bleeding is often neceſſary to cure an inflammation. One principal thing to be kept in view by the operator is, to do no harm. If he ſecures this, he will almoſt certainly do ſome good, and often much more good than he expects. An operation may be performed without the leaſt apparent advantage at the time, and yet in the end may prove the means of cure. The operation of couching has been, till of late, chiefly confined to itinerant oculiſts, whoſe mode of life requires diſpatch. They are therefore obliged, let the ſtate of the cataract be what it may, to continue their efforts till it is either removed, or ſo far broken down, that ſome rays of light may be immediately admitted. Various objects are then preſented to the patient, and if he can diſcern them, he is pronounced cured, and prompt payment is required, without regard to the future conſequences which this method of treatment may produce. I am convinced

that

that many perſons, whoſe caſes were not incurable, have been rendered totally and irrecoverably blind by this mode of procedure, when there was no want of dexterity in the operator.

When I conſider the opinion of thoſe eminent ſurgeons, Mr. Samuel Sharp and Mr. Warner, reſpecting the effect of this operation, I cannot avoid concluding, that the method of couching above recommended is preferable to that which has been commonly practiſed. Mr. Sharp's words are, "After "all, there will ſometimes enſue a trouble-"ſome ophthalmy, which, *with the uncer-"tainty there always is of ſucceſs* after the "operation, have deterred moſt ſurgeons from "undertaking it*." And Mr. Warner ſays, "It is neceſſary to be aſſured, that the ſucceſs "of this operation, *which at beſt is precarious*, is much more ſo, when there is an "adheſion of any part of the diſeaſed *chryſtalline* to the *tunica iris*†.

There is no operation of ſurgery which may not ſometimes fail of ſucceſs; but couching, when conducted in the manner above adviſed, ſo rarely fails to reſtore a conſiderable degree

* Operations of Surgery, ed. 7. p. 165.

† Caſes of Surgery, ed. 3. p. 57.

of

of ſight, if the cataract is not complicated with any other morbid affection of the eye, that it cannot be conſidered as attended with *much* uncertainty.

I ſhould have been glad to have drawn a fair compariſon between this operation and that of extraction; but as I have already obſerved, it is not in my power to do this from my own experience. I never performed the operation of extraction but once, and then took every precaution to enſure ſucceſs. I choſe a patient who had a cataract in each eye, who was free from any apparent tendency to inflammation in the eyes, and whoſe cornea was ſufficiently prominent. I extracted the cataract from the left eye, that I might have the advantage of uſing my right hand. No accident occurred in the operation; and great care was taken to prevent a ſubſequent inflammation: yet the inferior half of the cornea became opake, ſo as to deprive my patient of the benefit of the operation.

The event of this caſe gave me ſo much concern, that I never attempted the operation again. I afterwards couched this patient's right eye with my left hand as uſual, and ſhe regained the complete ſight of that eye.

Recollecting

Recollecting the place where the poor woman lived, who was the ſubject of theſe operations about eighteen years ago, I lately made ſome inquiry concerning her. I found that ſhe had been dead about nine years. I met with her daughter (a middle aged woman), and was informed by her, that her mother had continued to enjoy the ſight of her right eye as long as ſhe lived, and was able to read her Bible, though a ſmall print, with great readineſs; but that ſhe had never been able to diſtinguiſh objects with the left eye, unleſs ſuch as were placed above her.

If I may be allowed to judge from the reports of ſeveral of my pupils, who, after ſeeing for ſome years the practice of the General Infirmary at Leeds, have been pupils at other hoſpitals, where the method of extraction is adopted, I ſhould conclude, that the advantages are greatly in favour of the mode of depreſſion above deſcribed.

It deſerves to be here remarked, that the operation of couching is leſs difficult than that of extraction. Of this opinion was the late Mr. Sharp*; and no inconſiderable teſtimony to the validity of this opinion is afforded by the following fact, that all the patients who

* Critical Inquiry, ed. 4. 264.

undergo

undergo the operation of extraction, in one of the principal hoſpitals of the metropolis, are committed to the care of one ſurgeon; though the reſt of the ſurgeons, who decline this operation, are in the habit of performing all others, which the caſes of their reſpective patients may require.

I have ſubjoined a few caſes, by way of illuſtrating ſome of the obſervations made in the preceding pages.

CASE I.

Cataract with Lippitudo.

June 22d, 1775, I couched both the eyes of an old man, whoſe caſe was attended with the following unfavourable circumſtances. His eye-lids had been ſore and turgid for ſome years. His eyes were watery, and appeared to be in an irritable ſtate. The left cataract was firm, and was removed intire; but the right was rather ſoft, and ſuffered the needle to paſs through it. The next day his eye-lids were a little more ſwelled, and he complained of a ſlight pain over the right eye-brow. His left eye was not at all inflamed;

and

and the conjunctiva of the right had very little more redneſs than before the operation.

July 1ſt. His right eye was quite eaſy, and he could ſee a little with it. The cataract in the left eye appeared again; but in a few weeks it became ſenſibly waſted. His ſight was gradually reſtored, ſo that at the end of September following he could ſee very well.

In the year 1799, I couched both eyes of the Rev. Mr. Pattenſon of Ripponden, which were in the ſame morbid ſtate as that above deſcribed, and had been ſo for many years. The operation was twice performed upon each eye, with the interval of a few weeks; but at neither time did it cauſe much alteration in the thickening of the eye-lids, or turgid ſtate of the veſſels of the conjunctiva. Sometime after his return home, he wrote to me to inform me of his comfortable ſituation, which he thus deſcribes: "I thank God, I can do my duty in "the church, and in the ſchool, with almoſt "as much eaſe and comfort as at any former "period of my life."

Mr. Pattenſon's eyes were in ſo tender a ſtate before the operation, that he had been in the habit of wearing a green ſhade upon his head. In reference to this he makes the following

lowing obſervation in his letter: "I have no "pain in my eyes, and feel no inconvenience "from walking without any ſhade over them, "except in a ſtrong ſun."

CASE II.

Soft Cataract.

In 1776, William Birkenſhaw of Billingley, who had loſt one eye, came under my care at the General Infirmary, on account of a cataract in the other. I found it uniformly ſoft and yielding, permitting the needle to paſs through it in any direction, without changing its poſition or appearance. At the requeſt of my patient, I repeated the operation after a ſhort interval, but with no greater ſucceſs than before. Not diſcouraged myſelf by this apparent failure, I explained to the poor man the reaſon of the hope which I entertained of ſucceeding finally by a repetition of the operation. He gained confidence by my repreſentation, and as he had a large family to maintain by his labour, and was, therefore, anxious to regain his ſight as ſoon as poſſible, I yielded to his ſolicitations, by repeating the operation with ſhorter intervals than uſual. The cataract put on by degrees a broken appearance;

pearance; and being partly diſſolved, or reſtored to tranſparency, and partly removed by the needle, a perfect cure was at length obtained. I couched him ſeven times, yet he never ſeemed to have the leaſt fear of the operation. He had rarely any redneſs in the conjunctiva in conſequence of the operations, except about the puncture, and ſeemed to ſuffer very little from them. I ſaw him about two years after his cure, when he informed me with great pleaſure, that he was then able to maintain by his labour a family, conſiſting of his wife and ſeven children.

CASE III.

Partial Adheſion of the Iris to the Cataract.

John Healde, aged twenty-three, was admitted into the General Infirmary in June 1774, on account of a cataract in his left eye. I was apprehenſive, from the appearance of the part, that the diſeaſe was ſeated in the capſule of the cryſtalline, rather than in the humour itſelf; for a ſmall portion in the middle of the cataract was tranſparent, while the upper and lower parts were opake. The upper opake part appeared thin; but the lower

appeared

appeared thick and ſhrivelled, and was of a pale yellow colour.

The right eye was enlarged, and diſtorted; having an opake cryſtalline, and an immoveable iris.

The patient gave me the following account of his caſe. He was ſtruck upon the left eye by a cinder thrown at him when he was ſeven years old. A violent inflammation ſucceeded the injury, and ended in a total loſs of ſight. He remained blind of this eye till he was nineteen. About that time the right eye became dim, and enlarged; yet in the left he regained a ſmall degree of ſight, which had continued, ſo that he could conduct himſelf in walking, though he could not execute his ordinary buſineſs. There was a tremulous motion obſervable in the anterior chamber of the left eye, though the fluid which it contained was tranſparent. The iris was a little concave anteriorly.

I performed the operation June 7th, and found the two opake portions connected with the cryſtalline, and the ſuperior one adhering to the iris. I could not readily break this adheſion, and therefore left the parts in their former ſtate, after making ſuch attempts to detach the cataract, as I judged conſiſtent with

with the ſafety of the eye. He ſeemed to ſuffer more pain than uſual from the operation, and became ſick with it. The pain ceaſed in about an hour and a half, and never returned, except that he had now and then a ſlight pricking ſenſation in the eye.

June 24th, I couched him a ſecond time, but could not ſeparate the upper part of the cataract from the iris. No inflammation ſucceeded the operation.

July 4th, He was couched the third time. The cataract ſtill adhered to the iris, but not ſo firmly as before. No inflammation ſupervened.

12th, I operated the fourth time, but without ſucceſs. The needle always puſhed the cataract in part through the pupil, when I attempted to detach it; but it returned immediately to its former ſituation. No inflammation.

20th, I couched my patient the fifth time, and then ſucceeded in deſtroying the adheſion, and removing the cataract. I could not perceive any part of it the next day; but it afterwards roſe up gradually, and regained its place.

Auguſt 6th, I performed the ſixth operation. The cataract was again removed, and

appeared no more. No inflammation ſupervened. The man was ſhortly after diſcharged cured.

By this gentle procedure, I was enabled to deſtroy a very ſtrict adheſion of the cryſtalline and its capſule to the iris, without injury to this delicate membrane. I am ſtrongly inclined to believe, that had I, through fear of being foiled in an operation, broken down the adheſion at once, I ſhould have ſent my patient home in total darkneſs: whereas I had the pleaſure of ſeeing him reſtored to as perfect a degree of ſight, as is uſually enjoyed with the loſs of the cryſtalline humour.

It ſeems as if the cryſtalline, though not opake itſelf, had adhered to the opake capſule. It is alſo worthy of obſervation, that the capſule had ſpontaneouſly regained ſome tranſparency, in its central part, after having remained in an opake ſtate during twelve years.

CASE IV.

Total Adheſion of the Iris to the Cataract.

In October 1800, Mr. James Holgate of Hawkeſworth, woolſtapler, aged twenty-one years, was brought to me by his father, on account

account of a loſs of ſight, and gave me the following hiſtory of his caſe.

About a year and a half before this conſultation his eyes became inflamed, and his ſight began to diminiſh. The diminution of ſight encreaſed gradually during the courſe of a year, till he became ſo blind, that he could merely perceive a glimmering of light, or a bright red colour; but could diſtinguiſh no object. In that ſtate he had continued for half a year without any amendment.

The capſula of the cryſtalline humour was uniformly opake, and of a white colour. It adhered univerſally to the iris, ſo that there was not the leaſt perceptible alteration in the ſize of the pupil upon varying the degree of light to which the eye was expoſed. Both eyes were in the ſame ſtate. They were rather prominent, but were not now in an inflamed ſtate.

I informed the young man and his father, that I could not entertain much hope of a cure in ſuch a caſe as this; but that, if the young man was deſirous of ſubmitting to an operation, under ſuch a ſtate of uncertainty, I would do every thing for him which was in my power. I informed them alſo, that as the operation could not well diminiſh his ſight; ſo neither

was it likely to injure the appearance of his eyes. There was a poſſibility of its proving in ſome degree beneficial. The young man was very deſirous that I ſhould make an attempt to reſtore to him ſome degree of ſight, if there was but a poſſibility of doing him good by the operation.

After keeping my patient a few days on ſlender diet, and giving him a gentle laxative, I operated on both eyes; but found the adheſion of the capſula to the iris ſo firm, that I could not make an evident ſeparation in any part, without uſing more force, and continuing my efforts longer, than I judged to be prudent.

Notwithſtanding this failure, my patient was not diſcouraged. He had felt leſs pain from the operation than he had expected; and having no inflammation in his eyes after it, excepting a ſlight degree of tenderneſs, he was deſirous that I ſhould renew my attempts, as ſoon as I ſhould judge another operation to be proper.

Upon repeating the operation, his perception of light was a little increaſed, though I could not diſcern any decided ſeparation between the capſula and iris.

Encouraged by a gradual amendment, and the trifling degree of tenderneſs in the eyes,

which

which ſucceeded each operation, I purſued my plan with ſteadineſs, at the earneſt ſolicitation of my patient, and repeated the operation about once a month.

After the fifth operation he could diſcern the pointers upon the face of his watch, when he placed it in certain poſitions, ſuited to the breaches which were now made in the capſula.

Theſe breaches were gradually enlarged; but ſome operations were more ſucceſsful than others. The eighth encreaſed much the ſphere of his viſion; but the eleventh made a greater alteration than any which had preceded. By this operation the greateſt part of the capſula in the right eye was removed, and that of the left eye was conſiderably detached.

He had before this time walked without a guide in a private yard adjoining to the houſe where he lodged; but his ſight was now ſo much improved, that he was able to walk alone through the crowded ſtreets of Leeds.

After the twelfth operation, I adviſed him to return home, and to wait for ſome months the event of theſe attempts to reſtore his ſight. He complied with this advice, though with ſome degree of reluctance, having received ſo much benefit from the operations, and being deſirous

of obtaining as ſoon as poſſible that accurate ſight which his buſineſs required. Whether this will ever be obtained is a matter of ſome doubt; but the advantage and comfort which he now enjoys are not inconſiderable.

CASE V.

Fragments of the Capſule coaleſcing.

In May 1769, Ruth Powell was received into the Infirmary for a cataract of the right eye. The left had been couched eight months before by an itinerant oculiſt, who punctured the cornea (as I was informed) to let out the aqueous humour rendered turbid by the operation. The ſubſequent inflammation had cauſed an obliteration of the pupil.

I depreſſed the cataract very readily with a round needle, and it did not reaſcend; yet my patient received very little benefit from the operation. Upon examining the eye a few days afterwards, the capſule was found to have become opake, though it was tranſparent at the time of the operation. I had punctured it with my needle; but the puncture having been made below the centre of the pupil, the rays of light could not fall upon the retina, except

except when the pupil was largely dilated. When the pupil was much contracted in a ſtrong light, ſhe could diſcern no object, for the iris then covered the broken part of the capſula.

The inflammation which ſucceeded this operation was ſo trifling, that ſhe walked about the ward, with her eye uncovered, before the expiration of a week*.

I performed a ſecond operation, a fortnight after the former, with a view of tearing in pieces the remains of the capſule, or at leaſt, of enlarging the aperture which I had before made in it. The reſiſtance given to the needle by that delicate membrane, floating in the aqueous humour, was ſo ſmall, that I found it difficult to tear off any part of it, and impoſſible to remove the whole. The attempt, however, was not unſucceſsful; for her ſight was ſo much improved by it, that ſhe was enabled to follow her uſual employment without difficulty.

She continued to enjoy diſtinct viſion for two or three years, and then began to complain of ſome dulneſs in her ſight. I examined her eye, and obſerved, that the remain-

* I mention this as a fact, but I do not recommend, nor uſually permit it.

ing fragments of the capſule, which had hung looſe, and left an aperture almoſt as large as the pupil in a moderate light, now formed two ſmall tranſverſe threads, which rendered viſion ſomewhat indiſtinct. I adviſed a repetition of the operation, and at firſt ſhe ſeemed deſirous of it; but finding that ſhe could ſtill execute her buſineſs tolerably, ſhe deferred procuring a re-admiſſion into the Infirmary, and finally remained ſatisfied with the advantage ſhe had received.

It is difficult to conceive how ſuch a coaleſcence of the ſmall and floating fragments of the capſula, as I have deſcribed, could happen.

CASE VI.

Temporary Amauroſis from Inflammation.

May 28th, 1772, I couched both the eyes of Sarah Newſome. The ſubſequent inflammation was trifling, and diſappeared the third day. June 12th, I repeated the operation on the left eye, and performed a third operation the 25th of the ſame month. The two latter operations were followed by no greater inflammation than the firſt.

The

The cataract in the right eye, which had been broken at the firſt operation, diſappeared ſo faſt, that no repetition was required.

When ſhe could diſtinguiſh objects in the fields before the Infirmary with the right eye, ſhe was diſmiſſed, with directions to return in about a month, that her eyes might be examined.

Upon her return I was ſurprized to find, that ſhe had loſt that degree of ſight in the right eye, which ſhe enjoyed when ſhe left the Infirmary. Yet the cataract had not appeared again; nor was there any opacity to be perceived in the cornea, or capſula of the cryſtalline. The pupil was too much dilated, and the iris did not contract upon expoſing the eye to a pretty ſtrong light. In ſhort, the eye appeared to be affected with an *amauroſis*.

Upon inquiring into the cauſe and progreſs of this unexpected complaint, the patient informed me, that in returning home, when diſmiſſed from the Infirmary, ſhe had caught cold, which brought on an inflammation in the right eye, and a gradual loſs of ſight. The redneſs of the conjunctiva had nearly diſappeared; but ſhe ſtill felt a tenderneſs of the eye.

From

From a conſideration of theſe circumſtances, I was led to ſuſpect, that the complaint was of an inflammatory nature, and accordingly I ordered her to be bled immediately, and directed a purgative to be taken the following morning. Theſe means afforded the wiſhed-for relief, and the eye was reſtored to its former ſtate.

I ſaw this patient February 17th, 1799, twenty-ſeven years after the operation, and ſhe then enjoyed her ſight as completely as the loſs of the cryſtalline humour will admit*.

CASE VII.

Cataract riſing again.

In 1770, Ann Jenkins was admitted a patient of the General Infirmary for a cataract in one eye, the cryſtalline of the other being alſo ſlightly opake. I depreſſed the cataract without any conſiderable difficulty. On examining the eye two days after the operation,

* Spectacles are generally neceſſary for thoſe who have loſt the cryſtalline humour. I have had ſome patients, who, when firſt reſtored to ſight, have been under the neceſſity of joining two pairs of ſpectacles for a time, and afterwards have been able to ſee well with one pair.

I per-

I perceived the cataract to be in its former ſituation.

When the tenderneſs of the eye was removed, the operation was repeated, and at my firſt examination the eye had a good appearance. The patient alſo found her ſight reſtored. But as the tenderneſs of the eye decreaſed, the cataract roſe again, till it came nearly into its original ſituation. She was now made an out-patient, and about a fortnight after ſhe had left the houſe, ſhe became ſenſible of ſome amendment in her ſight, and came to me requeſting that I would examine her eye. I obſerved that the cataract had already begun to ſubſide. In a ſhort time afterwards it diſappeared, and ſhe regained her ſight.

CASE VIII.

Secondary Cataract.

In October 1780, I couched both the eyes of a girl, eight years old, the daughter of William Myers of Stainburn. The cataracts were ſoft, and permitted the needle to paſs through them in all directions, without removing them from their place in the vitreous humour.

humour. They appeared a little broken ; but no part was made clear by the operations. The eyes remained tender, but no inflammation ſupervened. I ſent her home to wait ſome months before I ſhould repeat the operation.

In June 1781, ſhe came again under my care. She now could ſee very well with the right eye. The capſula of the cryſtalline, which I had ruptured at its centre with the needle, was retracted on all ſides towards its attachment at the circumference of the cryſtalline. There was an aperture left as large as the pupil in a ſtrong light ; but in a moderate light, the remainder of the capſula appeared all around, juſt within the edge of the iris.

In the left eye, the broken fragments of the capſula adhered to each other, ſo as to prevent the direct rays of light from falling upon the retina. She could, therefore, ſee no object diſtinctly with the left eye.

I did not think it neceſſary to run any riſque, by attempting to enlarge the field of viſion in the right eye ; but I removed the opake capſula in the left eye, which readily yielded to the preſſure of the needle. Having laid hold of the capſula near its centre, where

it

it formed ſome tranſverſe opake threads, I found it to be more firm there than at its circumference, for the whole of the capſula was removed at one effort.

The cryſtalline humour ſeemed to have been diſſolved ſince the former operation; for I could diſcern nothing opake except the capſula.

The operation was attended with very little pain, and no inflammation ſucceeded. The patient ſaw well, and could bear a ſtrong light within a fortnight after the operation.

I ſaw this patient in 1782. A ſmall portion of the capſula, which I had removed appeared towards the external canthus of the eye; but it projected ſo little, that it ſeemed to afford no hindrance to diſtinct viſion.

Since the reſtoration of ſight in the left eye, ſhe had begun to ſquint a little with the right, in which there remained a circle of opake capſula, as above mentioned.

CASE IX.

Cure obtained by making the Needle paſs through the Cataract.

A child of two years old was admitted into the General Infirmary, on account of a congenital

genital cataract in each eye. She could diſcern a glaring light, as a lighted candle, or burning coal; and could alſo, in a ſtrong light, diſcern ſome of the moſt vivid colours. The motion of her eyes was uſually parallel; but ſhe often placed them for a ſhort time in different directions, as if ſhe was looking at two diſtinct objects. She rolled them about much, which made her ſometimes appear like an ideot, though ſhe was a very ſenſible child. She was often moving her hand with rapidity before her face, when placed oppoſite a window, and delighted to blow out a candle, and do other ſimilar tricks, that made a variation in the ſight which ſhe poſſeſſed.

I attempted to couch her left eye, but was repeatedly prevented by the difficulty of holding her ſteady, and by the power which ſhe had of retracting her eye within the orbit, and thereby rendering the conjunctiva flaccid. She could do this in ſo great a degree, as ſometimes to hide the whole of the cornea by the wrinkled conjunctiva, which then lay in folds before it. I once ſucceeded ſo far as to penetrate the eye with my needle, and juſt move it through the cataract; but her wriggling motion made any continued attempt to depreſs the cataract ſo hazardous, that I was glad to

withdraw my inſtrument without doing any injury to the eye.

The child was diſmiſſed till a more advanced age ſhould render the operation leſs hazardous.

About three years afterwards, being in the neighbourhood of the child's parents, I looked in upon them for the purpoſe of ſeeing the child, and was agreeably ſurprized to find the left eye, into which I had introduced my needle, almoſt clear. The reſtoration of the child's ſight (for it was now in part reſtored) had been ſo gradual, that her parents could not inform me of the time when ſhe began to diſcern objects.

The rolling motion of the eyes ſtill continued.

CASE X.

Pain above the Eye-brows.

In 1799, I couched the right eye of Mrs. Spotſwood of Lincoln, an elderly lady. The night after the operation ſhe complained of much pain in the forehead, juſt above the eye-brow, attended with ſickneſs at the ſtomach; but there was no appearance of inflammatory affection in the eye. I gave her a gentle laxative,

tive, and after that an opiate, which removed the painful ſenſation, and the ſickneſs. Her caſe required a repetition of the operation. I couched her eye four times before the opake portions of the capſule were ſufficiently removed. The pain, which had affected her after the firſt operation, never returned, nor did the leaſt inflammation ſupervene. After the three latter operations, ſhe informed me that the pain cauſed by the puncture ceaſed ſo ſoon, that ſhe felt no uneaſineſs after I had left the room in which I had operated. Indeed the uneaſineſs ceaſed almoſt as ſoon as I had withdrawn my needle, and did not return.

The year following this lady favoured me with a letter, very well written by her own hand.

Opiates have always, as far as I can recollect, relieved the complaints above-mentioned, even when they have been accompanied with ſome inflammatory affection of the eye.

This lady's caſe was by no means a favourable one, as there was too great a contraction in the pupil previous to the operation; ſo that I conſidered the ſucceſs as more doubtful than uſual. The left eye was in ſo morbid a ſtate, that I did not operate upon it.

CASE

CASE XI.

Contracted Pupil.

In September 1793, Mr. Champley of Thornton, near Pickering, aged ſeventy-two years, conſulted me on account of a loſs of ſight in both eyes.

The left eye appeared to be affected with an amauroſis, the right eye with a cataract. He could not diſtinguiſh one perſon from another, nor was he able to walk abroad without ſome perſon to conduct him.

The right eye was by no means in a favourable ſtate for the operation, as the pupil was much contracted, and the iris almoſt immovable. A very ſlight motion of the iris might be perceived upon expoſing the eye ſuddenly to a ſtrong light. In the twilight he had a ſmall perception of light with this eye; but in a ſtrong light the pupil was ſo much contracted that he could ſee nothing.

I explained to my patient, and to his nephew, a ſenſible young man who accompanied him, the nature of the diſeaſes with which his eyes were affected, and propoſed the removal of the cataract in the right eye, though my

hopes of ſucceſs were not ſanguine. However, as a failure in my attempt to reſtore the ſight would not make his condition to be worſe, my patient conſented to the operation.

The great difficulty in this caſe was, to know when the point of my needle was brought into a proper place for depreſſing the cataract, as I could not ſee the inſtrument through the pupil. The ſhortneſs of my needle greatly aſſiſted me in this dilemma. When I had introduced it as far as I judged proper, I brought forwards its point towards the pupil; and obſerving that in this motion the cataract was made to advance, and dilate the pupil, I was certain that the inſtrument was then preſſing upon the poſterior part of the cryſtalline, in which its point might now probably be entangled: I therefore turned the point backwards, and had the pleaſure to ſee the cataract carried away by it. The cataract diſappearing as I depreſſed the point of my needle, I turned the point backwards towards the outer canthus of the eye, and then withdrew the needle in a direction parallel to the axis of the pupil.

Mr. Champley had very little uneaſineſs after the operation, but was anxious to return home, as he apprehended he had received no benefit

benefit from the operation. I could not prevail upon him to ſtay longer than a week at Leeds. Before his return, I procured ſome cataract ſpectacles, and requeſted him to make a trial of their uſe. He was ſurprized to find, that by the aſſiſtance of a pair moderately convex, he could diſtinguiſh the faces of the perſons in his room, and deſcribe their dreſs. He could alſo diſtinguiſh capital letters in the title page of a ſmall dictionary, which lay upon the table. He diſcerned the ſmall figures in a paper with which the room was hung, but miſtook a little the colour of the ground of the paper. In ſeveral trials which I made, I found that he could diſtinguiſh figures better than colours.

Before I conclude my obſervations on the Cataract, I ſhall take ſome notice of the objections which Baron Wenzel has made againſt the operation of couching, and then contraſt the inconveniences of this operation with thoſe which he allows to ariſe from the method of extraction. I judge this compariſon the more neceſſary, as I have already obſerved, becauſe Mr. Ware, the tranſlator of the Baron's Treatiſe, ſeems to coincide intirely with his author in theſe objections; and be-

cauſe I know that many ſurgeons conſider the practice of couching as obſolete, and greatly inferior to that of extraction.

The Baron treats this operation with ſome contempt. "I think it unneceſſary," he ſays, "to enter further into an explanation of the "different modes of depreſſing the cataract, "ſince this operation is at preſent almoſt "univerſally exploded."

Ware's Tranſlation, p. 18.

He begins his Section on the accidents produced by couching, with this obſervation, that "the objections againſt couching are infi- "nitely greater, and the effects of it much "more to be dreaded," than thoſe of extraction. He then enumerates the following accidents to which the operation is liable.

1ſt. "The pain is ſevere during the "operation." On this head I have given the language of one lady* (the late Mrs. Scott of Leeds) who was aſked concerning the pain immediately after I had operated. The account which ſhe gave may be conſidered as a fair ſpecimen of the pain attending the operation in general. There is undoubtedly a difference in the ſenſibility of different perſons; and ſome patients may expreſs a greater ſenſe of pain on account of a

greater

* Page 63.

greater difficulty in removing the cryſtalline or opake capſula; but patients frequently expreſs ſurpriſe at the ſmall degree of pain cauſed by the operation, and rarely ſpeak of it as a very painful one. The ſincerity of their expreſſions is confirmed by the readineſs with which they ſubmit to a repetition of the operation, and not unfrequently by a requeſt for ſuch repetition.

2dly. "The vomiting, which frequently "comes on at the diſtance of ſome hours "after the operation, is apt to produce a col-"lection of matter in the eye." I ſhall reſerve what I have to ſay on collections of matter in the eye, till I anſwer the third objection, in which this conſequence is attributed to the puncture of the retina and ciliary nerves. With reſpect to the vomiting, which is here ſaid frequently to occur, my anſwer is, that it does not frequently occur; and whenever it has occurred in any of my patients, it has been ſpeedily removed by an opiate.

3dly. "The pain produced by the puncture "of the retina and the ciliary nerves, is often "followed by a ſuppuration of the eye."

I have now practiſed the operation of couching pretty frequently for thirty-three

years, though I have not kept a liſt of all the patients upon whom I have operated. I have alſo ſeen the operation performed frequently by my colleagues at the Leeds Infirmary; but never yet ſaw an inſtance of a ſuppuration of the eye, in any patient who has come under my care in private practice, nor in any caſe that has occurred at our public hoſpital.

4thly. "Thoſe perſons who have under-
"gone the operation of couching, ſometimes
"feel conſtant and violent pains in the eye
"as long as they live."

In this objection I leave the Baron to judge by his own experience. I never knew this conſequence to follow from the operation in any of my own patients. An old woman was admitted into the General Infirmary at Leeds, on account of a cataract in each eye, accompanied with a chronic ophthalmy. She remained ſeveral weeks in the houſe, before the ophthalmy could be ſo far removed as to make it adviſable to perform the operation for removing the cataracts. When the inflammatory affection ſeemed to be ſubdued, the operation was performed with ſucceſs, and the poor woman continued in a comfortable ſtate for about ten days. The ophthalmy then returned, and could never afterwards be com-

pletely ſubdued. A great variety of means were uſed with temporary advantage, but this was always followed by a relapſe, which often came on ſuddenly, without any apparent cauſe. I was at laſt obliged to ſend my patient home with an incurable ophthalmy. This is the only inſtance of the kind which has occurred to me, and which could not be attributed to the operation, as it had ſubſiſted a long time before ſhe came under my care. This is a different caſe from the lippitudo, where the veſſels of the conjunctiva are turgid, and the eye-lids thickened, without any acute inflammation.

5thly. "In introducing the couching needle, "the blood veſſels, both of the choroides and "retina, are liable to be wounded, and the "extravaſated blood not only confuſes the "ſight of the operator, but, unleſs ſpeedily "abſorbed, is very apt to produce a ſuppura-"tion of the whole eye."

I have often punctured the blood veſſels of the conjunctiva, but in this caſe, the blood, which ſeldom exceeds a drop or two in quantity, is always diſcharged upon the globe of the eye. I do not recollect a caſe in which I perceived any blood to flow from within, ſo as to mix with the aqueous humour. But if

this accident ſhould occur, the operator may withdraw his needle, and poſtpone the remaining part of the operation.

6thly. "The ſoft and milky cataract cannot be depreſſed by the needle; nor can the needle be employed in ſuch a caſe with any proſpect of ſucceſs."

This objection is not founded in fact, as I could bring abundant teſtimony to prove, if it were neceſſary. The ſoftneſs of the cataract generally requires a repetition of the operation, but does not prevent the patient from receiving a cure. A ſoft cataract has in ſome reſpects the advantage over a hard one, as the former is leſs apt to adhere to the iris; and conſequently there is leſs riſk of deranging the ciliary proceſſes, or their inveſting membrana nigra, by breaking down a ſoft cataract, than by removing a hard one.

In the cloſe of this objection the Baron denies, "that the milky cataract, when placed in the anterior chamber, will gradually diſſolve and diſappear."

It frequently happens, that portions of a ſoft cataract fall through the pupil into the anterior chamber of the eye, and ſometimes the whole of a ſolid opake nucleus. In every caſe in which either of theſe accidents has occurred,

occurred, the opake portions have gradually diſſolved in the anterior chamber, and have finally diſappeared without any injury to the eye. I am ſo well convinced that this conſequence may be expected, that if I could make the cataract paſs, in every caſe, into the anterior chamber, without injury to the iris, I ſhould prefer this method of terminating the operation to any other. I will not ſay, that the cryſtalline always becomes diſſolved when placed in the inferior part of the vitreous humour; but this is of no conſequence, if it never appears again to obſtruct the rays of light which paſs through the pupil.

7thly. "After the cryſtalline humour has "been depreſſed in the beſt manner poſſible, "it is liable to riſe again."

This objection is true, but of little conſequence. A repetition of the operation is not in this caſe always neceſſary, as the cryſtalline will ſometimes ſpontaneouſly ſubſide and diſappear (ſee Caſe VII.) and when it does not, a repetition of the operation has never failed, within the compaſs of my experience, of being attended with ſucceſs.

8thly. "The ciliary proceſſes, which ſurround "the cryſtalline, are liable to be wounded by "the different movements of the needle."

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This objection applies chiefly to the ſpear-ſhaped needle, in which the point projects beyond that part of the inſtrument by which the depreſſion is effected. This inconvenience is obviated by the form of the needle which I have above recommended. In the uſe of this inſtrument the cryſtalline is depreſſed by its extreme part, which alone is ſharp, though not pointed, and which need not be brought into contact with the ciliary proceſſes. The ciliary proceſſes are in the greateſt danger from the adheſion of a firm cryſtalline or opake capſule, and are equally liable to be deranged by the removal of the diſeaſed part, whether the operation is performed by extraction or depreſſion.

9thly. In the fifth Section of the Baron's Treatiſe it is aſſerted, that "the caſe of an "opaque capſule of the cryſtalline is entirely "out of the reach of the operation of couch-"ing."

The caſes which I have related have already ſhewn the fallacy of this objection. I have ſhewn that the needle may be uſed with ſucceſs, not only in the caſe of a ſimple opake capſule, which is often removed with as great eaſe as the opake cryſtalline, but alſo when there is a partial, or even a total adhe-

ſion

ſion of the capſule to the iris; though ſome of the advocates for the operation of couching have ſeemed to give up this laſt caſe in deſpair.

If an opake and adherent capſule could always be removed with ſafety, by a ſingle operation of extraction, I ſhould readily allow that, in this inſtance, the operation would be ſuperior to that of couching. But, "notwithſtanding a few inſtances of ſucceſs," the Baron himſelf allows that his operation in this caſe is of very doubtful event. "If the opaque capſule "adheres to the iris, and an attempt to ex- "tract it be perſiſted in, there is danger of "ſeparating the iris from its connection at the "outer margin, and inducing blindneſs from "this cauſe." p. 26.

10thly. A tenth objection againſt couching occurs in the ſixth Section, where the Baron is examining the objections againſt extraction. "A ſecondary cataract, by which "I mean an opacity of the poſterior cap- "ſule of the cryſtalline lens, takes place "much oftener after the operation of depreſ- "ſing the cataract, than after that of extract- "ing it." p. 25.

What reaſon the Baron has for ſuppoſing that it is the poſterior, rather than the anterior

rior capſule of the cryſtalline, which forms the ſecondary cataract, I cannot tell. I am of opinion, with Mr. Ware, that the anterior portion of the capſule is generally the ſeat of this diſeaſe. So it has appeared to me in operating for the ſecondary cataract. It is not in my power to determine whether this diſeaſe takes place "much oftener after the "operation of depreſſing the cataract, than "after that of extracting it." Neither can the Baron determine this, I ſhould ſuppoſe, from his own experience. The ſecondary cataract does certainly follow both methods of operating; and if it does not ſpontaneouſly diſappear, a repetition of the operation becomes neceſſary in both methods. When the opake capſule has been broken, and hangs in fragments from its circumference, it is often difficult to tear off theſe pieces, as they give ſo little reſiſtance to the needle. This I think to be the principal difficulty, which the operation of couching has to overcome. Yet a cautious repetition of the operation will rarely fail to make ſuch an aperture in the capſule as ſhall enable the patient to read with glaſſes, and conſequently to enjoy his ſight for purpoſes of leſs difficulty.

11thly.

11thly. " A total closure of the pupil is a " misfortune which rarely happens after the " operation of extraction, but much more " frequently after that of couching." p. 24.

I have seen this consequence from the operation of an itinerant oculist; but it has never occurred in my own practice, nor have I ever seen an instance of it after any operation performed by my colleagues at the General Infirmary.

I have now considered every objection of consequence urged by Baron Wenzel against the operation of couching; and shall proceed to examine those which he allows to lie against that of extraction.

1. The *Staphyloma* is one consequence of the operation of extraction, from which that of couching is entirely free. By this term Baron Wenzel means a projection either of a transparent membrane, (concerning the nature of which the Baron and his translator differ in opinion) or of the iris through the wound made in the cornea. This accident is allowed to happen sometimes " under the best ma- " nagement," p. 240. I shall take no farther notice of the transparent staphyloma, since it is represented as a curable complaint. But is

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it poſſible to conceive, that the interior edge of the iris can be drawn ſo far from its proper ſituation, as to the exterior part of the cornea, and remain there, without injury to the patient? With reſpect to the deformity which this accident occaſions, let the reader conſult Sir James Earle's late publication on the cataract, in which he will ſee the ſketch of an eye ſo deformed.

From this author's account it will appear, that in one inſtance at leaſt, this ſpecies of ſtaphyloma was accompanied with blindneſs. I leave to the abettors of extraction to prove, that it ever happens without ſome degree of inconvenience to the patient.

2. The loſs of the vitreous humour, in whole or in part, is another and not unfrequent conſequence of the operation by extraction. And though this accident may not always prove injurious; yet it is allowed ſometimes to diminiſh, and ſometimes to deſtroy the ſight of the patient, "In ſome patients, even a con-
"ſiderable effuſion has not prevented the ſuc-
"ceſs of the operation; though in others, it
"muſt be owned, this accident has much
"diminiſhed the clear perception of objects."
p. 23. Again, "She ſubmitted to have one
"cataract extracted by an oculiſt of that
"city"

" city" (Paris) " but without the ſmalleſt ſuc-
" ceſs; and the failure I imputed to the eſcape
" of almoſt the whole of the vitreous humour,
" together with the cryſtalline." p. 192.

In one caſe which the Baron relates, there was a loſs of three-fourths of the vitreous humour, notwithſtanding which the patient regained her ſight; but his remarks on this caſe ſhew clearly the danger of ſuch an accident. " I could not refrain from giving up
" the eye as entirely loſt." p. 169, Note. Again, " To my great ſurprize, ſhe diſtin-
" guiſhed every object ſhe looked at, which,
" conſidering the accident, was almoſt incre-
" dible." p. 170.

In another caſe, " the violence of retching," which immediately ſucceeded the operation,
" cauſed an extravaſation of the vitreous hu-
" mour, and, in conſequence of this, a total
" loſs of ſight." p. 162, Note.

Mr. Ware agrees with the Baron in allowing the injury which ariſes from the diſcharge of the vitreous humour. He ſays, " The
" tranſlator thinks it much ſafer to leave theſe
" minute fragments" (which may appear after the extraction of the cryſtalline) " in

" the

" the eye, than to hazard the ill conſequences " which the diſcharge of the vitreous humour " is too apt to produce." p. 252, Note.

The danger of an eſcape of the vitreous humour is greatly increaſed, when this humour, through diſeaſe, acquires an unnatural fluidity; or when the poſterior part of the capſule of the cryſtalline is extracted. In the former caſe, the extraction of the cryſtalline becomes extremely difficult, as " all preſſure " on the ball of the eye muſt be carefully " avoided." p. 165. Yet with every care " a conſiderable portion of the vitreous hu- " mour" may be loſt. This happened in M. de Pradine's caſe, who yet regained his ſight: but Mr. Ware's note on this caſe deſerves attention: " The operation in this " inſtance proved ſingularly fortunate. But " the tranſlator is of opinion, that it ought " not to encourage a ſanguine hope of ſucceſs " in ſimilar caſes." p. 173, Note.

With reſpect to the extraction of the poſterior capſule, the Baron urges great caution " not to touch the membrane of the vitreous "humour," and gives other cautions, " in order " as much as poſſible to prevent the effuſion " of the vitreous humour; which, however, " it is in many inſtances extremely difficult

" to avoid." p. 264. Mr. Ware " believes it to " be utterly impoſſible to engage and extract " the former" (the poſterior part of the capſule,) " without at the ſame time involving the lat- " ter" (the membrane of the vitreous humour).

From all theſe difficulties the operation of couching is free.

3. " Among the inconveniences to which " the iris is liable during the proceſs of this " operation" (of extraction,) " I ſhall take " notice of its ſeparation from the choroides " in any part of its circumference,——— " although this accident very rarely occurs." p. 208. In Madame Patin's caſe " the cornea " and capſule were ſcarcely opened, when the " iris detached itſelf, in its inferior and outward " lateral portion, to the extent of about a " fourth part of its circumference." p. 209. Whenever this accident occurs, " the cryſtal- " line always comes through the artificial " opening." p. 217. which cannot happen without a conſiderable laceration of the iris. A degree of deformity, at leaſt, muſt be the conſequence of this accident (to which the operation of couching is not liable); but it induces the hazard of a much more ſerious event, as the Baron acknowledges. For,

ſpeaking of the opake adherent capſule, he ſays, "If the opaque capſule adheres to the "iris, and an attempt to extract it be perſiſted "in, there is danger of ſeparating the iris "from its connection at the outer margin, "and inducing blindneſs from this cauſe." p. 26, Note.

4. The cloſure of the pupil is an accident which ſometimes follows the extraction of the cryſtalline. "This cloſure of the pupil, which "is occaſioned by the inflammation of the "iris, and by the ſuppuration in which it "terminates, has always been conſidered as "the moſt grievous accident that can poſſibly "take place, after the operation of extrac-"tion." p. 266. For the cure of blindneſs from this cauſe, the Baron has pointed out a method of making an artificial pupil, which, he ſays, has been attended in ſome inſtances with ſucceſs. But if "the inflammation of the iris "terminates in ſuppuration," what can any operation effect? It is but in ſome favourable caſes that the operation can poſſibly ſucceed, as the Baron allows; for, "when the cloſure "of the pupil is occaſioned by a violent oph-"thalmy" (which may be cauſed by the extraction of the cryſtalline,) "it rarely happens "that the organization of the eye is not other-

"wiſe

" wiſe ſo much injured, as to deſtroy all " hopes from any operation." p. 277.

I have already noticed, that the cloſure of the pupil has never followed any operation of couching which I have performed.

5. I entirely agree with the obſervation of Baron Wenzel, that " whatever mode of per- " forming the operation may be adopted, and " whatever precautions may be uſed, we muſt " not flatter ourſelves that pain and inflam- " mation can always be prevented." But I cannot accede ſo readily to his aſſertion, " that in- " flammation and exceſſive pain occur much " leſs frequently when the operation is con- " ducted in the manner he has recommend- " ed, than when it is performed in any other " way." p. 223.

We ſhall be able to form a juſt judgment on this ſubject, by enquiring into the frequency of the worſt effects produced by inflammation, in the different methods of operating. We have already purſued this inquiry with reſpect to ſome of the conſequences of the different operations, and it has hitherto been in favour of the operation by couching: let us now examine the worſt conſequence that ever attends an attempt to reſtore ſight to perſons afflicted with the cataract.

" The moſt formidable accident that fol-
" lows the operation of extracting the cata-
" ract, is a violent inflammation of the globe
" of the eye; during the continuance of
" which, the conjunctiva becomes conſide-
" rably inflated, and the eye immerſed in a
" large quantity of acrid matter. In conſe-
" quence of this, the cornea not unfrequently
" becomes opaque, and purulent matter is
" collected behind it; the matter being ſome-
" times found in both chambers of the aque-
" ous humour; and from this cauſe the pa-
" tient ſuffers exceſſive and inceſſant pain. If
" the remedies that are uſually directed in
" caſes of inflammation be inſufficient to pro-
" duce an abſorption of the matter, which in-
" deed too often happens, the caſe is hope-
" leſs; and the pain will not ceaſe until the
" ſuppuration is complete, and the eye ſunk
" and loſt." p. 231.

I admire the candour of the Baron in thus ſtating what he has ſeen, and am glad to read the ſentence which follows his deſcription of this formidable accident that ſometimes attends the operation of extraction. " I am
" happy to ſubjoin, that it very ſeldom oc-
" curs in the courſe of our practice." p. 232. I am alſo happy to be able to ſubjoin, that in my

my practice it has never yet occurred. The Baron does not make the ſame declaration with reſpect to the following accident, which is nearly allied to the former. " Again, a " collection of purulent matter is ſometimes " formed in the eye within a few days after " the operation, without any external ſymp- " toms of inflammation, and without being " preceded by any remarkable ſenſations of " pain." Ib.

I have ſeen inſtances of inflammation, ſometimes, though not often, conſiderable in degree; but in no one inſtance has the inflammation been attended with, or followed by, a collection of purulent matter or a ſuppuration of the eye.

Before I committed theſe obſervations to the preſs, I wrote to my late colleague Mr. Lucas, now retired from buſineſs, who was ſurgeon to the General Infirmary at Leeds, from its inſtitution in 1767 to the year 1793, and propoſed to him ſome queries reſpecting the effects of couching. He favoured me with an anſwer in the following terms: " I do not " recollect, either in public or private prac- " tice, having ever ſeen a ſuppuration taking " place in the eye, the pupil becoming cloſed " and obliterated, or the ſight having been

" deſtroyed by a ſucceeding opacity of the " cornea, that could be aſcribed to the ope- " ration of couching."

I have now conſidered the objections made by Baron Wenzel to the operation of couching, and alſo thoſe which he allows to lie againſt that of extraction. Other objections againſt the latter, and thoſe of conſiderable weight, may be found in ſome modern writers on ſurgery; but I have thought it the moſt fair method of canvaſſing this ſubject, to confine myſelf to the facts which are ſtated in the Baron's Treatiſe. I have no wiſh, but that that mode of operating may prevail, which is the moſt beneficial to the afflicted.

CHAP. III.

Of the STRANGULATED HERNIA.

THE *Strangulated Hernia* is a frequent diſeaſe, and one which requires great and ſpeedy attention. Perſons afflicted with ruptures are numerous. The prolapſed parts are often in a painful and irreducible ſtate for a few hours, and then retire without any bad conſequences. On this account patients often permit them to remain in this ſtate much too long without calling in proper aſſiſtance.

When a medical perſon is conſulted, the diſeaſe is ſometimes concealed, either from modeſty, or from the pain being leſs in the rupture than in other parts of the abdomen, which is ſometimes the caſe; the patient having no apprehenſion that pain at the navel or ſtomach, with frequent vomiting, can be cauſed by a ſmall ſwelling in the groin. This concealment happens the moſt frequently in the female ſex, and is ſometimes carried to an extreme; ſo that I have more than once known the patient deny the exiſtence of the diſeaſe. On this account I have made it a rule for many

years, always to examine thoſe parts of the abdomen which are the uſual ſeat of a hernia, whenever I am called to a patient labouring under the *Ileus*. For want of this precaution, the ſtrangulated hernia may prove fatal, by being miſtaken for a ſimple ileus. Such miſtakes I have known to happen. Indeed, in the femoral hernia the tumour is ſometimes ſo ſmall, and free from external inflammation, or tenſion of the integuments, that there is danger leſt the ſurgeon, without a careful inquiry into all circumſtances, ſhould miſtake the rupture for an enlarged inguinal gland*.

When the nature of the complaint is clearly aſcertained, the danger is often increaſed by continuing too long the uſe of thoſe means which are deſigned to procure a reduction of the ſtrangulated inteſtine. The complaint is ſometimes, indeed, ſo rapid in its progreſs, that the patient is ſcarcely alarmed with his danger before the diſeaſe is irremediable. But in all caſes, it is of great conſequence to make choice of ſuch means, for producing a reduction, as will take effect in a ſhort time, or will

* Mr. Elſe found a portion of inteſtine ſtrangulated in the groin, behind an enlarged gland, in a patient who died the third day of the ſtrangulation.

Med. Obſ. & Inq. vol. iv. p. 355.

ſoon

ſoon determine that reduction is impracticable. A ſtrangulated hernia often retires ſpontaneouſly, or with the ſlighteſt aſſiſtance, and ſometimes after the diſeaſe has continued many days; but if we ſuffer our expectation to be raiſed much by ſuch favourable events, we ſhall often bring on that fatal termination which might otherwiſe have been prevented.

No mode of treatment has hitherto been diſcovered, which will *certainly* procure a reduction of the ſtrangulated hernia, without having recourſe to the knife. Writers on this diſeaſe ſeem to have conſidered the treatment which they have recommended, as appropriated to all ſubjects labouring under the complaint; yet ſome difference, I think, ought to be made in our manner of treating a patient who is ſeized with this diſeaſe in the full vigour of life, and one debilitated by previous illneſs, or of a very feeble conſtitution.

The principal means adviſed previouſly to the operation are, bleeding, purgative medicines, purging clyſters, opiates, the warm-bath, the cold-bath, the application of cloths dipped in cold water, ſolutions of crude ſal ammoniac, ice, ether evaporated on the part, and the injection of tobacco in fume or decoction; to which muſt be added the attempts

to

to replace the ſtrangulated part in a poſture favourable to reduction. Authors have given us inſtances of the ſucceſs of all theſe means, I have ſeen each of them ſucceed. I have ſeen them all fail. I have ſeen the ſtrangulated parts retire without the uſe of any means, and even after the ſtrangulation had continued many days. The recital, therefore, of ſingle caſes, in which ſucceſs was obtained by this or that method (though not uſeleſs), does not much advance our knowledge. We want to know the comparative merit of each method, and this it is difficult to obtain. I will give the reſult of my experience on each of theſe methods.

Bleeding. The ſtrangulated hernia has been uſually conſidered, till of late, as an inflammatory diſeaſe, and the uſe of the lancet has been almoſt univerſally adopted. Mr. Pott, who wrote much from his own experience, ſays, "Perhaps there is no diſeaſe affecting the human body in which bleeding is found more eminently and immediately ſerviceable than in this, and which, therefore, if there are no particular circumſtances in the conſtitution prohibiting it, ought never to be omitted." Pott's works, vol. ii. p. 68, octavo edition.

Mr.

Mr. Benjamin Bell gives the ſame advice. "Blood letting is here a principal remedy. "In no diſeaſe is it either more indicated "from appearances, or affords more relief in "reality." Surgery, vol. i. p. 275.

On the contrary, Mr. Wilmer of Coventry, who has publiſhed ſome valuable obſervations on ſtrangulated hernia, is of opinion, that "in "theſe caſes, the death of the patient can "only be explained by the inverted periſtaltic "motion immediately leſſening the powers of "life," and thinks "that large and repeated "bleedings muſt increaſe the debility, and "do much miſchief." *Obſ. on Hernia*, p. 39. He thinks that bleeding "is extremely "unfavourable to the patient's recovery," ſhould the operation for reducing the hernia be afterwards performed; and after declaring that "moſt of the patients who are brought "into public hoſpitals die after this operation," he ſeems to attribute this want of ſucceſs to their having been bled copiouſly. Ib. p. 45.

Mr. Alanſon of Liverpool coincides with Mr. Wilmer in his opinion of the inutility of bleeding in this diſeaſe. He tells us, that bleeding ad deliquium had been the conſtant practice at Liverpool, and adds, "As ſoon as "the deliquium happened, the taxis was tried

"during

" during that ſtage; but I never ſaw this me-
" thod ſucceſsful, nor do I think bleeding
" ever of the ſmalleſt ſervice in forwarding
" reduction." Ib. p. 44.

Amidſt this contrariety of opinions, what path muſt the young practitioner purſue? I entertain a favourable idea of all theſe authors; yet it is impoſſible that I ſhould think them all to be right in theſe diſcordant ſentiments. If I may be allowed to judge from my own experience, I muſt conclude, that this matter has been carried to an extreme on both ſides. I have ſeen ſome caſes in which bleeding has been clearly uſeful. I have ſeen others in which I judged it to be highly improper. I will relate an inſtance or two on both ſides the queſtion, from which the reader may better comprehend my meaning.

CASE I.

Nov. 24th, 1766. I viſited, in the evening, William Pratt of Bramley, a ſtout young man, whom I found labouring under a ſtrangulated hernia. The ſtrangulation had ſubſiſted about ſeven hours, during which time he had drunk about half a pint of gin, diluted with

with water, apprehending his complaint to be the colic. He vomited frequently, and had a full, ſtrong, and frequent pulſe. He could ſcarcely ſuffer me to handle the tumour, though there was no external appearance of inflammation. There was no tenſion of the abdomen. I opened a vein in each arm, and took away, in a ſpeedy manner, betwixt twenty and twenty-four ounces of blood, while he ſat upright in bed. He felt himſelf immediately relieved; and when I examined the groin, after tying up his arms, the hernia had retired.

CASE II.

Nov. 13th, 1775. William Renton, porter to the General Infirmary at Leeds, aroſe about two in the morning, to aſſiſt the chimney-ſweepers; but became ſo ill with pain at his ſtomach, and ſickneſs, that he was obliged to go to bed again at five. He continued all day to complain of much uneaſineſs at his ſtomach, and vomited up every thing that he took. I happened to be at the Infirmary in the evening, and viſited him. The late Dr. Crowther had preſcribed for him a ſolution of Epſom ſalt, but it was conſtantly rejected.

Knowing

Knowing that he was ſubject to a hernia, I inquired if it was now prolapſed. He ſeemed at firſt not to have thought about it; but upon my examination, he acknowledged that it had been down all the day, though he had no pain in the tumour. I ordered him to ſit up in bed, while about a pint of blood was drawn by opening a vein in each arm at the ſame time. He became ſick before the evacuation was finiſhed, but had no deliquium. Immediately after the bleeding I placed him in a horizontal poſition, and tried to reduce the inteſtine, which now went up very readily, though I had before the bleeding attempted the reduction in vain.

I relate theſe caſes to ſhew, that there are circumſtances in which bleeding may be of uſe; but I do not mean to impreſs upon the reader an idea, that a like happy termination will generally attend this evacuation. I know it will not. My own experience leads me to concur ſo far with Mr. Wilmer and Mr. Alanſon, as to declare, that bleeding has generally failed to procure a reduction of the ſtrangulated inteſtine, though I am perſuaded that in many caſes it may be uſed with advantage. I cannot, however, agree with Mr. Wilmer in thinking, that it generally renders the ſubſequent

quent operation more dangerous. The following obſervations induce me to differ from this opinion.

When the operation proves unſucceſsful, without gangrene of the prolapſed part, the patient almoſt always dies with ſymptoms of the ileus; and this diſeaſe (which is an inflammatory affection of the inteſtines) generally ſucceeds the operation in ſome degree, if the patient recovers with difficulty. Though I conſider proper purgatives as of greater efficacy than bleeding in the cure of this diſeaſe; yet I cannot ſuppoſe that it is ever brought on by previous bleeding.

Again, in all the caſes which I have ſeen, where the operation has not ſucceeded, and where I have had an opportunity of examining the body after death, I have found ſigns of inflammation in the inteſtines, or omentum, or both. I have found inflammatory, and even gangrenous affections, at a conſiderable diſtance from the part which had been prolapſed. Warner and Le Dran have obſerved the ſame appearances. The former, in diſſecting the body of a patient who died on the 20th day after the operation, found "the inteſtines in "general greatly inflamed, the ileum morti-"fied in many places, and ſeveral abſceſſes "formed

" formed in the meſentery." *Caſes in Surgery*, ed. 3, p. 197. The latter ſays, " I have often " ſeen this whole canal inflamed, and marked " in ſeveral places with gangrenous ſpots." *Gataker's Tranſlation of Le Dran's Operations*, p. 80.

Purgative Medicines. My experience leads me to condemn almoſt univerſally the uſe of purgatives taken by the mouth, while an inteſtine remains firmly ſtrangulated. In the entero-epiplocele, when the inteſtine has retired, and the omentum remains ſtrangulated; or in a ſimple ſtrangulation of the omentum, where the inteſtine has not been prolapſed, purgatives are of great utility. So likewiſe in very large and old hernias, where there is reaſon to doubt whether the diſeaſe is not to be conſidered as a morbid affection of the inteſtinal canal, rather than the effect of ſtrangulation, purgatives may be as uſeful as in the ſimple ileus without hernia. While the inteſtine remains firmly ſtrangulated, they uſually increaſe the vomiting, and add to the diſtreſs of the patient. If they are to be tried at any time with hope of ſucceſs, the trial would appear to have the greateſt advantage when the vomiting has been removed by means of an opiate; yet I have repeatedly given them in

vain during ſuch an interval of relief. I once had an opportunity of trying their effect under the moſt favourable circumſtances, while the ſtrangulation remained unabated.

CASE III.

John Handley, aged forty-five years, who had a ſmall irreducible Epiplocele, by making ſome conſiderable exertions in lifting a table, cauſed a ſudden increaſe of the tumour, which was followed by the uſual ſymptoms of ſtrangulation. His pulſe was betwixt ſeventy and eighty. He was directed to take immediately a doſe of ol. ricini, and afterwards to take magneſ. alb. ʒſs every two hours, drinking a table ſpoonful of lemon juice after each doſe. Cloths dipped in cold water were applied to the tumour. Theſe means afforded no relief. Neither of the medicines would reſt upon his ſtomach. On the ſecond day of the ſtrangulation he was put twice into a warm bath, and had two clyſters injected, made with a decoction of a drachm of tobacco boiled in a pint of water for ten minutes. Both the clyſters cauſed great ſickneſs, but did not produce a return of the hernia. At bed time he took fifty drops of tinct. opii.

The opiate procured a comfortable night, and the vomiting ceaſed for forty-eight hours, during which time he took nine table ſpoonfuls of caſtor oil, and half a drachm of the extract. coloc. comp., all which medicines were retained upon his ſtomach. Purging clyſters were alſo frequently injected during this interval of two days, and the uſe of the warm bath was repeated.

At the end of the fourth day, from the commencement of the ſtrangulation, the vomiting returned, and continued all the night. I was called to viſit him at ſix in the morning, and found him vomiting frequently, having the hiccough, with tenſion of the abdomen, which had not ſubſiſted before. His pulſe was now ſmall and frequent.

I immediately performed the operation, and found a portion of omentum in the hernial ſac, inveloping a ſmall portion of inteſtine, which was of a dark brown colour. The hernia was of the femoral kind. It was with great difficulty that I could introduce the tip of my fore-finger within the neck of the hernial ſac, ſo as to enable me to divide the part, which cauſed the ſtricture,* with ſafety. Part of the omentum adhered to the hernial ſac,

* This part will be deſcribed hereafter.

which

which was thickened where the adheſion took place. I cut off the diſeaſed part of the ſac, with the omentum adhering to it. Such part of the omentum as appeared to be quite ſound was reduced; but the greater part of it was left in the wound. A ſmall plug of lint was introduced into the orifice.

No medicine was given to him, as ſo much of the caſtor oil had ſtaid with him. He had ſix copious ſtools, and three ſmaller ones in the courſe of the firſt twenty-four hours. He found great relief from the operation. In the evening he was perfectly eaſy, and told me, that he had had a *rare day*. The ſmall plug of lint came away, and the diſeaſed part of the omentum was caſt off, on the ſeventh day after the operation. He recovered very well.

Purgative Clyſters. I cannot ſay that I have ſeen one caſe in which clyſters, either made with purgative ingredients, or ſimply laxative, as of broth, or water gruel with oil, have produced a return of a ſtrangulated hernia. Such injections will empty the larger inteſtines; but they have ſeemed to me to do no more. It is common for a natural evacuation to be the immediate conſequence of ſtrangulation.

Warm Bath. Many inſtances are upon record of the good effect of warm bathing in procuring the reduction of a ſtrangulated hernia. I have often ſeen it uſeful; but I have alſo often ſeen it fail of ſucceſs. Whenever it is uſed in this diſeaſe, the patient ſhould be placed, if poſſible, in a horizontal poſition. Gentle efforts with the hand to reduce the prolapſed part are perhaps attended with leſs danger, and with greater proſpect of ſucceſs, while the patient lies in the Bath, than in any other poſition. The free uſe of opiates coincides with that of warm bathing, and, under ſome circumſtances, theſe means deſerve to be tried in conjunction, as was done in the following caſe.

CASE IV.

February 2d, 1771, I was deſired in the evening to viſit a poor woman, who lived about a mile from Leeds, on account of a vomiting, which had afflicted her all the day, attended with violent pain in the abdomen. Upon examination I found that ſhe had a ſtrangulated femoral hernia. Her pulſe was not very frequent. The abdomen was painful when

compreſſed,

compreſſed, but was not much inflated. She informed me, that ſhe had been ſubject to the rupture for ſeveral years, which had been repeatedly ſtrangulated for a ſhort time. She was now violently affected with the cramp. Her fingers were almoſt continually rigid. She had pain in the abdomen, which ſeemed to ariſe from ſpaſm, and not from the hernia; for it ſeized her by paroxyſms, during which ſhe cried out, and could not bear to lie upon her back. In ſhort, almoſt all the external muſcles, except thoſe of the face, were affected with ſpaſm. There was reaſon to believe that this diſorder aroſe from inanition, as ſhe had given ſuck to a child for two years, and probably had not always enjoyed a plentiful table. She had of late been often troubled with the cramp.

Under theſe circumſtances I thought that opium and the warm bath would afford the moſt ſuitable means for promoting the return of the hernia. I ordered a warm bath to be prepared immediately, and directed four draughts, one containing tinct. thebaic. gtt xx. and the other three gtt xv. each: of theſe ſhe was to take one every two hours. But previouſly to the uſe of theſe means a purging clyſter was injected, as ſhe had had no evacuation in the

courſe of the day. She took the draught, with t. theb. gtt xx. as ſoon as ſhe came out of the bath, but could not retain it upon her ſtomach; at leaſt, ſhe had retchings after taking it. The other draughts were not rejected; ſhe became compoſed, the vomiting ceaſed, and in the courſe of the night the hernia retired.

Opiates. I have ſeen ſeveral caſes in which opiates given freely (in athletic perſons after bleeding) have procured a reduction of a ſtrangulated hernia. I have alſo received accounts of ſucceſs by the ſame means from ſome of my medical correſpondents; but I cannot ſay that this remedy is generally ſucceſsful. One circumſtance relative to the uſe of this medicine deſerves to be noted, viz. that it will often remove for a time the pain and vomiting, uſually attendant upon a ſtrangulation, even where it proves ultimately inefficacious. I have already related one inſtance in which the vomiting and pain were ſuſpended during forty-eight hours, ſo that the patient lay eaſy, and retained upon his ſtomach every thing that he took, though the ſtrangulation continued. I have ſeen other inſtances of perſons remaining eaſy, and free from vomiting, for twenty-four hours, after taking fifty drops of tinctura

opii. On this account opium is a valuable remedy, when the patient is ſo ſituated, that it is neceſſary to remove him to a conſiderable diſtance before the operation can be performed. Opiates ſhould be given in large doſes, when it is intended to try their effect for procuring reduction; and whenever the ſymptoms of ſtrangulation return, after having been removed by the uſe of opiates, the operation ſhould be performed without further delay.

Cold ſtupes, and cold bath. Mr. Wilmer has recommended the former of theſe means ſo ſtrongly, that they are now frequently, if not generally, uſed as the principal remedy for procuring reduction. They had been mentioned by former authors *, and I had directed them, before Mr. Wilmer publiſhed on the ſubject. I have uſed them very frequently, ſometimes with evident advantage, but oftener, I am ſorry to ſay, without ſucceſs. I have no objection to this remedy, as I am not conſcious that I ever ſaw it do harm; but relations of its ſucceſs after a long continued uſe ſhould be heard with ſome caution, as there is danger of deferring the operation, through the continued uſe of this remedy, till the life of

* Medical Eſſays (of Edinburgh) vol. v. 232.

the patient ſhall be loſt by the delay. It would be a more valuable remedy, could we determine the length of time neceſſary for a ſufficient trial of its efficacy, in any particular caſe, that we might on the one hand avoid a needleſs operation, and on the other, guard againſt a fatal delay. I once ſucceeded in procuring reduction by other means, after the cold ſtupes had been applied during the whole night, and a great part of the ſucceeding day, as I ſhall hereafter relate.

I have ſeen a ſingle immerſion in cold water cauſe a ſpontaneous aſcent of a ſtrangulated inteſtine; but this method has alſo failed of ſucceſs. I have twice tried the daſhing of cold water upon the abdomen and thighs, while the patient ſtood uncovered, but without ſucceſs.

Injections of Tobacco. This I conſider as one of the moſt efficacious remedies in the ſtrangulated hernia, previouſly to the operation; yet truth will not permit me to ſay, that it is even generally ſucceſsful. I have, however, ſeen it ſucceed when other means have failed, as in the following inſtances.

CASE

CASE V.

November 29, 1779, as I was paſſing through Rothwell, a village near Leeds, I was deſired by a poor woman to viſit her ſon, a boy of thirteen years, who had lain about forty-eight hours ill with a ſtrangulated ſcrotal hernia. He vomited every thing which he drank, and had much pain in the belly, which, however, was not greatly inflated. His pulſe was at ninety-four, and rather tenſe. The tumour would not bear handling without exciting much pain; but the integuments retained their natural colour. I placed him in an upright poſture, while I took about ſix ounces of blood from him; and that the evacuation might be the more ſpeedy, I opened a vein in each arm. He complained of ſickneſs, but did not faint. The hernia ſtill remaining, I ſuſpended him by the lower extremities over the ſhoulders of an aſſiſtant, and attempted the reduction in this poſition, applying to the tumour at the ſame time cloths dipped in cold water. This method alſo failed of ſucceſs. I then placed him in bed, and continued the application of the cold wet cloths till the lower part of the tumour felt cold. The hernia was not reduced by any of theſe means. I then injected a clyſter

clyſter, made by boiling for a ſhort time half a quarter of an ounce of tobacco in half a pint of water. The clyſter had not been injected ten minutes before the boy began to complain of being very ſick, and had ſome retching. I now attempted again to reduce the hernia, and ſucceeded with great eaſe.

CASE VI.

In the ſummer 1782, Samuel Edge, aged forty years, was admitted an in-patient of the General Infirmary at Leeds, on account of an aſcites and univerſal anaſarça. He had been afflicted with an aſthma many years, but the dropſy had not come on till the preceding winter. Firſt one, and then the other, of his legs began to ſwell. Afterwards his abdomen became enlarged. In the abſence of his phyſician I directed him to take three grains of powdered ſquill, mixed with a little pulv. e tragac. c., three or four times a day, as his ſtomach would bear it. The medicine agreed with him, and the doſe was increaſed till he took eight grains of the ſquill five or ſix times a day. He continued to take it in this doſe about ſixteen days, excepting two, on which the doſe was diminiſhed on account of its proving too laxative. The diuretic effect

was

was conſiderable, and both the aſcites and anaſarca were completely removed.

This poor man was ſubject to a hernia, which by his cough was rendered very troubleſome. Before he was diſmiſſed from the Infirmary, the hernia became ſtrangulated, in which ſtate it had been two days, before I was informed of the complaint. He complained of pain in the abdomen, and had a vomiting. The houſe apothecary, not being informed, as I ſhould ſuppoſe, of the hernia, had given him a gentle emetic, and afterwards a laxative medicine. As he had had ſome evacuation by ſtool on the day on which I firſt ſaw him, though the hernia could not be reduced by gentle preſſure, I only directed an opiate, ſmall doſes of cathartic ſalt, and the application of cold water to the tumour.

The next day I found him worſe. The cathartic ſalt had been rejected. He had taken three grains of opium, and had applied cloths dipped in cold water during the whole of the night, and part of two days. Though a large evacuation of blood was undoubtedly forbidden by the previous weakneſs of this patient, yet I ventured to take about ſix ounces from his arm*, and then injected a clyſter of the

* In a ſimilar caſe, I ſhould now omit the bleeding.

decoction

decoction of tobacco, made by boiling a drachm of the cut leaves for ten minutes in a pint of water *. Within fifteen minutes after this clyſter was given, he informed me that he felt a *ſudden degree of eaſe* in his belly. I immediately attempted to reduce the inteſtine, and it receded with eaſe.

A truſs was immediately applied, and the man had no more complaint.

I have frequently injected the *fume* of tobacco in the ſtrangulated hernia, but am inclined to prefer the *decoction*. I wiſh I could ſay, that this has not often failed, like every other means which I have tried. I think, however, I may venture to ſay, that no method has ſucceeded ſo often; and that I have ſcarcely ever ſeen any other remedy ſucceed, without the operation, when this had failed of procuring an evident diminution, at leaſt, of the tumour. One thing muſt be allowed in favour of this remedy, that it diſcovers in a ſhorter time than any other, whether there is a probability of obtaining a reduction of the hernia without the operation. I have uſually thought one trial of this remedy

* Wherever a clyſter of the decoction of tobacco is mentioned in theſe obſervations, it muſt be underſtood to be made after this formula, unleſs otherwiſe ſpecified.

to be ſufficient; but have ſcarcely ever directed more than one repetition. When this has failed of ſucceſs, the operation has diſcovered ſuch a ſtate of the ſtrangulated parts, as to ſatisfy me, that no hope of advantage remained from a longer delay.

I have taken no notice of poultices, or partial warm fomentations. The efficacy of theſe means ſeems almoſt univerſally to be doubted, if not denied, by thoſe who have had much experience in the treatment of this complaint.

The ſelection of the various remedies abovementioned muſt be left to the judgment of the practitioner, who ſhould be guided, in ſome meaſure, by the different circumſtances of each caſe. But I can ſcarcely preſs in too ſtrong terms the neceſſity of an early recourſe to the operation, as the moſt effectual method of preſerving life in this dangerous diſeaſe. If Mr. Pott's opinion be true, that the operation, when performed in a proper manner, and in due time, does not prove the cauſe of death oftener than perhaps once in fifty times; it would undoubtedly preſerve the lives of many to perform it almoſt as ſoon as the diſeaſe commenced, without increaſing the danger by ſpending much time in the uſe of means, which cannot be depended upon for a cure.

I have

I have twice ſeen this diſeaſe prove fatal in about twenty-four hours*. In ſuch caſes it is evident there is little time for delay. A ſurgeon, who is competent to perform the operation, is not perhaps conſulted till the inteſtine is on the point of being mortified, or is actually in a ſtate of mortification. The dilemma into which he is then caſt is painful indeed. But when the fulleſt opportunity is afforded him of uſing the beſt mode of treatment, I am ſatisfied that his ſucceſs will be the greateſt when the operation is not long delayed. This, at leaſt, has been my own experience. When I firſt entered upon the profeſſion of ſurgery, in the year 1759, the operation for the ſtran-

* In one of theſe caſes I made uſe of no means, as I did not ſee the patient till about half an hour before his death. In the other caſe, the patient, though a young man, died immediately after the operation. But this was a complicated caſe. On the preceding day the hernia had received a blow from a ſhovel, which produced the ſtrangulation, and an inflamed ſtate of the parts. His pulſe was very frequent. Twelve ounces of blood were taken from his arm. A Tobacco-clyſter was injected; and cold ſtupes were applied to the tumour, which was in a very tenſe ſtate. But he ſunk rapidly. He was reſtleſs, and rather delirious during the operation, which was performed as the only means which then afforded the leaſt hope of preſerving his life; but he expired, as ſoon as it was finiſhed, in the act of vomiting.

gulated

gulated hernia had not been performed by any of the ſurgeons in Leeds. My ſeniors in the profeſſion were very kind in affording me their aſſiſtance, or calling me into conſultation when ſuch caſes occurred; but we conſidered the operation as the laſt reſource, and as improper until the danger appeared imminent. By this dilatory mode of practice I loſt three patients in five upon whom the operation was performed. Having more experience of the urgency of the diſeaſe, I made it my cuſtom, when called to a patient who had laboured two or three days under the diſeaſe, to wait only about two hours, that I might try the effect of bleeding (if this evacuation was not forbidden by ſome peculiar circumſtances of the caſe) and the tobacco clyſter. In this mode of practice I loſt about two patients in nine upon whom I operated. This compariſon is drawn from caſes nearly ſimilar, leaving out of the account thoſe caſes in which a gangrene of the inteſtine had taken place.

I have now, at the time of writing this, performed the operation thirty-five times*; and have often had occaſion to lament that I had

* Since the beginning of the year 1794, my ſon, who is now my partner in buſineſs, has generally performed the operation in my private practice. Theſe caſes are not reckoned in the number here ſpecified.

performed

performed it too late, but never that I had performed it too ſoon. There are ſome caſes ſo urgent, that it is not adviſeable to loſe any time in the trial of means to produce a reduction. The delay of a few hours may cut off all hope of ſucceſs, when a ſpeedy operation might have ſaved the life of the patient*.

I am perſuaded, that much harm has been done by long continued efforts to replace the ſtrangulated inteſtine. The patient, who has been accuſtomed to reduce his own hernia, will perform the operation of the taxis with the greateſt ſafety. If he fails, the ſurgeon ſhould be cautious of doing much. Suſpenſion over the ſhoulders of an aſſiſtant or two has been thought to favour the reduction conſiderably. I have tried it often; but have not found it to be of ſuch ſuperior efficacy as ſome authors have repreſented. When the ſtrangulation ceaſes, the hernia often retires ſpontaneouſly, or with the ſlighteſt efforts, if the patient is in a horizontal poſition.

* However urgent be the caſe, I ſhould not adviſe the operation to be performed during the ſickneſs and languor which uſually follow the injection of a decoction of tobacco. The operator ought, in my opinion, to wait till the patient is free from the debilitating effects of that remedy.

In deſcribing the operation for the ſtrangulated hernia, I ſhall omit thoſe directions which are mentioned by almoſt all writers on the operations of ſurgery, and confine my remarks to thoſe, which either have not been mentioned, or which deſerve a particular attention.

In the ſcrotal hernia the inciſion ought to begin a little above the abdominal ring, otherwiſe the ſurgeon will be under the neceſſity of enlarging the inciſion, or will be hindered by the integuments when he attempts to divide the ring.

The inciſion ought to be continued through the ſcrotum as far as the loweſt part of the hernial ſac. For ſince the veſſels and nerves, which conſtitute the ſpermatic chord, are ſometimes ſo far diſplaced and ſeparated by the hernia, that one, or more of them, have been found lying upon the anterior part of the ſac; they can neither be diſcovered, nor avoided, unleſs the ſcrotum be divided previouſly to the diviſion of the hernial ſac. Le Dran ſays, " I have ſeen, though but once " only, the ſpermatic chord ſituated ante-

" riorly upon the hernial ſac."* I have twice ſeen the vas deferens lying upon the anterior ſurface of the hernial ſac. In one patient, an old man betwixt ſixty and ſeventy, it lay before the lower part of the ſac only; and when I had finiſhed the operation, I found that I had divided it, by making the inciſion through the lower part of the ſcrotum and hernial ſac at the ſame time; which I had done to avoid giving the pain of two inciſions. Since that time, I have always divided the ſcrotum intirely before I cut through the ſac.

The opening of the hernial ſac ſhould be made with great caution. There is ſometimes, indeed, ſuch a quantity of fluid in the ſac, that no harm would enſue from an unguarded perpendicular inciſion; but I have often ſeen the inteſtine and omentum in contact with the ſac, ſo as to render ſuch an inciſion dangerous. The beſt method is, to diſſect very cautiouſly the moſt prominent part of the hernial ſac, for about an inch in length, dividing the layers of aponeurotic ſubſtance, if there are any, with the intervention of a

* Gataker's Tranſlation of Le Dran's Operations, p. 95.

ſmall

ſmall director; and then to cut the remaining part of the hernial ſac with the edge of the knife turned horizontally, having elevated what you are about to cut with the diſſecting forceps. By this method the ſac may always be opened without danger.

As ſoon as the ſac is opened, which is uſually indicated by the iſſuing of a thin fluid, and the orifice is ſufficiently enlarged to admit the finger, the remainder of the ſac may be divided by the curved bubonocele knife. But I would adviſe the operator to avoid carrying his inciſion quite to the inferior extremity of the ſac, in the ſcrotal hernia. This is ſo connected with the tunica vaginalis, that the latter is in danger of being divided, if the inciſion is carried on to the extremity of the ſac. I have ſeen this happen, and therefore commonly leave a quarter or half an inch of the ſac undivided, which practice I never ſaw attended with any inconvenience.

The next ſtep is to enlarge the aperture through which the prolapſed parts have deſcended from the abdomen, by dividing the aponeuroſis of the external oblique muſcle, together with the neck of the hernial ſac, which ſometimes produces the principal part of the ſtricture. If the tip of the fore-finger can be

ſufficiently introduced to conduct the bubonocele knife, the diviſion may be made in this way with the greateſt advantage. It ſhould be made upwards and a little outwards, when the hernia deſcends through the abdominal ring; and in this ſpecies of hernia I have never found any difficulty in executing this part of the operation.

The diviſion of the *femoral ring* (if I may be allowed the expreſſion) is a matter of greater importance, and merits a particular diſcuſſion. In the male ſubject both the epigaſtric artery, and the ſpermatic chord, lie ſo near the aponeurotic border of the external oblique muſcle of the abdomen, called Poupart's ligament, that there is great danger of wounding the one or the other of theſe, if that ligament is divided in this operation. In females, the epigaſtric artery alone requires our attention.

To avoid the danger ariſing from a diviſion of that ligament, Mr. Benjamin Bell has invented a new method of operating in the femoral hernia, which he has deſcribed at large in his Syſtem of Surgery, vol. i. p. 363. I ſhall not enter upon an examination of this method, as I am ſatisfied that the ſtricture, in this ſpecies of hernia, is not cauſed by Poupart's ligament, but by another part, which I ſhall

preſently deſcribe, the diviſion of which may be executed without danger to the ſpermatic or epigaſtric artery.

Mr. Pott was ſo apprehenſive of the danger of dividing Poupart's ligament, that, in his Treatiſe on Ruptures, he rather ſhrinks from the diſcuſſion; adviſing the ſurgeon to reduce the prolapſed parts without any diviſion, "which," he ſays, "may almoſt always be "done, conſidering the large ſpace between "the os ilion and the os pubis, and that that "ſpace is occupied principally by cellular "membrane and fat."* In his Section on the *Femoral Hernia*, he repeatedly takes notice of this "conſiderable ſpace between the os ilium "and the os pubis," mentioning it not only as the reaſon why a ſtrangulated hernia may be "returned without dividing the tendon," but alſo as accounting for the leſs frequent ſtrangulation of the femoral hernia. Theſe declarations ſurpriſe me exceedingly, coming from the pen of an author, who wrote ſo much from his own experience, as I apprehend Mr. Pott to have done. If we look at the ſkeleton, we ſhall undoubtedly ſee a conſiderable ſpace between the os ilium and the os pubis; but if we take our ideas from a ſubject labour-

* Pott's Works, octavo ed. vol. ii. p. 138.

ing under a ſtrangulated femoral hernia, we ſhall rather wonder, from the ſmallneſs of the aperture, how a deſcent could have happened. I have now performed the operation for the femoral hernia fourteen times in the female, and twice in the male ſubject, and have always found great difficulty in introducing the ſmalleſt portion of my fore-finger into the femoral ring, for the purpoſe of conducting the bubonocele knife. Nay, this introduction I have twice found impracticable, and have been under the neceſſity of making uſe of a director. In no caſe in which I have operated, did there appear the leaſt probability of reducing the prolapſed parts without previouſly enlarging the aperture.

Don Antonio de Gimbernat, ſurgeon to the King of Spain, is the only author with whoſe works I am acquainted, who has aſſerted, that the ſtrangulation in the femoral hernia is not cauſed by Poupart's ligament. He informs us*, that he firſt demonſtrated this in 1768, and afterwards in 1777 explained the ſubject to the late Dr. Hunter, by means of an anatomical preparation. His treatiſe induced me to examine repeatedly the parts concerned in

* In his *New Method of operating for the Femoral Hernia*, tranſlated by Dr. Beddoes, p. 30.

the

the formation of the femoral hernia, and to procure drawings of the parts which I had diſſected. The moſt inſtructive of theſe drawings, which was made by Mr. Ruſſell, Member of the Royal Academy, is here preſented to the reader, engraved in a reduced form, in the annexed Plate.

In the *femoral hernia* the prolapſed parts deſcend within the aponeurotic ſheath, which envelopes the great veſſels of the thigh, and which is ſtrongly attached at its ſuperior part to the oſſa pubis. The anterior layer of this ſheath is formed, in part, by a continuation of the faſcia of the abdominal muſcles, paſſing down upon the thigh. About three-eighths of an inch below Poupart's ligament, there exiſts in this aponeurotic ſheath another ligament, ſomewhat ſimilar to that of Poupart, but ſmaller. It runs tranſverſely, but does not deſcend obliquely, as that ligament does. On the contrary, it rather aſcends as it approaches the ſymphyſis of the oſſa pubis, paſſing behind, and decuſſating, the extremity of Poupart's ligament. As I ſhall have occaſion to mention this ligament frequently, I ſhall, by way of diſtinction, call it the *femoral ligament*.

This ligament is not ſituated in the ſame plane with that of Poupart, but lies deeper, that is, at a greater diſtance from the integuments, though it is repreſented in the plate as nearly in the ſame plane, from being puſhed outwards by a finger thruſt down behind it, while the drawing was taken, that it might be brought more diſtinctly into view.

Deſcription of the Plate.

a. The aponeuroſis covering the inferior part of the external oblique muſcle of the abdomen.

b. Poupart's (or the *abdominal)* ligament.

c. The faſcia of the thigh cut off at

d d, to ſhew the great veſſels injected with wax.

e. The femoral vein.

f. The femoral artery.

g. The vena ſaphæna, not filled with injection, except at its upper part, where it enters the femoral vein.

h. A ſmall portion of the aponeurotic ſheath of the great veſſels, left when the anterior part was removed along with the faſcia of the thigh.

i. The


a
b
c
d
d
e
f
g
h
i
k
l
m
m
n

i. The peritoneum thruſt down below the *femoral ligament*, by a finger introduced from within the abdomen, to give ſome repreſentation of the femoral hernia.

k. The *femoral ligament*, formed in the faſcia of the thigh or anterior layer of the aponeurotic ſheath of the great femoral veſſels.

l. The ſpermatic chord.

m. The pectinæus muſcle.

n. The adductor longus femoris.

The faſcia of theſe two muſcles was diſſected off to ſhew the courſe of their fibres. It is thin, and is not a continuation of that faſcia which unites with the aponeurotic ſheath of the great veſſels. This ſheath lies upon the outer edge of the pectinæus muſcle, and is connected with it merely by cellular membrane; ſo that a finger may be puſhed with eaſe between the ſheath and that muſcle.

That part of the faſcia of the thigh, to which I have given the name of *femoral ligament*, may eaſily be diſcovered, by introducing the finger, (after the abdomen has been laid open) into the aponeurotic ſheath of the great femoral veſſels, behind Poupart's ligament. As the finger paſſes downwards, it will be preſſed upon by a part of the faſcia, more

compact

compact than the reſt, which runs tranſverſely about three-eighths of an inch below Poupart's ligament, and ſometimes preſents a ſharp edge to the finger. When this is examined by diſſection, it will be found to reſemble the inferior border of the aponeuroſis of the external oblique muſcle of the abdomen. In theſe ſubjects, which I have diſſected on purpoſe, I have not found it equally diſtinct; but it has been, in all of them, ſufficiently apparent. In this examination one may perceive, that a prolapſed inteſtine would receive very little preſſure from Poupart's ligament, in compariſon of that which it muſt ſuffer from this inferior ligament, the ſtructure and ſituation of which account clearly for the peculiar phænomena of the *femoral hernia*.

The femoral hernia is uſually of a rounder form, and leſs bulk when ſtrangulated, than the ſcrotal hernia. I have repeatedly ſeen it reſembling an enlarged inguinal gland.

It is not ſo frequent in males as in females. In the latter I have rarely met with a deſcent of the inteſtine through the abdominal ring. In all the inſtances of ſtrangulated inteſtinal hernia in females which have occurred in my practice, the hernia was of the femoral kind.

In

In performing the operation for the ſtrangulated femoral hernia, the ſurgeon ought to be aware, that the hernial ſac is uſually thinner than in the ſcrotal hernia. After a diviſion of the integuments, the ſac ought therefore to be opened with great caution. The ſtricture made upon the prolapſed parts is very great, as I have already obſerved; but if the tip of the finger can be introduced within the femoral ring, to guide the bubonocele knife, a ſmall inciſion (for the ring is narrow) will be ſufficient to ſet the parts at liberty. If the tip of the finger cannot be introduced at the proper place, a director with a deep groove muſt be uſed inſtead of the finger; but I prefer the latter. The finger or director ſhould not be introduced very near the great veſſels; but on that ſide of the inteſtine or omentum which is neareſt to the ſymphyſis of the oſſa pubis. The inciſion may then be made directly upwards. The ſurgeon muſt take eſpecial care to introduce his finger or director within that part where he finds the ſtricture to be the greateſt, which, in this ſpecies of hernia, is the moſt interior part of the wound. The difficulty of executing this part of the operation ſhould not induce the ſurgeon to divide any part which is of more eaſy acceſs.

It

It is much more eaſy to divide the *abdominal* (Poupart's) than the *femoral* ligament; but it is the diviſion of the latter only that will ſet the prolapſed parts at liberty. The aponeuroſis, which lies between the abdominal and femoral ligaments, is yielding, and will not uſually, I believe, prevent the reduction of the inteſtine, when the femoral ligament is divided. I had repeatedly wondered, that, in this operation, ſo ſmall a diviſion of the moſt interior and contracted part ſhould prove ſufficient for the reduction. But, ſince I have diſcovered the ſituation and ſtructure of the femoral ring, my wonder has ceaſed. I had, from experience, gained a knowledge of the proper manner of performing this operation, before I had acquired, from anatomical inveſtigations, a juſt idea of the part which principally cauſes the ſtrangulation. I had preſumed (as I ſuppoſe every other ſurgeon did) that I was dividing Poupart's ligament when I removed the ſtricture; but I knew practically, that a ſmall diviſion of the moſt interior part uſually proved ſufficient. It has been my cuſtom to take notes of the circumſtances which occurred in operations for the ſtrangulated hernia. An extract from ſome, which I made in 1784, may afford a confir-

mation

mation of the opinion which I now entertain, reſpecting the ſtrangulation of the femoral hernia, though the obſervation was anatomically erroneous.

I was operating upon a woman, aged ſixty-ſix, on account of a femoral hernia, which had been ſtrangulated three days. The hernia was an entero-epiplocele. "Poupart's liga-" ment," I obſerved, "preſſed the inteſtine " cloſely, as uſual. After dividing it, ſome " of the ſound inteſtine ſlipped out of the ab-" domen, which I could not reduce. The " aponeuroſis (forming Poupart's ligament) " conſiſted of two layers, which were ſepa-" rated conſiderably from each other. When " I attempted to reduce the inteſtine, it paſ-" ſed into the cavity formed between theſe " layers, and not into the abdomen. I made " a farther diviſion of the internal layer, and " the inteſtine was then reduced with eaſe, " and remained in the abdomen."

I apprehend that, in this caſe, the ſpace between the abdominal and femoral ligament was rather greater than uſual. I remember that the aponeuroſis, which lies between and connects them, yielded conſiderably to my preſſure. As a portion of inteſtine, which had not been ſtrangulated, deſcended upon the diviſion

diviſion of Poupart's ligament, it ſhews, that ſome preſſure is made upon a femoral hernia by that ligament; but my inability of reducing the prolapſed inteſtine, without dividing another, and interior part, ſhews, that the ſtricture, cauſing the ſtrangulation, was made by that part, and not by Poupart's ligament.

With reſpect to a diviſion of the ſpermatic and epigaſtric arteries in this operation, I will relate all that has occurred in my own practice. No hæmorrhage took place in either of the operations, which I performed for the femoral hernia in males. I may be allowed, therefore, to ſay that the ſpermatic artery was not divided in either caſe. The following caſe is the only one in which I wounded any veſſel of conſequence, while dividing the part which formed the ſtricture. The accident occurred in the early part of my practice, before I was aware how ſmall an inciſion was neceſſary for removing the ſtrangulation in the femoral hernia.

CASE VII.

IN 1764 I was operating upon an old woman for a femoral hernia, and attending

chiefly to the convenience of introducing the tip of my fore-finger, I made the diviſion of the ring directly upwards, and not on that ſide of the inteſtine which was moſt diſtant from the femoral artery. The inciſion was alſo longer than I now judge to be neceſſary; for, in my notes made ſoon after the operation, I ſtated, that I judged the inciſion through the aponeuroſis to have been about half an inch in length. The conſequence was, that I opened an artery, which bled freely, but of which, neither I, nor the gentlemen who aſſiſted me at the operation, could diſcover the orifice. Mr. Samuel Sharp ſuppoſed it to be an eaſy matter to take up with a needle any veſſel which might be wounded in this operation; but this I found to be impracticable. I applied a ſmall piece of dry ſpunge upon that part whence the blood iſſued, and upon this I placed ſeveral other pieces, till I had raiſed them ſo high, that the common bandage would make a compreſſion on the bleeding part. During the firſt day after the operation, an aſſiſtant was directed to keep a conſtant preſſure with the hand upon the pieces of ſpunge. The hæmorrhage ceaſed by this method, and did not return. I began to remove the exterior pieces of ſpunge after a

few

few days, and gradually inſinuated ſome lint under that piece which lay in contact with the wound. On the 14th day after the operation, I removed the laſt piece of ſponge.—The wound was cicatrized at the expiration of five weeks.

The third ſtage in this operation conſiſts in the diſpoſal of the prolapſed parts. Here ſeveral important conſiderations preſent themſelves, chiefly relating to the management of the omentum.

After unfolding the omentum, in the entero-epiplocele, I ſeparate it from the inteſtine, and alſo the folds of inteſtine from each other, if they have contracted an adheſion, by gently drawing them aſunder. This adheſion I have often ſeen; but, I think, have always been able to effect a ſeparation of the adhering parts without the aſſiſtance of any inſtrument, and without injuring the inteſtine, if a gangrene had not taken place*. I always reduce the inteſtine, if it is in a ſound ſtate, before the reduction of the omentum, which is contrary to the practice recommended by Mr. Pott. My reaſon for acting thus is an opi-

* I do not mean to ſpeak in this place of an adheſion of the omentum to the hernial ſac; in which caſe a ſeparation can ſeldom be effected without the aſſiſtance of the knife.

nion,

nion, that the inteſtine will bear a protracted preſſure, without injury, better than the omentum. When there is a neceſſity for cutting off a portion of omentum, or ſeparating it from the hernial ſac, or taking up any of its divided veſſels; theſe operations may be executed with greater ſafety after the reduction of the inteſtine.

I once ſaw the coats of the inteſtine ſo thickened in a ſcrotal hernia, that it reſembled a lump of muſcular fleſh, rather than a portion of inteſtine. I was obliged in this caſe to make a large diviſion of the abdominal ring before I could effect the reduction; and even then the inteſtine was not reduced without difficulty. After ſeveral ineffectual attempts I ſucceeded by the following method: I ſtood with my right ſide to the left of the patient; then placing my fingers round the extremity of the inteſtine, and directing them upwards behind it, I gently puſhed up the higheſt part of the inteſtine, while the palm of my hand ſupported the moſt depending part. This method I have found uſeful in ſeveral caſes where reduction was difficult.

I muſt refer my readers to the works of other authors for an account of the treatment of the inteſtine, when it is found in a

gangrenous ſtate. I have ſeen ſeveral ſuch caſes, but the termination of them in general was fatal, and I have little to ſay upon the treatment of them from my own experience.*

I will relate the particulars of two caſes, and will add a conjecture, which may account for ſome of the recoveries related by authors, in caſes where a prolapſed inteſtine was gangrened.

CASE VIII.

In July 1767, a labouring man, aged thirty-eight years, was ſeized with pain in the ſcrotum and lower belly, after having exerted himſelf in lifting hay with a fork. He did not immediately examine the ſcrotum; but in the morning upon waking, he found the right ſide of it ſwelled, inflamed, and painful, eſpecially upon motion. He ſent for a ſurgeon, who bled him, gave him laxative medicines, and applied a mild poultice to the inflamed part.

* I have ſeen but four caſes, in which a patient has recovered after a gangrene in a ſtrangulated hernia. Two of the caſes are related in this place; the third was the caſe of Moſes Bradford, related hereafter, where the gangrene did not ſhew itſelf till the fifth day after the operation; the fourth was the caſe of an old lady who had a ſmall gangrene in an irreducible exomphalos.

On

On the eighteenth day of the diſeaſe I was deſired to viſit him. His bowels had been opened by the laxative medicines. He had alſo taken ſome powders with cryſtals of tartar and nitre, and an opiate at bed time, without which he could not ſleep. The ſcrotum continued ſwelled, and the inflammation extended over the integuments upon the right ſide of the hypogaſtrium. His pulſe was rather tenſe, and beat about ninety ſtrokes in a minute. I adviſed a repetition of the bleeding and cooling medicines, with the opiate at bed time. On the twentieth day, the tumour was more prominent a little below the abdominal ring. On the twenty-firſt it burſt, and diſcharged purulent matter mixed with fæces. Several orifices were formed in the ſcrotum; and in the courſe of a few days, the loweſt of them became enlarged to about the breadth of a ſixpence, by the ſloughing of the ſcrotum. Upon preſſing the hypogaſtrium, ſtercoraceous matter, mixed with air, iſſued out through the ſcrotum. Little or no doubt now remained, that the tumour of the ſcrotum was formed by a hernia of the inteſtine, which had burſt in ſeveral places. This idea was confirmed by the ſubſequent detachment of a portion of inteſtine, about an inch and half in length, and of

conſiderable firmneſs. Upon waſhing the part caſt off, I could diſcern its villous coat. The wound was ſoon filled with granulated fleſh, the diſcharge of fæces ceaſed, and a complete cicatrization took place in the courſe of two or three weeks, as I was informed; for I did not viſit the man after the wound was ſo far healed as to diſcharge no more fæces.

CASE IX.

September 25th, 1801, Caleb Breaks of Wibſey, aged forty, was admitted into the General Infirmary with a ſtrangulated femoral hernia on the right ſide. During the laſt five or ſix years he had been accuſtomed to an occaſional deſcent in this part; but had always been able, before this time, to reduce the hernia. He perceived the ſwelling as he was walking on the 23d inſtant, and being unable to reduce it as heretofore, and feeling much pain in the affected part, he conſulted a ſurgeon, who uſed conſiderable efforts to effect the reduction.

Mr. Logan, in my abſence, viſited this patient for me at his admiſſion, and found the hernia in a tender and ſomewhat inflamed ſtate.

ſtate. He directed a clyſter to be injected, made with the decoction of tobacco, and the frequent application of cloths dipped in cold water.

I ſaw the patient at ten in the evening. He was then under the influence of the tobacco clyſter. He complained of ſickneſs, had frequent eructations, and ſome degree of cold perſpiration. His pulſe, which had been at a hundred and twelve at his admiſſion, was now reduced to fifty-eight. The abdomen was ſomewhat inflated. His tongue was white. The inflamed appearance of the hernia was, according to my information, rather abated.

As he had rejected nothing which he had taken ſince the commencement of the ſtrangulation, and as he had had an evacuation by ſtool, there was reaſon to think, that the courſe of the fæces through the inteſtinal canal was not interrupted. It was judged proper, therefore, to try the effect of purgative medicines for removing the inflation of the abdomen and inflamed ſtate of the hernia. I directed pulv. jalap. ℈j. calomel. gr. v. to be given, in the form of pills, every three or four hours, till three doſes ſhould have been taken, unleſs a free evacuation ſhould in the mean time

take place. A purging clyſter was alſo ordered to be injected after the ſecond doſe of the pills. The application of the cold cloths was directed to be continued.

26th, ſeven A. M. He had had a copious evacuation after the clyſter, and felt himſelf much relieved. The inflation of the abdomen had entirely ſubſided; but the integuments appeared inflamed to the diſtance of two or three inches from the tumour, which was round and ſmall. I directed the application of a warm poultice of bread and water*, inſtead of the cold cloths, and the injection of another clyſter at noon. Pulſe ninety-four.

Six P. M. The patient had not been relieved by the clyſter, which returned without fæces. The abdomen was again a little inflated, and the pulſe was at a hundred. I ordered ol. ricini ℥ſs. to be given every four hours till a ſtool ſhould be procured.

* The application directed in this caſe may ſeem inconſiſtent with what I have ſaid, p. 141, on the inutility of poultices in the ſtrangulated hernia. But they were now applied to abate the inflammation of the integuments (in a caſe which appeared, at that time, to be a mere ſtrangulation of the omentum), and they were uſeful for that purpoſe.

27th,

27th, nine A. M. He had had a ſtool in the evening ſoon after my laſt viſit, and another before ten, on which account he had taken only one doſe of the ol. ricini. I found him eaſy. Pulſe at ninety. Abdomen quite flat. Inflammation of the integuments near the hernia ſubſided.

He continued to be open in his bowels, and the inflation of the abdomen did not return; but after a few days the tumour formed by the hernia began to enlarge, and this increaſe of bulk was attended with ſome degree of fever.

October 2d. The integuments being now rendered thin by the formation of matter in the tumour, I divided them in a crucial form, and diſcharged a dark coloured, and very offenſive matter, mixed with air. There was a ſmall portion of inteſtine in a gangrenous ſtate, though ſtill inflated with air, and ſome remains of omentum, which had chiefly become diſſolved by putrefaction and ſuppuration. The cavity containing the matter was much enlarged, and membranous partitions were formed in two or three places. Theſe were all divided, and the wound was dreſſed as a common abſceſs.

3d. The poor man was much relieved by the opening made yeſterday. His pulſe was at eighty-eight. The contents of the cavity were yet black, and extremely fetid. The inteſtine had become flaccid. A fermenting cataplaſm was applied for a day or two.

Some yellow ſlimy matter appeared now and then in the wound, and had the ſmell of inteſtinal fæces; but there was no other appearance of fæcal matter.

7th. The mortified part of the inteſtine, and the ſmall remains of omentum, were entirely caſt off, and the ſurface of the ſore was covered with good granulations.

The patient recovered very well, and the wound was completely cicatrized without any remains of the hernia.

From all the circumſtances of theſe caſes, there is little reaſon to doubt, that the prolapſed portion of inteſtine was the head of the colon. A ſimilar caſe is deſcribed, and completely illuſtrated, in the *Medical Obſervations and Inquiries*, vol. iii. article 8th. The patient, who was the ſubject of this caſe, had a ſcrotal hernia on the right ſide, which, upon being ſtrangulated, and neglected, was brought into a ſtate of gangrene. A portion of inteſtine

tine was cut off by the ſurgeon, who then viſited the poor man, and the fæces paſſed through the wound for ſome time. A complete cure was, however, obtained, and the man lived twenty-five years afterwards, without any return of the hernia. After his death the parts were examined, when the caput coli and appendicula vermiformis were only found wanting. The remaining extremity of the colon adhered to the abdominal ring, and afforded no obſtruction to the paſſage of the fæces.

Upon comparing theſe caſes, and conſidering the extreme danger that attends a gangrene of any part of the inteſtinal canal through which the fæces muſt paſs, I am induced to conjecture, that many recoveries, after a gangrene of the inteſtine, may have been owing to the ſame cauſe which preſerved the life of the patients mentioned above. It is remarkable, that authors who have related the caſes of patients, whoſe prolapſed inteſtine was gangrened, have generally neglected to relate on which ſide of the body the diſeaſe ſubſiſted. My ſuſpicion is not, indeed, confirmed by this neglect; neither is it refuted by it. Future obſervations may ſhew, how far the circumſtance I have

mentioned

mentioned may be conſidered as a cauſe of recovery in hernia with gangrene of the inteſtine.

The proper treatment of the omentum appears to me to be one of the moſt important parts of this operation. If the omentum is found, and without adheſion to the hernial ſac, it ought undoubtedly to be replaced within the abdomen; but the reduction ſhould be made with the greateſt delicacy, as the tender texture of the omentum makes it liable to be bruiſed with very little force; and ſlight injuries of this part will bring on inflammation and gangrene. Too much caution cannot be uſed when a large portion of it is prolapſed.

Mr. Pott recommends the reduction of the omentum in all caſes. If it adhered to the hernial ſac, his practice was "either to diſſect "its adheſions, or to retrench a part of it." vol. ii. p. 107. If it was gangrened, he "always made the exciſion in the ſound part." He adds, that "any portion of the caul, "which it may be thought neceſſary to re-"move, may ſafely be cut off." ib. 118, 119. Notwithſtanding this great authority, I have always

always been apprehenſive, that wounds of the omentum were not ſo harmleſs, as they are here repreſented to be. My experience has not removed theſe apprehenſions. But I will lay before the reader the reſult of my experience, and leave him to determine which mode of practice is the moſt eligible.

When the portion of omentum, which is prolapſed, is in a ſound ſtate, of little bulk, and ſtrongly adherent to the hernial ſac; and when, from inquiries made of the patient, we learn, that this ſmall part has been prolapſed for many years, without diſturbing the functions of the abdominal viſcera; we may fairly conclude, that we ſhall not injure thoſe functions by leaving ſuch a portion in its prolapſed ſtate. In ſuch a caſe I have ſuffered the omentum to remain, and have found no difficulty in healing the wound, nor any injury afterwards from the application of a well adapted truſs. In one patient I left a portion which I judged to be about two ounces avoirdupois in weight, which was the largeſt portion that I have ſuffered to remain. The wound was healed at the expiration of ſix weeks after the operation. The pad of the truſs, which was afterwards applied, conſiſted

of

of an oval ring, made exactly to the ſhape of the remaining tumour. This kind of truſs ſat eaſy upon the patient, and I ſuppoſe anſwered very well, as I have heard nothing from him to the contrary, though it was applied in the year 1772. He lived about thirty miles from Leeds; but the operation was performed upon him at a ſmall alehouſe betwixt Leeds and Wakefield, where he was ſeized with the ſtrangulation as he was travelling.

The firſt inſtance in which I deviated from this mode of practice was in the year 1789. I did it on the authority of Mr. Pott, being deſirous of trying the comparative merits of theſe two different modes of practice. The caſe terminated fatally; and as it contains ſeveral circumſtances worthy of notice, I ſhall give it at large, that the experienced reader may be better enabled to judge, whether the reduction of the omentum contributed to the fatal event.

CASE X.

February 1ſt, 1789. I was called in the afternoon to viſit Robert Walker, a poor man, aged thirty-ſeven, who was in great pain from a ſtrangulated hernia. He had been

ſubject

ſubject to the hernia for many years. It had ſeveral times been ſtrangulated for a few hours, according to his account, and could never be entirely replaced within the abdomen. The ſtrangulation at this time had commenced the preceding evening at eight o'clock, ſoon after which he had a ſtool, but afterwards had no evacuation. He vomited ſometimes, and had a little hiccough. His belly was ſomewhat tenſe, but not much inflated. His tongue rather white. His pulſe ſoft and calm, at ſixty-four. The lower part of the tumour in the ſcrotum was ſoft; the upper part was hard. The ſcrotum was ſo thin, that I could feel the omentum within the hernial ſac.

I ordered a clyſter, made with two drachms of tobacco boiled in a pint of water for ten minutes, to be injected; and cloths dipped in cold water to be aſſiduouſly applied. I did not bleed him as his pulſe was ſo ſoft and calm. The clyſter had a powerful effect, producing great ſickneſs and vomiting, with a cold ſweat, during which the pulſe ſunk to fifty-ſix. I attempted during this languor to reduce the hernia, but in vain; not the leaſt motion was produced by my attempts.

I now ſtrongly recommended the operation, and adviſed the poor man to go into the Infirmary,

mary, as the accommodations of his own houſe were very bad. My advice did not prevail, ſo I gave him in the evening fifty drops of tinct. opii, which entirely removed his pain and vomiting. The next day the poor man conſented to go into the Infirmary, but not till towards evening. The pain had now returned, the abdomen was more inflated, and tenſe, and the tumour was larger. The operation was immediately performed.

Not the leaſt quantity of fluid iſſued out when the hernial ſac was opened. A large portion of omentum, and a ſmaller of inteſtine, were the contents. The former appeared to have lain a conſiderable time in the hernial ſac; for it not only adhered to the ſac in many places, but alſo had formed in it ſeveral ſmall pouches, in which it lay depreſſed beyond the general level of the ſac. The inteſtine was dark coloured, but had contracted no adheſion. The ſtricture was not formed by the abdominal ring, but intirely by the neck of the hernial ſac, into which I could not introduce the leaſt portion of my finger.

I was obliged to divide the ring pretty high, that I might with ſafety divide the neck of the ſac; and this laſt diviſion was effected by cutting along the groove of a director, till I had

made a ſufficient aperture for the introduction of my finger. As the omentum adhered to the ſac by little cords, which might eaſily be divided, I ſeparated it from the ſac, and reduced it immediately after the inteſtine. This was eaſily reduced, but the reduction of the omentum gave ſome trouble. The omentum did not feel brittle, nor appear to be in a gangrenous ſtate. When the contents of the hernia were reduced, ſome ſerous fluid iſſued out of the abdomen. A purging clyſter was ordered to be injected; and he was directed to take half an ounce of caſtor oil every two hours, till a free evacuation ſhould be produced.

February 3d. I found him in a good ſtate at noon. The clyſters had procured a ſtool, and after the ſecond doſe of the caſtor oil he had had three evacuations. His pulſe was at eighty-ſix.

Notwithſtanding theſe favourable appearances, the ſymptoms of inflammation, ſuch as vomiting, ſoreneſs of the abdomen, with conſiderable pain, returned in the evening. Eight ounces of blood were taken from his arm, a clyſter was injected, the ol. ricini was repeated, and a large bliſter was applied to the abdomen.

abdomen. Theſe means afforded no relief, and the poor man died at ſeven in the morning.

In the evening I examined the contents of the abdomen. The inteſtines appeared in many places inflamed, and adhered to each other univerſally. That part which had been ſtrangulated was of a darker colour. The omentum did not cover the anterior ſurface of the inteſtines as uſual, but paſſed down on the left ſide of the abdomen, collected together like a thick rope. The ſtrangulated portion was now become very brittle, and was dark coloured at its inferior part. Bloody ſerum was contained within the abdomen.

REMARKS.

1. This caſe affords a decided inſtance, in addition to others already publiſhed, that the neck of the hernial ſac is capable of becoming ſo contracted as to produce a fatal ſtrangulation. The contents of the hernia ſeemed to ſuffer no injurious preſſure from the abdominal ring; for I found no difficulty in introducing my finger for the purpoſe of dividing it.

2. Though

2. Though I think it highly probable, that ſome degree of inflammatory affection had taken place in the whole of the inteſtinal canal previouſly to the operation; yet from the great alteration in the appearance of the reduced omentum, compared with its appearance at the time of the operation, I cannot avoid thinking that the injury which that part had ſuffered was one conſiderable cauſe of the fatal termination. It is poſſible that when the omentum is in a ſtate tending to gangrene, though not appearing unſound, it may ſuffer irreparably from a degree of preſſure in the reduction, which would not have injured it had it been perfectly ſound.

3. Though our conjectures reſpecting the ſafety of a patient under a different treatment are often, perhaps, the conſequence of regret, rather than of ſound judgment; yet I am conſtrained to think that the operation might have had a more favourable iſſue, had it been performed at an earlier period of the diſeaſe, and had the omentum been left in the ſituation in which it had probably lain for ſeveral years.

The gangrened ſtate of the omentum comes next under conſideration. The diſtinction

between the ſound and the gangrened part is often ſo evident, that a ſurgeon cannot miſtake the one for the other; but this is not always the caſe. I have ſeen the omentum have a livid appearance when its texture was ſound; and I have ſeen it very little altered in colour, when its texture has ſhewn it to be in an unſound ſtate. In this latter caſe the omentum becomes criſp or brittle. I do not recollect any author who has deſcribed this ſtate of the omentum except Mr. Warner.*

When the portion of omentum found in the hernial ſac is, from its diſeaſed ſtate, unfit for reduction, it may be tied, cut off, or left in the wound to ſeparate ſpontaneouſly. I ſhall offer what I have obſerved reſpecting theſe three different methods of treatment.

The firſt has, I believe, been done without proving fatal to the patient. Le Dran and others have given inſtances of it. But if the ligature is made ſo tight as to deſtroy the circulation in the part below (which is that kind of *tying* of which I am now ſpeaking) the practice is extremely dangerous, and ought, in my opinion, to be laid aſide. Mr. Wilmer apprehends no danger from it; but his opinion,

* Warner's Caſes in Surgery, ed. 3d. p. 192, 193.

in

in this inſtance, is contradicted by experience. He ſays, "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 par-"ticular inconvenience will ariſe from it*." Monſieur Pipelet has written an excellent memoir on this ſubject†, in which he has ſhewn from experience the danger of this practice. But the moſt decided condemnation of this practice occurs in the writings of Mr. Pott‡. He has with great candour related the fatal effect of ſuch a practice in a patient of his own. I ſaw him perform the operation (to which I apprehend he alludes) in the year 1758. The patient was in perfect health, and had an epiplocele, which was only troubleſome by its bulk. The omentum was quite ſound. A tight ligature was put upon it, and the part below was cut off. The ſymptoms which ſucceeded are thus accurately deſcribed. "I have ſeen a whole train of bad

* Obſervations on Herniæ, p. 78.

† Memoires de l'Academie de Chirurgie, tom. iii. 394.

‡ Pott's Works, octavo edit. vol. ii. p. 117.

" ſymptoms, ſuch as naufea, vomiting, hic-
" cough, fever, anxiety, reſtleſsneſs, great
" pain in the belly, and an incapacity of ſit-
" ting upright, or even of moving without ex-
" quiſite pain, precede the death of a man,
" whoſe omentum was tied merely becauſe
" of its enlargement," &c. ib. Surely no ſur-
geon, who has read this account, can, with a good conſcience, apply a tight ligature upon any conſiderable portion of omentum in a ſound ſtate.

There is, however, another method of employing the ligature, which is not attended with the danger above deſcribed. I made uſe of it in the following caſe with ſucceſs.

CASE XI.

Henry Taylor, of Thornton about thirty miles from Leeds, a ſtout man, aged thirty-four years, had been ſubject to a ſcrotal hernia for ſome years, which had ſeveral times been reduced with difficulty. It became prolapſed and ſtrangulated in the evening of May 5th, 1789. He was bled, had clyſters injected, and was put into the warm bath. On the evening of the 7th he ſet off for Leeds, to put himſelf

himſelf under my care. He travelled all night in a cart, and arrived at Leeds on the morning of the 8th. He was much fatigued with his journey. I procured a lodging for him, and put him to bed immediately. His pulſe was at one hundred, rather full and hard. He had great pain in the hernia and abdomen, both which were ſo ſore, that he could ſcarcely bear them to be touched. He had a frequent vomiting, to allay which he had drunk ſome gin and water upon the road. I took a pound of blood from his arm, and injected a clyſter made with the decoction of tobacco. He became rather eaſier, but there was no diminution of the tumour. I applied cloths dipped in cold water, and threw up the fume of tobacco per anum, without ſucceſs.—At noon I performed the operation. No fluid iſſued from the hernial ſac when firſt opened. A large maſs of omentum lay in the ſac, including a portion of inteſtine, in ſuch a manner, that it could not be ſeen till the omentum was expanded. The omentum was very livid, or rather black, on its exterior ſurface. Some fragments of it within appeared ſound. The ſound and unſound parts were intermixed, ſo that there was no line of ſeparation between them. It did not feel brittle. One part of it

was compact and ſmooth like the meſentery. A filament went off from this part, and adhered to the peritoneum juſt within the ring. The inteſtine was inflamed, and had contracted an adheſion to the omentum, about two inches in length, and one in breadth. That part of the omentum which adhered to the inteſtine was quite black, but was eaſily ſeparated from it by gentle pulling. The ſtricture from the abdominal ring was not great, for I could with eaſe introduce my finger for the purpoſe of conducting the bubonocele knife. There was no ſtricture from the neck of the hernial ſac. The inteſtine was reduced with eaſe.

The great difficulty in this caſe was, how to diſpoſe of the omentum. Its bulk was ſuch, that when taken out of the hernial ſac, it appeared, after the reduction of the inteſtine, to be more than double the quantity which one could ſuppoſe capable of being compreſſed within the compaſs of the ſac. It was thought, by ſome perſons who were preſent at the operation, to be ſix or eight ounces in weight.—The reduction of ſo diſeaſed a maſs was out of the queſtion. To make a tight ligature upon it would, as I apprehended, be in effect to deſtroy my patient. I was by no means ſatisfied to make ſo large a wound in the omentum

as would be neceſſary to extirpate all that was prolapſed; and the diſeaſed parts were ſo intermixed with thoſe which appeared to be ſound, that it was impoſſible to make a ſeparation between them. Indeed, there was ſuch a gradation between the parts which were clearly mortified and thoſe which were as clearly in a ſound ſtate, that I could not have drawn the line of ſeparation had I attempted it. Preſſed with theſe difficulties on every ſide, I determined to leave the omentum as it was, covering it with lint ſpread with digeſtive, and over all a large pledget of tow ſpread with the ſame.

My patient felt himſelf eaſy after the operation, and had no more vomiting. I ordered a purging clyſter to be injected, and half an ounce of ol. ricini to be given every two hours. Some fæcal matter was diſcharged with the clyſter. He took five doſes of the ol. ricini, and then ceaſed taking it. He had five or ſix liquid ſtools before the next morning, but did not diſcharge any figured excrement. His pulſe intermitted in the evening; but as he had very little pain, and no vomiting, I was not uneaſy, having ſeveral times obſerved ſuch intermiſſion, in acute diſeaſes, to be a ſymptom of ſaburra in the primæ viæ, and to go off after a free evacuation.

10th. He had paſſed a quiet night. Pulſe regular, and at ninety-ſix. The diſcharge by ſtool having ceaſed for ſome hours, I directed a repetition of the ol. ricini. I deſired my patient to take no ſolid food, but to live intirely upon broth, barley water, gruel, and the like.

11th. Pulſe from ſeventy-ſix to ſeventy-eight, in the morning. From this time his bowels were kept open by the continued uſe of ol. ricini, given as occaſion required. His pulſe had now and then a little intermiſſion, but this ſymptom never continued long.

About one third part of the omentum was caſt off in a gangrened ſtate; but two thirds of it, at the leaſt, remained ſound, and in the courſe of a few days this part began to have freſh granulations on its ſurface.

Notwithſtanding the advantage which I ſeemed to have gained by avoiding the hazard of any operation upon the omentum, yet it was eaſy to foreſee, that great difficulties would ariſe from ſo large a maſs of granulated fleſh (for ſuch it ſoon became) remaining in the wound. It was impoſſible to compreſs it within the lips of the wound; and as the integuments now lay behind it, there was no hope that they would ever aſcend to form a

natural

natural covering to ſo prominent a part. In ruminating upon the different methods of treating this incumbrance, I recollected that I had often ſeen deep fiſſures made in ſound parts of the body, by the gradual preſſure of any ſharp-edged ſubſtance, applied without ſuch deſign, and effected without much pain. I therefore determined to attempt cutting through the omentum, cloſe to the abdomen, by the gradual, yet very gentle, preſſure of a ligature. On the 7th day after the operation I began to apply a ligature of waxed ſilk, but in ſo gentle a manner as to give no pain. The application produced a bluiſh appearance in the tumour, and made it feel to the patient a little benumbed. The ligature was tied in ſuch a manner, that the patient could at any moment unlooſe it; and he was directed ſo to do, if he ſhould feel any pain, ſickneſs, or nauſea.

On the firſt day after this application, he had ſome ſhivering, and uneaſineſs in his belly. His bowels were likewiſe moved with greater difficulty by the ol. ricini. Theſe ſymptoms were attributed to the ligature, which was immediately untied. But upon inquiring into all circumſtances, I found that he had, contrary to my directions, eaten ſome

fleſh

fleſh meat that day, which I imagined might have cauſed ſome uneaſineſs. After two or three looſe ſtools, theſe complaints ceaſed. I urged the neceſſity of a more ſtrict attention to his diet, and renewed my requeſt that he would confine himſelf to broth and light pudding during the uſe of the ligature.

I renewed the application every day, inſinuating doſſils of lint into the fiſſure; and on the 17th day of this proceſs I cut through the ſmall remaining part of the omentum, which had now been nearly divided by the ligature. An artery in the centre of the remaining part was become ſo large as to require the uſe of a needle and ligature. By this gentle method I ſafely removed the maſs of omentum, after which the wound healed very ſpeedily, and my patient returned home ſix weeks after the operation, the wound being then nearly cicatrized. The portion of omentum which I cut off weighed five ounces and five drams avoirdupois.

The exciſion of a portion of omentum in the ſound part has been practiſed, and recommended by ſome eminent ſurgeons. Monſieur Caqué, chief ſurgeon of the Hotel Dieu at Rheims, ſays, that in nine operations he had cut the omentum in its ſound part without ligature,

ligature, and that no unfavourable accident had reſulted from this treatment*. Mr. Pott ſpeaks in the ſtrongeſt terms in favour of this method. He ſays, "The fear of hæmorrhage "is almoſt, if not perfectly, without founda- "tion, as I have ſeveral times experienced." And again, "I will not pretend to ſay, that "there never was a dangerous or fatal flux of "blood from the diviſion of the omentum "without ligature; but I can truly ſay that "I never ſaw one; that I have ſeveral times "cut off portions of it without tying, and "never had trouble from it of any kind, "though I have always made the exciſion in "the ſound part; and that, from the ſucceſs "which has attended it, I ſhall always con- "tinue to do ſo, whenever it ſhall become ne- "ceſſary." Vol. ii. p. 116. 118. I have twice, and only twice, cut off a pretty large portion of omentum in its ſound part, in the operation for the ſtrangulated hernia; and I am ſorry to ſay, that in both caſes the reduction of the remaining omentum was followed by hæmorrhage, which nearly proved fatal to one of my patients. I will relate the caſes.

* Memoires de l'Academie de Chirurgie, tom. iii. p. 407.

CASE

CASE XII.

Sept. 16th, 1795. Moſes Bradford, aged ſixty-one years, was brought into the General Infirmary at Leeds, with a ſtrangulated ſcrotal hernia, on the right ſide. He had been ſubject to the hernia for ſeveral years. The ſtrangulation had commenced in the forenoon of the preceding day. He had vomiting, hiccough, fulneſs and tenſion of the abdomen.—His tongue was clean and moiſt. His pulſe at ſeventy. The tumour was very tenſe near the ring. The operation was performed at three in the afternoon. The contents of the hernial ſac were a portion of omentum in a ſound ſtate, and a portion of inteſtine highly inflamed. The omentum was of a pyriform figure. Its broad part adhered to the bottom of the ſac, and was about the ſize of an ordinary pear. The upper part had contracted no adheſion with the ſac, and was about the thickneſs of one's little finger. There ſeemed no reaſon to doubt that the omentum had remained in this ſtate for ſome years.

I could not introduce the tip of my forefinger, for the purpoſe of dividing the ring and neck of the hernial ſac, but was obliged to make

make uſe of a director. After an opening was made, capable of admitting my finger to paſs into the abdomen with eaſe, I could not ſtill reduce the inteſtine, until I had divided the omentum, which I did at the lower part of its neck. Mr. Logan held its upper part between his fingers for a ſhort time after the diviſion, to ſee whether it would bleed; and as no hæmorrhage took place, I reduced it, and afterwards replaced the inteſtine with eaſe. I removed the remaining part of the omentum which adhered to the ſac.

No ſooner was the reduction of the inteſtine completed, than florid blood began to flow from the abdomen. We could not doubt that this hæmorrhage proceeded from the divided omentum, and were ſorry that we had not ſuffered it to lie a little longer out of the abdomen. The divided part had been puſhed up ſo high by the inteſtine, and, indeed, had retired ſo readily before the inteſtine was reduced, that there was not the leaſt probability of laying hold of it.

I ordered ſal. amari ʒj. to be taken every hour in a cupful of cold water, immediately after its ſolution, and directed the application of cloths, dipped in cold water, to the abdomen.

I viſited

I viſited the man again in the evening. The hæmorrhage, which was never conſiderable, had diminiſhed before I left him, and had now ceaſed. He felt himſelf eaſy. The purging ſalt, which did not ſit eaſy upon his ſtomach, was omitted, and the ol. ricini was directed in its ſtead. Pulſe ſeventy-four. A purging clyſter was injected.

17th, morning. He had taken an ounce and a half of the ol. ricini, which he had retained. He had had three ſmall ſtools. His belly was rather more tenſe. Pulſe ſeventy-ſix. The ol. ricini was continued, and the clyſter repeated.

Evening. I found him much worſe. He had vomited up all the ol. ricini in the afternoon at one copious evacuation. He had a frequent hiccough and retching. His belly was much inflated. His pulſe was become irregular, though not very frequent. I directed a clyſter to be injected, made with the decoction of tobacco, and the following draught to be given:

℞. Magneſ. alb. ℈ij.

Aquæ puræ cochleare j. vel ij.

f. hauſtus alternis horis ſumendus, ſuperbibendo cochl. j. ſucci limonûm.

18th.

18th. Theſe means had afforded my patient great relief. His ſtomach was ſettled, and he had had in the night a copious evacuation by ſtool. His belly was now ſoft and flaccid. Pulſe ſeventy-two. 19th and 20th. He continued doing well. His bowels ſufficiently open. Pulſe ſeventy.

21ſt. Liquid fæces began to flow through the wound, without any previous bad ſymptom.

22d. I directed a laxative clyſter to be given once a day, and laid aſide the uſe of purgatives taken by the mouth. He has natural crepitus alvinus from the anus.

23d. He had lain dry all night, but this morning liquid fæces, mixed with air, were diſcharged through the wound. I directed a clyſter to be given night and morning, made with a pint of water gruel, and a ſpoonful of treacle. I alſo directed his diet to be intirely liquid, as milk in various forms, broth, &c. and forbad him to eat bread, pudding, or rice.

November 16th. Since the laſt report, the ſize of the wound, and the quantity of fæces diſcharged by it, have continued to diminiſh. He has had all along regular ſtools per anum, except that twice during this period the regu-

lar

lar diſcharge was ſomewhat ſuppreſſed, at which times he complained of pain in the belly. A doſe or two of the ol. ricini, with the clyſters, relieved him. Upon making a ſtrict inquiry in the ward, I found that he had at both theſe times taken ſome ſolid food. The wound is now nearly cicatrized, a ſmall aperture only remaining, through which a thin curdled matter ſometimes iſſues. He is otherwiſe in good health and ſpirits.

Dec. 11th. He was diſcharged cured.

A retention of urine accompanied the ſtrangulation in this caſe, which obliged me to have recourſe to the catheter during the two firſt days. After that time his diſcharge of urine was natural.

I did not ſee this poor man after his diſmiſſion from the Infirmary, but was informed, that he was ſoon after ſeized with violent pain in the abdomen, attended with vomiting, and died on the ſecond day of his illneſs.

CASE XIII.

December 26, 1797. I was deſired to viſit William Langdale, a journeyman coach-maker, aged thirty-five years, who was ſaid to be violently

violently afflicted with the colic. He complained of great pain in his belly, which was aggravated by fits, and was chiefly felt a little below the navel. He vomited every thing he took, and was coſtive. Upon inquiry I found a tumour in the ſcrotum, of which the man had taken no notice, not apprehending it to have any connexion with his diſorder. I informed his friends of the true nature of his complaint, and adviſed them to convey him immediately to the Infirmary. My advice was followed, and at two o'clock I viſited him there in conſultation with Mr. Logan.

The man informed us, that a ſwelling ſimilar to that which we now found, though not ſo large, had at different times affected him. This he had always before been able to reduce, but did not remember to have perceived any guggling noiſe during the reduction of the prolapſed part. He ſeemed quite ignorant of the nature of his diſeaſe, but aſſured us, that he had not a conſtant ſwelling in the ſcrotum or groin. The preſent ſeizure took place ſoon after he roſe out of bed, at two o'clock in the morning of the preceding day. From that time he had had frequent vomiting, with great pain in the abdomen, but not much pain in the tumour. The abdomen had now a con-

ſiderable degree of tenſion. His tongue was white and furred. His pulſe ſtrong, and at eighty-ſix.

The tumour was of an unuſual form. That part of it which lay in the groin had more reſemblance to a thickened ſpermatic chord, than to an ordinary hernia. As the patient repeatedly affirmed, that he had never perceived that guggling noiſe, which uſually accompanies the reduction of a prolapſed inteſtine, when upon former attacks he had repreſſed the rupture; and as at this attack the pain was chiefly felt a little below the navel, we thought it not improbable that the hernia might be an epiplocele. We determined, however, to try the effect of bleeding and the tobacco clyſter before we proceeded to the operation. A pint of blood was immediately drawn, by opening a vein in each arm at the ſame time; and a clyſter made with the decoction of tobacco was injected.

We viſited the patient again at four o'clock; and finding no alteration for the better, I performed the operation. The hernial ſac contained a good deal of ſerous fluid, beſides a pretty large portion of inteſtine, inveloped and completely covered by omentum. The neck of the hernial ſac, below the abdominal

ring,

ring, formed ſo conſiderable a ſtricture, that I could not introduce the tip of my finger to guide the curved biſtory. It even required ſome force to introduce a director ſuitable to this occaſion. After dividing the neck of the hernial ſac, I could eaſily introduce my finger within the abdominal ring, which I alſo divided ſufficiently to permit the reduction of the inteſtine.

The omentum was become gangrenous, and in one part adhered pretty ſtrongly to the inteſtine. That part of the inteſtine, which had been incloſed in the ſtricture made by the neck of the hernial ſac, appeared as if it had been tied round by a ſtring. The colour was ſo much altered by this impreſſion, that we were under conſiderable apprehenſion of a ſeparation taking place at this part. I endeavoured to reduce the inteſtine with all poſſible gentleneſs, after I had ſeparated it from the omentum; yet, notwithſtanding all the caution I could uſe, I was much afraid that the operation would not preſerve the life of my patient, even if no injury ſhould ariſe from the morbid ſtate of the omentum.

I had always been afraid of large wounds of the omentum; but as the exciſion of a gangrened portion, by cutting through the

adjacent ſound part, ſtood ſo ſtrongly recommended by Mr. Pott, of whoſe judgment I had a very high opinion, I determined to follow his example in this inſtance. I cut off, therefore, all that had a morbid appearance, and the remainder, as ſoon as I ceaſed to hold it, retired ſpontaneouſly into the abdomen.

A hæmorrhage immediately enſued, which, from the diſtinct colour of different parts of the ſtream, evidently conſiſted both of arterial and venous blood. The diſcharge of blood diminiſhed ſo much in a ſhort time, that I ventured to unite the divided integuments, through the whole extent of the wound, by the interrupted ſuture. I ordered a purging clyſter to be injected, and half an ounce of ol. ricini to be given every three hours till a free evacuation ſhould be procured.

I viſited the patient about two hours after the operation, and found him aſleep.

At ten in the evening I was called to him, on account of a violent hæmorrhage which the nurſe had juſt diſcovered. The blood had flowed through his bed upon the floor. I immediately cut out the ligatures which were in the upper part of the wound, both to give a free iſſue to the blood, and alſo to enable me to know the true ſtate of the hæmorrhage.—

The

The blood which now iſſued out appeared to be venous. It flowed irregularly, ſometimes ceaſing for ten or twelve minutes. I applied cloths dipped in cold water to the abdomen and ſcrotum, and kept dabbing the wound with a cold wet ſpunge. His pulſe was weak, and at a hundred and eight. His countenance more pale. The belly leſs tenſe. He had had one ſtool. I left him at half paſt eleven, as the hæmorrhage had then abated, deſiring the houſe apothecary, and my ſenior pupil, who remained with him, to continue the application of the cold cloths till the hæmorrhage ſhould ceaſe, and to give the ol. ricini every three hours.

27th. The hæmorrhage ceaſed at half paſt one in the morning. At three he was left to the care of his nurſe. His pulſe was then at a hundred and twenty. I ſaw him at eleven. Pulſe a hundred and eight, and weak. Tenſion of the abdomen leſs than before the operation, but yet too great. Had had two good ſtools. Ol. ricini continued. He vomited two or three times in the courſe of the day, and was reſtleſs. Belly more tenſe in the evening. Tongue furred. Complained much of thirſt. Had frequent belchings, and pain in the belly.

28th. I found him much better. He had had very copious evacuations by ſtool. Vomiting had ceaſed; the belchings were diminiſhed. Pain in the belly abated, but not removed. Pulſe a hundred and two. Countenance much improved. He had taken near five ounces of the ol. ricini; ordered it to be diſcontinued.

He remained in a very uncertain ſtate during the firſt fortnight after the operation. His belly tender, and often inflated, particularly during the ſecond week. His pulſe from ninety-ſix to a hundred and eight. He had no return of the vomiting. He was always relieved, whenever the unpleaſant ſymptoms became aggravated, by purging him with the ol. ricini, though he was never coſtive.

At the end of the ſecond week his tongue became clean, his urine of a natural colour, his abdomen more ſoft and eaſy, and his pulſe varied from eighty-ſix to ninety-ſix. His wound had all this time looked well, being ſoon filled with good granulations. He was now permitted to ſit up a little every day, but was allowed nothing more ſolid for food than boiled pudding. His belly continued tender, and ſometimes painful, for ſeveral weeks, but he recovered perfectly at laſt, and, after his diſ-

miſſion,

miſſion, followed his former laborious employment.

REMARKS.

This caſe clearly ſhews, that large wounds of the omentum are attended with danger.—As the termination was favourable, I am not ſorry that the operation was performed as Mr. Pott and Monſieur Caqué have adviſed; but I ſhall never again cut off any large portion of omentum, without applying a ligature to every bleeding veſſel, whether artery or vein, before I permit the remainder of the omentum to retire into the abdomen*.

I do not attribute the dangerous ſymptoms, which continued for a fortnight, to the exciſion of omentum, but rather to the diſeaſed ſtate of the inteſtine. Had the operation been deferred to the ſucceeding day, or even for a few hours, it is highly probable that the pro-

* Since theſe obſervations were written, Mr. Home has publiſhed ſome caſes of ſtrangulated hernia. In one patient, upon dividing the omentum with a pair of ſciſſars, "Two arteries on the cut edge bled ſo violently as "to require being ſecured by ligatures."

Tranſactions of a Society for the Improvement of Medical and Chirurgical Knowledge, vol. ii. p. 102.

lapſed part of the inteſtine would have ſeparated from that above the ſtricture. Indeed, our hopes of the poor man's recovery were at a very low ebb, when we perceived the impreſſion which the ſtricture had made upon the inteſtine.

It has been propoſed to make the inciſion in the mortified part of the omentum as near as poſſible to the ſound. But I cannot avoid thinking, that thoſe who ſpeak of ſuch an operation as always practicable, ſpeak under the influence of theory, rather than from experience. Sometimes the ſound and mortified parts are ſo intermixed, (as in Caſe X.) that it is impoſſible to leave the former and remove the latter. At other times the gradation of appearance, from ſound to mortified, is ſuch, that one cannot determine where the line of ſeparation will lie.

The laſt method of treating a gangrened portion of omentum is by leaving it in the wound, after reducing what appears clearly to be ſound, if there be any ſuch prolapſed. This method has anſwered well in three caſes, in which I have tried it, and ſeems to be peculiarly adapted to thoſe caſes, in which the omentum has lain for ſome time in the hernial ſac previouſly to the ſtrangulation. In two

of the caſes, the diſeaſed part was caſt off on the ſeventh day after the operation; and in the third caſe, on the eleventh. All the patients recovered.

The remaining part of the operation conſiſts in the treatment of the wound, after the reduction of the prolapſed parts. The method which was perhaps univerſally followed till of late, was that of introducing a doſſil of lint, tied with a thread, into the aperture made by dilating the abdominal ring. This was done with the view of giving vent to any matter, whether blood, ſerum, or pus, which might require to be diſcharged from the abdomen. This method I have uſually followed, and am not aware that it has ever prevented the recovery of a patient. However, I ſee no objection to the method of uniting the lips of the wound by the interrupted ſuture. When there is nothing to be diſcharged, it is undoubtedly the beſt method of treating the wound. It will not prevent the drawing away of a ligature put upon any bleeding veſſel of the omentum; nor intirely prevent a diſcharge from the abdomen, which may come on ſoon after the operation. What effect it would have had in Bradford's caſe, where the fæces began to flow

flow from the abdomen on the fifth day, I will not take upon me to ſay, as I mean to lay my experience, rather than my conjectures, before the reader. Mr. (now Sir James) Earle recommends the including a part of the hernial ſac in the ligature which is uſed to bring on the adheſive proceſs in the wounded parts. I can ſay nothing againſt this method from experience, except that I have twice ſeen the vas deferens lying on the anterior part of the ſac, which would be in danger of being included in a ligature that took hold of the ſac. I may add alſo, that it is not neceſſary to include the hernial ſac in the ligature in order to produce a ſpeedy union of the wounded parts, as I have witneſſed.

The medical treatment of the patient muſt depend in ſome meaſure upon the circumſtances of each caſe. I ſhall only obſerve in general, that purging with the milder cathartics, aided by a very ſlender diet, is the beſt method that I know for removing the inflammatory ſymptoms which may ſucceed the operation.

Miſcellaneous Obſervations relative to the Strangulated Hernia.

1. I think it is not a bad general rule, that the ſmaller the hernia, the leſs hope there is of reducing it by the *taxis*. Long continued efforts to reduce a prolapſed inteſtine are moſt likely to ſucceed in old and large hernias, when no adheſions have taken place.

2. As a ſtrangulation of one ſide of an inteſtine is not a common diſeaſe, I ſhall relate an inſtance of the complaint, as it may afford ſome inſtruction to the young practitioner.

CASE XIV.

A labouring man, aged fifty years, ſubject to a ſmall ſcrotal hernia, which always retired upon lying down, had the misfortune to ſtrike the ſcrotum and hypogaſtrium againſt a poſt, as he was walking in the ſtreets in the evening, November 28, 1767. A vomiting immediately ſupervened, which ſoon went off, but returned in the morning, and continued all day. I ſaw him in the evening. There was no appearance of a bruiſe upon the abdomen or ſcrotum. The former was ſomewhat tenſe, and

ſeemed

ſeemed to be very painful when preſſed. There was a very ſmall tumour in the right groin, not exceeding the bulk of a cherry. It was free from tenſion, though painful when touched. It did not retire upon preſſure. The patient informed me, that the rupture was now leſs than it uſed to be, when he was in an erect poſture; but had not retired as uſual upon lying down. He ſeemed to be in great pain, for the ſweat ran down his face, though his ſituation was far from being warm. His pulſe was about a hundred, but neither full, nor tenſe. His tongue whitiſh. His urine was diſcharged in ſmall quantities.

About ſixteen ounces of blood were taken from his arm. The cathartic bitter ſalt was directed to be taken in ſmall doſes, combined with an opiate; and a purging clyſter was injected.

30th. The pain in the abdomen had continued ſevere all night. The vomiting alſo remained. The abdomen was more ſwelled, eſpecially in the epigaſtric region.

At eleven in the forenoon he had a pretty large ſtool, of proper colour and conſiſtence, but was not relieved by it. Mr. Billam, a ſurgeon in Leeds, viſited him along with me ſoon after this evacuation. The purging clyſter was repeated, and after it a mild clyſter

was

was injected. A bliſter was directed to be applied to the abdomen. Extract. cathartic. ℈j. thebaic. gr. iſs. were given, and the ſolution of purging ſalt repeated. His pulſe was ſmall, and at a hundred and twenty. The vomiting continued. At nine in the evening we viſited him again. He had had a looſe ſtool, but was not relieved. He had another evacuation in the night; but died about three o'clock in the morning.

I obtained leave to examine the contents of the abdomen, which I did in the evening, in the preſence of Mr. Lucas, ſurgeon, and others.

I firſt removed the integuments covering the ſmall tumour. There was a ſlight protuberance of the peritoneum, appearing juſt below the abdominal ring, and lying on the innerſide of the ſpermatic chord. This afterwards was found to be a ſmall hernial ſac; but I did not open it till I had examined the contents of the abdomen. The inteſtines had an inflamed appearance throughout; they adhered in many places to the peritoneum, and univerſally to each other. They were covered by a thick inflammatory exudation, which in ſome parts appeared to be one-eighth of an inch in thickneſs. A large quantity

tity of purulent matter was diffuſed in the abdomen. A ſmall portion of the ileon, not more than half the breadth of the inteſtine, was contained in the ſmall hernial ſac, and adhered ſo ſtrongly to it, that a hole was made in the inteſtine by drawing it gently out of the ſac. The omentum had an inflamed appearance. A portion of the ileon adhered to the bladder, which alſo appeared inflamed.

This poor man died about fifty-ſix hours after he had received the blow. Whether the operation for the ſtrangulated hernia, if performed at an early period of the diſeaſe, would have afforded any probability of recovery, I ſhall leave to the judgment of others. It is of uſe to know that one ſide of an inteſtine may be ſtrangulated, and become gangrened in the hernial ſac without any external tenſion. That in ſuch a caſe, a patient may have diſcharges of even ſolid excrement. That when a ſtrangulation ſubſiſts, the danger is not diminiſhed in proportion to the ſmallneſs of the hernia. That a hernia may retire in part, and the remainder ſuffer a fatal ſtrangulation. And laſtly, that a full and tenſe ſtate of the pulſe is not a conſtant concomitant of a highly inflamed ſtate of the inteſtines.

I have

I have related the above caſe from my notes, but would not propoſe the treatment as a model to the young practitioner. In inflammatory affections of the inteſtines opiates ought not, in my preſent opinion, to be given early in the diſeaſe, with the view of abating the pain. The effect of purgatives is reſtrained by them. But it is from the full effect of purgatives that any permanent relief can be obtained. I have taken no notice of the warm bath, though it was directed, as the want of accommodations prevented it from being uſed in a way likely to be ſerviceable.

3. The importance of operating in an early ſtage of the diſeaſe cannot be urged too forcibly. A mortification will ſometimes come on before the diſeaſe has been of long continuance, or the ſymptoms have become remarkably urgent. An inſtructive inſtance of this is related by Mr. Wilmer*.

The delay alſo gives riſe to *adheſions*, which may fruſtrate the effect of an operation.

CASE XV.

In December 1763, I performed the operation for the femoral hernia on a middle aged

* Obſervations on Herniæ, p. 73.

woman,

woman, the ſixth day of the ſtrangulation, which was the firſt of my viſiting her. The inteſtine and omentum were both prolapſed, and adhered ſo ſtrongly to the peritoneum, that they could not be reduced, though a large aperture was made through the femoral ring. The inteſtine burſt about twenty-four hours after the operation. She died on the ninth day after the operation.

Upon examining the contents of the abdomen after death, I found the whole inteſtinal canal, except the colon, ſtrongly marked with ſigns of preceding inflammation. The ileon, part of which had been prolapſed, adhered to the peritoneum in many places, to the bladder, and to the appendicula vermiformis. Where it adhered to the laſt, it was completely gangrened about the breadth of a ſhilling. Upon ſeparating the parts which adhered to each other near Poupart's ligament, a good deal of well conditioned pus iſſued out, though I had never perceived any to flow from the abdomen during the life of the patient. The omentum was collected together like a rope, and paſſed down from the ſtomach and colon along the root of the meſentery, the ſmall inteſtines lying before it. This ſituation of the omentum had drawn the lower orifice of

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the ſtomach almoſt into a vertical poſition. The tranſverſe arch of the colon was ſo much compreſſed by the omentum, running acroſs it, that the ſolid fæces were obſtructed in their paſſage. The omentum was retained firmly in this ſituation by the adheſions which it had formed with the peritoneum near the femoral ring. The bladder was diſcoloured where the inteſtines adhered to it.

4. There are caſes upon record of the inteſtines ſuffering a fatal ſtricture, by ſome natural part fixed improperly*, and by præternatural cords formed in a manner which we cannot explain†. A curious inſtance of the latter kind occurred in a patient who came under the care of Mr. Lucas, at the General Infirmary.

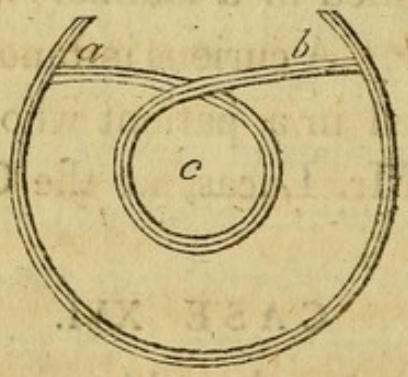
CASE XVI.

Auguſt 1786. An old man was brought into the Infirmary with a pretty large ſcrotal hernia, in a ſtate of ſtrangulation, in which ſtate it had been about twenty-four hours. The tumour was very painful when touched. After trying the effect of a decoction of tobacco, given by way of clyſter, and cold

* Phyſical Eſſays of Edin. vol. ii. Art. 28.

† Memoires de l'Academie de Chirurgie, tom. iii.

ſtupes, Mr. Lucas performed the operation. A large portion of inteſtine was prolapſed, and had approached ſo near to a ſtate of mortification, that it was of a livid hue, and had a cadaverous ſmell. The cauſe of this ſpeedy tranſition from a ſound to a highly diſeaſed ſtate was, a ſtricture which the inteſtine ſuffered from a præternatural membranous cord, like a piece of whip-cord, which adhered, by its extremities, to the oppoſite ſides of the hernial ſac, and completely ſurrounded the inteſtine. The following ſketch will give ſome idea of the nature of this circumvolution.



The outer curved line repreſents a tranſverſe ſection of the hernial ſac, when divided at its anterior part. a. b. are the extremities of the membranous cord. c. the annular aperture through which the inteſtine paſſed, and in which it was ſtrangulated. The inteſtine was of its natural colour above the ſtricture formed by this circumvoluted cord; below, it was in the ſtate above deſcribed.

The

The patient began to have a natural diſcharge of fæces about four hours after the operation, and had many ſtools; but died on the ſecond day.

5. When a double hernia preſents itſelf to an operator, the caſe becomes very perplexing. Inſtances of this kind ought, therefore, to be recorded, to put the young practitioner upon his guard. Mr. Wilmer has given a remarkable inſtance *. I have twice ſeen the exiſtence of this diſeaſe, and will give a ſhort account of both caſes, as they differed conſiderably from each other in ſome circumſtances.

CASE XVII.

September 16th, 1795. While I was operating upon Moſes Bradford, whoſe caſe I have already related, John Barrett, aged forty years, was brought into the Infirmary with a ſtrangulated ſcrotal hernia. He had been ſubject to a hernia for ſome years, and the ſtrangulation had now ſubſiſted four days. There was much tenſion in the tumour, though no external inflammation. He vomited frequently, had ſome

* Practical Obſervations on Herniæ, p. 105.

hiccough, with a fulneſs and tenſion of the abdomen. We ſtrongly recommended an immediate operation, but the man refuſed his conſent. A clyſter made with decoction of tobacco was injected; and cloths dipped in cold water were frequently applied to the tumour, after ſprinkling upon it ſome crude ſal ammoniac in powder. Pulſe eighty-ſix.

17th, at nine A. M. The poor man, finding himſelf worſe, conſented to the operation, which was immediately performed. His abdomen was more enlarged. His pulſe a hundred and twenty,

Upon opening the hernial ſac nothing appeared but omentum, the ſurface of which was ſmooth, and the texture apparently ſound. It adhered univerſally to the upper part of the ſac, and I could find no aperture of the abdominal ring. This ſtate of the parts was perplexing. I now attempted to draw the omentum out of the hernial ſac, that I might have the opportunity of examining more accurately the ſtate of the parts. I was prevented from removing the omentum completely by an adheſion which it had contracted with the bottom of the ſac. I was able, however, to elevate the greater part of it, and this elevation enabled me to diſcover a fold of the

inteſtinum

inteſtinum ileon lying behind the omentum, and ſurrounded by it. The poſterior ſurface of the omentum was ſmooth and ſhining, forming the anterior part of an interior hernial ſac for the inteſtine; the poſterior part being formed by the true hernial ſac, which alſo included the omentum*. Upon tracing this interior ſac I was led to the aperture through which the inteſtine had deſcended. This aperture was ſo large that I could eaſily introduce my fore-finger into it. The coats of the inteſtine were thickened, but had not much of an inflammatory appearance. The interior ſac was complete at its upper part, and was there quite diſtinct from the ſac which I had firſt opened, and in which lay the omentum. The interior ſac contained inteſtine only. The omentum ſeemed to have no communication with the abdomen. I divided longitudinally the omentum, and the interior hernial ſac, which was either formed by, or adhered intimately to, the omentum. I then enlarged the aperture of the abdominal ring, and reduced the inteſtine, though with ſome diffi-

* In this caſe the hernial ſac was in reality divided longitudinally into two cavities by means of the omentum. From the anterior cavity there was no opening into the abdomen. The poſterior cavity opened into the abdomen as uſual.

culty, on account of the increaſed thickneſs of its coats. I cut off the omentum from every part of the exterior ſac.

If the interior ſac, in this caſe, was formed by the omentum, the diſeaſe muſt have ſubſiſted in this ſtate for a conſiderable time: for the ſac appeared to be as regularly formed at its upper part as if no omentum had been prolapsed; and when I introduced my finger into the abdomen through the ring, I had the ſame ſenſation as in a ſimple enterocele. If the interior ſac was not originally formed by the omentum, it is difficult to account for the appearance of the parts at the bottom of the exterior ſac.

This patient recovered extremely well for the firſt ten days, and was then ſeized with the locked jaw, of which he died at the end of the ſecond day of the ſeizure.

I examined the contents of the abdomen after death, but obſerved nothing which could account for this fatal termination. Every thing relative to the hernia ſeemed to indicate the approach of a perfect cure.

CASE XVIII.

In January 1796, I was deſired to viſit Mrs. Brooke of Harewood, whom I had ſome years

ago

ago cured of a ſtrangulated femoral hernia by the operation, and who now laboured under the ſame diſeaſe on the oppoſite ſide. The ſtrangulation had ſubſiſted three days. She vomited frequently, and had had no ſtool; yet the abdomen was ſoft, her pulſe calm, and her tongue clean.

I immediately performed the operation. There was nothing in the hernial ſac but omentum, except a large quantity of ſerous fluid. The omentum was in part gangrened, and adhered to the ſac. I could find no aperture into the abdomen. My patient ſeemed convinced, that the inteſtine had been down before I began to perform the operation; and from the accurate deſcription which ſhe gave me of the different ſtates of her diſeaſe, I ſaw no reaſon to doubt the truth of her conjecture. She aſſured me, that during the operation, ſhe had the ſenſation which ſhe was accuſtomed to feel whenever the inteſtine retired into the abdomen. The hernial ſac was much wrinkled, as if after being diſtended it had fallen into a collapſed ſtate. I cut off all that part of the omentum which appeared diſeaſed, as well as all that projected from the hernial ſac. That part which appeared ſound, and adhered cloſely to the ſac, I ſuffered to remain, leſt I ſhould wound the

ſac; for its irregular wrinkled ſurface made the exciſion difficult.

The patient recovered very well, but the hernia returned, and a truſs was applied to prevent the inteſtine from deſcending as uſual.

In this caſe it ſeems to me highly probable, that the interior ſurface of the omental ſac became the exterior ſurface of the inteſtinal one. Had not the inteſtine retired while I was dividing the hernial ſac, I ſhould have found a double hernia, one omental, and the other inteſtinal.

6. When the teſtis does not deſcend into the ſcrotum before birth, care ſhould be taken to prevent the deſcent of the teſtis from being followed by that of the inteſtine or omentum, in which caſe the diſeaſe would be formed, which is now diſtinguiſhed by the name of *hernia congenita*. It may ſeem a contradiction in terms to ſay, that I have known a hernia congenita firſt formed when the patient was ſixteen years of age. But my reader, who underſtands the nature of this diſorder, will know, that the term deſcribes a diſtinct ſpecies of hernia, rather than the time of its formation *.

* See an accurate deſcription of this diſeaſe in Dr. Hunter's Medical Commentaries, part 1ſt.

CASE

CASE XIX.

In the year 1765, I was desired by Mr. Billam to visit along with him a young man, aged sixteen years, labouring under a strangulated scrotal hernia. The right testis had, a short time before the attack of this disease, descended into the scrotum. The descent of the testis was succeeded by a hernia, which soon became strangulated. After bleeding he took fifty drops of laudanum, divided into three doses. The pain, which he felt in the tumour, abated. He fell into a sound sleep, which continued three or four hours; and upon his awaking, it was found that the hernia had retired. A truss was applied to prevent a relapse.

The following year, while the truss was removed for the purpose of repairing it, the hernia returned, and immediately became strangulated. Various means were used to procure a reduction, but without effect. On the 4th day of the strangulation, I performed the operation at the request of Mr. Billam, and in the presence of him and Mr. Wynne. Both omentum and intestine lay in the tunica vaginalis testis, which in this case constituted

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the hernial ſac. They were both of a dark colour, but not in a ſtate of mortification, except a ſmall part of the extremity of the omentum, of which there was ſome doubt.—The omentum adhered ſlightly both to the inteſtine and hernial ſac, but they were eaſily ſeparated. After the diviſion of the abdominal ring, the inteſtine was reduced without heſitation; but ſome difference of opinion, or conſiderable doubt at leaſt, aroſe reſpecting the reduction of the omentum. The omentum was at length reduced without any retrenchment, after the opinion of the majority of the ſurgeons preſent.

Symptoms of inflammatory affection ſucceeded the operation. The patient was relieved by bleeding and purging, but died at the expiration of a week after the operation. The wound had a good aſpect during the whole of this ſubſequent illneſs.

I obtained leave to examine the contents of the abdomen after death. That part of the omentum which had been prolapſed was now completely mortified, and lay juſt above the ring, which was healed internally, ſo that no aperture remained in the peritoneum. The remainder of the omentum adhered in ſeveral places to the inteſtines. The ſmall inteſtines in general did not appear much inflamed;

but

but that portion which had been ſtrangulated was in a gangrenous ſtate. The colon on the right ſide appeared much inflamed, and in many places of a dark colour. The diſeaſed portions of inteſtine adhered to the contiguous parts. A ſmall production of omentum was attached to the ſpermatic chord, or rather to the peritoneum covering it, about an inch above the left teſticle. By this attachment the teſticle had been prevented from deſcending into the ſcrotum.

7. An *Epiplocele* is a troubleſome diſeaſe, conſidered ſimply, and alſo, as it frequently gives riſe to an inteſtinal hernia. If it is reducible, no doubt can remain as to the propriety of applying a truſs. When irreducible by the taxis, it may often, perhaps always, be made to retire, if it has contracted no adheſion with the hernial ſac. I have cured ſeveral troubleſome caſes of this kind, by confining my patient to bed, giving at the ſame time gentle laxatives, and enjoining a low diet. In one caſe the confinement of a week was ſufficient to effect my purpoſe; in general, however, it has required five or ſix weeks. The epiplocele, upon its firſt deſcent, is ſometimes attended with pain in the abdomen, as well as in the tumour,

mour, and then greatly reſembles a ſtrangulated inteſtinal hernia. But if the patient can retain light food, and purgative medicines, upon his ſtomach, there is uſually no neceſſity for performing the operation for the ſtrangulated hernia. In this caſe, the pain and tumefaction of the abdomen may generally be removed by a free evacuation of the bowels. Though every ſymptom of danger be removed by this treatment, the ſtricture upon the omentum is ſometimes ſo great as to cauſe a gangrene of that part which is contained in the hernial ſac. The integuments then become inflamed in a ſhort time, purulent matter is formed, and the tumour muſt be treated as a common abceſs. See Caſe IX.

A truſs ſhould always be worn after the reduction of the omentum.

8. It ſometimes happens, after the cure of a ſtrangulated hernia, that the rupture does not return, but the general reſult is otherwiſe.

Judging from my own experience, I ſhould ſay, that a larger quantity of inteſtine uſually deſcends, in thoſe perſons whoſe lives have been preſerved by the operation, but that the inteſtine in ſuch perſons is leſs liable to ſtrangulation. A well adapted truſs ſhould always be

be applied as ſoon as the wound is cicatrized, and will bear the preſſure.

An Account of a New Species of Scrotal Hernia.

CASE XX.

November 6th, 1764. I examined the body of a child, fifteen months old, who had died of a *ſtrangulated ſcrotal hernia*, in the preſence of Dr. Crowther, a phyſician who then lived at Leeds.

The inteſtines were not much inflamed, but had in general their natural appearance. The jejunum and ileon were conſiderably inflated with air; but the colon was ſo much contracted, that it looked like a ſolid cord rather than a hollow inteſtine. The cæcum, or head of the colon, was not to be ſeen in the abdomen; for it had deſcended through the abdominal ring, which formed a ſtricture upon that part of the inteſtine where the ileon joins it. In the ſtricture was alſo included the root of the appendicula vermiformis; the reſt of this appendage being ſtill in the abdomen.

Having examined the contents of the abdomen without altering the ſtate of the hernia, I made a longitudinal diviſion of the ſcrotum

on its right ſide, continuing my inciſion the whole length of the tumour, and laid bare, as I imagined, the hernial ſac. This I opened towards its inferior part, which was the moſt prominent; but it proved to be the *tunica vaginalis teſtis*, containing, together with the teſticle, a portion of the true hernial ſac.

This unuſual appearance engaged me to proſecute the diſſection with great care. I found that the tunica vaginalis was continued up to the abdominal ring, and incloſed the hernial ſac, adhering to that ſac by a looſe cellular ſubſtance, from the ring to within half an inch of its inferior extremity. The fibres of the cremaſter muſcle were evident upon the outſide of the exterior ſac, or tunica vaginalis. The interior or true hernial ſac was a production of the peritoneum as uſual, and contained only the cæcum or head of the colon. The ſtrangulated part of the inteſtine appeared to have been much inflamed, and was in ſome places become black: it was conſiderably diſtended, and was filled with liquid fæces. Having removed the proper hernial ſac, I examined the poſterior part of the exterior ſac, and found it connected with the ſpermatic veſſels in the ſame manner as the *tunica vaginalis* is, when the teſtis has deſcended into

the

the ſcrotum. An additional proof, that the exterior ſac was the *tunica vaginalis*.

From all theſe circumſtances it is evident, that this hernia differed both from the common ſcrotal rupture, in which the hernial ſac lies on the outſide of the tunica vaginalis; and alſo from the *hernia congenita*, where the prolapſed part comes into contact with the teſticle, having no other hernial ſac beſides the tunica vaginalis.

To underſtand the cauſe of the hernial ſac being in contact with the teſticle, and ſurrounded by the tunica vaginalis, it is neceſſary to conſider the manner in which this coat of the teſticle is originally formed.

In the fœtus a proceſs of the peritoneum is brought down, through the ring of the external oblique muſcle of the abdomen, by the teſticle as it deſcends into the ſcrotum; which proceſs forms an oblong bag communicating with the cavity of the abdomen, by an aperture in its upper part. This aperture is intirely cloſed at, or ſoon after, birth. The upper part of the bag then gradually contracts itſelf, till the communication between that portion of it which includes the ſuperior and greater part of the ſpermatic chord, and the lower part of the bag, which includes the teſticle

ticle and a ſmall ſhare of the chord, is obliterated. The lower part of the proceſs or bag retains its membranous appearance, and is called *tunica vaginalis teſtis propria*; while the upper part becomes an irregular cellular ſubſtance, without any ſenſible cavity, diffuſed amongſt the ſpermatic veſſels, and connecting them together.

In the hernia which I am deſcribing, the inteſtine was protruded after the aperture in the abdomen was cloſed; and therefore the peritoneum was carried down along with the inteſtine, and formed the hernial ſac*. It is evident alſo, that the hernia muſt have been produced while the original tunica vaginalis remained in the form of a bag as high as the abdominal ring; on which account that tunic would receive the hernial ſac with its included

* Mr. Hunter ſuppoſes (Med. Comment. p. 84.) that a *hernia congenita* may be formed after the aperture of the original tunica vaginalis has been cloſed; the violence with which the inteſtine is protruded burſting open the cloſed aperture of that tunic. But it does not ſeem to have occurred to him, that a hernia of the kind I am deſcribing might be produced, if the peritoneum ſhould not again be burſt open. I have purpoſely examined the parts in ſeveral ſtill-born children, and have found, that, when the aperture of the original tunica vaginalis is cloſed, the peritoneum has appeared to be as firm where the aperture had been, as in any other adjoining part.

inteſtine,

inteſtine, and permit the ſac to come into contact with the teſticle. The proper hernial ſac, remaining conſtantly in its prolapſed ſtate, contracted an adheſion to the original proceſs of the peritoneum which ſurrounded it, except at its inferior extremity: there the external ſurface of the hernial ſac was ſmooth and ſhining, as the interior ſurface of the tunica vaginalis is in its natural ſtate.

The mother of this infant informed me, that ſhe firſt perceived the rupture when the child was about two months old. As male children are often attacked with a ſcrotal hernia in the firſt or ſecond month after birth, it is probable that the diſeaſe may often be of this ſpecies, when it comes on at ſo early a period of life. This kind of ſcrotal hernia may, therefore, not improperly be called *hernia infantilis*, as it can only exiſt when the rupture is formed while the parts retain the ſtate peculiar to early infancy.

The ſcrotal hernia may be divided into three ſpecies, the ſpecific difference of which ariſes from the ſtate of the tunica vaginalis at the time of the deſcent. 1. If the abdominal aperture of this proceſs is open when the inteſtine or omentum is protruded, the rupture

is then called *hernia congenita**. 2. If the upper part of the proceſs remains open, but the abdominal aperture is cloſed, and is capable of reſiſting the force of the protruding part, the hernia then becomes of that ſpecies which I have now deſcribed, the *hernia infantilis*. 3. If the cavity of the upper part of the proceſs is obliterated, and the ſeptum is formed a little above the teſticle, as in the adult ſtate; the hernial ſac then deſcends on the outſide of the tunica vaginalis, and forms the moſt common ſpecies of ſcrotal rupture, which may with propriety be called *hernia virilis*.

CASE XXI.

In November 1772, I was deſired to viſit an infant born with an uncommon tumour at its navel. I found the funis umbilicalis diſtended to the bulk of a hen's egg at its inſertion into the abdomen, though it was of its uſual thickneſs in every other part. The diſ-

* The term *hernia congenita* muſt be here conſidered as *technical*, deſcribing a particular ſtate of the parts affected, and not implying that the diſeaſe exiſts at the birth of the ſubject. This diſeaſe ought to be diſtinguiſhed by the name of *hernia congenita ſcrotalis*; as there is another ſpecies of hernia congenita, which the reader will find deſcribed in the following caſes.

tenſion

tenſion of this part of the funis had rendered its external coat ſo tranſparent, that I could clearly diſcern through it the folds of the ſmall inteſtines, which had been protruded through the navel before the child was born. I had never ſeen this ſpecies of hernia before; but ſoon determined what method to purſue for the cure of it.

I immediately reduced the inteſtine, and deſired an aſſiſtant to hold the funis compreſſed ſo near to the abdomen, that the inteſtine might not return into the hernial ſac. I procured ſome plaſter ſpread upon leather, cut into circular pieces, and laid upon one another in a conical form. This compreſs I placed upon the navel, after I had brought the ſkin on each ſide of the aperture into contact, and had laid one of the lips a little over the other. I then put round the child's abdomen a linen belt; and placed upon the navel a thick, circular, quilted part, formed about two inches from one extremity of the belt.

This bandage kept the inteſtine ſecurely within the abdomen, and was renewed occaſionally. The funis was ſeparated about a week after birth; and at the expiration of a fortnight from that time the aperture at the navel was ſo far contracted, that the crying of

the child, when the bandage was removed, did not cauſe the leaſt protruſion. I thought it proper, however, to continue the uſe of the bandage a while longer. A ſmall ſubſtance, like fungous fleſh, projected, after the funis had dropped off, about half an inch from the bottom of that depreſſion which the navel forms. A doſſil of lint ſpread with cerat. e lapide calaminari, and aſſiſted by the preſſure of the bandage, brought on a complete cicatrization.

I ſaw the child for the laſt time December 30th. The fungous ſubſtance had then diſappeared, a firm cicatrix covered the navel, and the child was perfectly well.

CASE XXII.

In the year 1775, I was called to ſee a new-born child, whoſe inteſtines had eſcaped at the navel out of the cavity of the abdomen. I found the whole of the ſmall inteſtines lying upon the belly, not incloſed in any ſac. The midwife informed me, that ſhe had found them in this ſtate as ſoon as the child was born, which was about four hours before I ſaw it; but ſhe was of opinion, that the quantity of inteſtine prolapſed had increaſed

ſomewhat

ſomewhat ſince the birth of the child. The inteſtines had an inflamed appearance. Upon examining the funis umbilicalis, I found that it had been much diſtended near the navel, and was now burſt. I was ſatisfied, therefore, that this hernia was ſimilar to that deſcribed in the laſt Caſe; and thought it probable, that the hernial ſac had burſt in the delivery. I reduced the inteſtines immediately, and as carefully as I could; but the child died within a few hours after the reduction.

The child appeared to be in a very weak ſtate when I firſt ſaw it. It had univerſally a blue colour, and its face was deformed.

CASE XXIII.

In March 1791, a child was brought to my houſe, fifteen hours after its birth, having a large tumour in the navel-ſtring. The funis was diſtended greatly to the diſtance of four inches from the body of the child; and its exterior membrane was ſo tranſparent, that I had no difficulty in diſcerning the contents of the tumour. Almoſt all that part of the inteſtinal canal, which, by being attached to the meſentery, is capable of receding from the ſpine, ſeemed to be contained in the dilated part of

the navel-ſtring. I could clearly ſee not only the ſmall inteſtines, but alſo the colon, with the appendicula vermiformis; yet the aperture at the navel was very ſmall.

There was no periſtaltic motion in any part of the prolapſed inteſtines*.

The midwife had very properly tied the navel-ſtring beyond the dilated part, ſo as not in the leaſt to injure the inteſtines.

I found it difficult to reduce the prolapſed parts; but by gentle preſſure I made them all return into the abdomen in the ſpace of about half an hour. I wrapped ſome flat tape round the dilated part of the navel-ſtring; and applied a belt, quilted with wool, near one of its extremities, round the belly of the child, that

* The want of periſtaltic motion in the inteſtines I attributed to the compreſſion which they ſuffered at the entrance of the hernial ſac. I have often felt this aperture at the navel more dilated in an exomphalos which did not exceed the ſize of a common plum. The periſtaltic motion of the inteſtines remains in the prolapſed ſtate, provided they are not compreſſed at their exit from the abdomen. I once ſaw a remarkable inſtance of this in a woman who had an extremely large femoral hernia. The integuments were rendered ſo thin by the great diſtention which they ſuffered, that the periſtaltic motion of the inteſtines might very diſtinctly be perceived. The loweſt part of this hernia extended to the middle of the patient's thigh.

I might

I might keep up an eaſy compreſſion upon the navel.

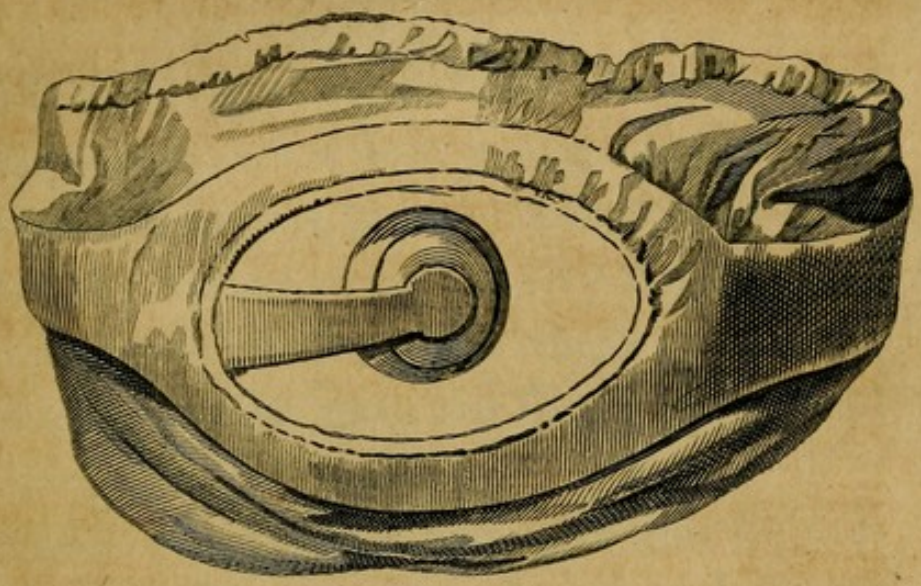
The hernia did not return, but the child became uneaſy after the reduction; and, although it had two natural ſtools, yet it died about forty-eight hours after the operation.

Deſcription of a New Truſs for the EXOMPHALOS.

WHILE I am upon the ſubject of Hernia, I think I ſhall confer a benefit on thoſe who are afflicted with the Exomphalos, by recommending a truſs invented for that complaint by an ingenious mechanic in Leeds. I have applied it both to infants and adults with invariable ſucceſs; and I think it to be greatly ſuperior to any kind of truſs hitherto uſed for that diſorder. With the leave of the maker I have preſented my reader with a front view of it. It conſiſts of two pieces of thin elaſtic ſteel, which ſurround the ſides of the abdomen, and nearly meet behind. At their anterior extremity they form conjointly an oval ring, to one ſide of which is faſtened a ſpring of ſteel of the form repreſented. At the end

of this ſpring is placed the pad or bolſter that preſſes upon the hernia. By the elaſticity of this ſpring the hernia is repreſſed in every poſition of the body, and is thereby retained conſtantly within the abdomen. A piece of callico or jean is faſtened to each ſide of the oval ring, having a continued loop at its edge, through which a piece of tape is put that may be tied behind the body. This contrivance helps to preſerve the inſtrument ſteady in its proper ſituation.

The annexed plate will ſufficiently explain the ſtructure of the principal parts of this inſtrument.



A TRUSS FOR THE EXOMPHALOS;

Invented by

Wm Marrison. of Leeds.

TRUSS MAKER.

CHAP. IV.

Of the FUNGUS HÆMATODES.

CASE I.

JUNE 21ſt, 1780, William Campinet, aged twenty-one years, a ſtout young man, by trade a ſtone maſon, was brought into the General Infirmary, on account of a very large tumour on the inſide of the right thigh and knee. Upon inquiry he gave the following account of his caſe.

About two years before that time he perceived a ſmall ſwelling, the ſize of the laſt joint of his thumb, on the inſide of the right knee, not far from the *patella*. This tumour was moveable, and gave no impediment to the motion of the joint: it was not diſcoloured, but was painful when moved or preſſed upon. It continued in this ſtate half a year; and then, the man having hurt his knee by falling againſt a ſtone, it gradually increaſed in bulk, but did not exceed the ſize of an egg. The ſkin was now diſcoloured with blue ſpecks, which

which he took to be veins. He could ſtill walk with eaſe, and follow his buſineſs; but could not bear to kneel upon that knee.

Two months before his admiſſion into the Infirmary, he fell from a piece of wood, placed about a yard from the ground, and violently bent the diſeaſed knee; but did not ſtrike it againſt any thing. The tumour began immediately to enlarge; and, within a few hours, extended half way up his thigh, on the inner ſide of the limb. About a fortnight after this laſt accident, the ſkin burſt at the loweſt part of the tumour, and diſcharged ſome blood. A dark-coloured fungus, about the ſize of a pigeon's egg, appeared and remained at this part. A few weeks after the appearance of this fungus, the ſkin burſt in another part of the large tumour, and diſcharged ſome blood. From the fiſſure aroſe another fungus, which had increaſed in the courſe of the laſt week to the ſize of a ſmall melon; and now meaſured eight inches over, between the oppoſite parts of its baſe. Blood frequently iſſued from the baſe of this fungus, chiefly when the man hung down his leg.

The whole tumour was now of an enormous ſize. It meaſured nineteen inches acroſs,

when the meaſure was carried over the fungus laſt deſcribed. From its higheſt part in the thigh to the loweſt part juſt below the knee, it meaſured ſeventeen inches, without including the fungus. The baſe of the tumour at the knee, excluſive of that part which ran up the thigh, meaſured twenty-four inches in circumference. The tumour became narrower as it aſcended the thigh; and terminated obtuſely about the mid-way between the knee and the groin. It did not ſurround the thigh; but was ſituated on the inner ſide of the limb, and was diſtinctly defined. There was no ſwelling in the ham, nor within the capſular ligament; but the leg, knee, and thigh, appeared ſound where they were not occupied by the tumour. The ſkin, covering the tumour, was livid in ſome places, and had ſeveral fiſſures and ſmall ulcerations upon it; but had not burſt aſunder, except in the two places above deſcribed. The tumour was ſoft, and gave a ſenſation of ſome contained fluid, when gently preſſed with the hands alternately in oppoſite directions.

The patient aſſured me, that he had walked, without pain in his knee, a week before his admiſſion into the Infirmary: and he ſeemed perſuaded, that he could now walk, if he durſt

durſt venture to put himſelf into an erect poſture. He had come twenty-two miles in a poſt-chaiſe; and had loſt very little blood by his leg being laid upon the cuſhion. He complained of the greateſt uneaſineſs in the higheſt part of the tumour. It had become hot and painful in the night time, for ſome days paſt. His pulſe beat a hundred and fourteen ſtrokes in a minute; and was rather tenſe, but not full. His tongue was clean. He had no thirſt. His appetite had been good till within the laſt few days. He did not remember to have felt at any time a pulſation in the tumour.

June 22d. I called a conſultation of my colleagues at the Infirmary: the reſult of which was, that the tumour ſhould be laid open by cutting off a portion of the diſtended integuments; and that, after removing the contents, if the ſac ſhould be found in a ſound ſtate, the diſeaſe ſhould be treated as a ſimple wound; but that, if the containing parts ſhould be in a morbid ſtate, the limb ſhould be immediately amputated.

As the patient had borne ſo long a journey the preceding day without apparent injury, we did not expect any inconvenience from removing him out of his ward into the operation-

tion-room, which was ſituated at a ſmall diſtance, and upon the ſame floor. However, the man loſt ſo much blood from the removal, that he fainted while we were applying the tourniquet. As ſoon as he had recovered from his *deliquium*, I made an oval inciſion through the whole of the tumour longitudinally, and removed a large portion of the morbid integuments.

The tumour contained a very large quantity of a ſubſtance not much unlike coagulated blood; but more nearly reſembling the medullary part of the brain, in its conſiſtence and oily nature. It was of a variegated reddiſh colour, in ſome parts approaching to white; and, as blood iſſued from every part of it when bruiſed, I judged it to be uniformly organized. This maſs was partly diffuſed through the circumjacent parts in innumerable pouches, to which it adhered; and was partly contained in a large ſac of an aponeurotic texture. There was a great and univerſal effuſion of blood from the internal ſurface of the ſac, and from the pouches containing this morbid maſs.

The diſeaſed ſtate of the containing parts, and the connexion of the ſac with the capſular ligament of the knee, put an end to our idea of ſaving the limb. Had the appearance

been

been more favourable than it was, yet the violent effuſion of blood forbad all hope of ſucceſs but by amputation. I immediately, therefore, performed the operation; and found all the muſcles in a ſound ſtate, except thoſe on the inner part of the thigh, which had been in contact with the morbid ſubſtance forming the tumour. Theſe, for a conſiderable depth, were of a brown colour, and ſofter conſiſtence. The principal artery was in a ſound ſtate. I was obliged to take up ſeveral ſmall veſſels; ſome of which were near the ſurface, on the inner ſide of the thigh; and paſſed through a part ſo much diſeaſed, that we could not aſcertain whether it was muſcle or adipoſe membrane. As the cavity of the ſac became very narrow and ſhallow, at its higheſt part, I made the circular inciſion through the integuments, about two inches below its higheſt part; conceiving that this ſmall portion of the cavity would ſoon become a clean ſore, and cauſe no impediment to the cure.

As ſoon as the patient was placed in bed, I examined the amputated limb, that I might more clearly ſee the ſeat of the tumour, and aſcertain the ſtate of the parts about the knee.

That portion of the *vaſtus internus femoris*, which

which remained in the amputated part of the thigh, was become brown, and much ſofter than the other muſcles; which were in a very ſound and robuſt ſtate. There were many ſmall portions of extravaſated blood, lodging in the ſubſtance of this muſcle. The ſac was formed by the aponeurotic covering of the muſcle; and had its inferior termination where the aponeuroſis begins to make the outer layer of the capſular ligament of the knee. The two fungous ſubſtances, which I have already deſcribed, appeared to have been only extenſions of the morbid maſs, where this had made its way through the ſac and the integuments. The joint of the knee and muſcles of the leg were perfectly ſound.

The poor man was very low after the operation, and complained of great pain in the abdomen. This pain was accompanied with a ſtrong pulſation in the *aorta*, which might readily be felt by laying one's hand upon the abdomen. I gave him immediately tinct. opii g^{tis} xxx. and directed him to drink for nouriſhment barley water and thin broth. He was often ſick in the courſe of the afternoon; and vomited up the barley water. The pulſe at his wriſt was ſo weak after the operation,

tion, that it could ſcarcely be felt. The pain in the abdomen abated in a few hours.

At four P. M. I ordered the following draught to be given every two or three hours; with wine whey for common drink:

℞ Aq. puræ ℥j.
Sp^{t} piment. ʒij.
Conf. aromatic. ϑj. m.

I viſited him again in the evening; and, finding the vomiting ſtill to continue, though his ſickneſs was ſomewhat abated, I ordered *tinct. cardam. comp.* ʒij. diluted with three times its quantity of water, inſtead of the former draughts.

June 23d. I was called to ſee him betwixt four and five in the morning. He had an uneaſineſs in his throat, accompanied with a ſenſe of ſuffocation, which awaked him frequently when he fell aſleep. He was likewiſe troubled with the hiccough; and threw up every thing that he took. His pulſe was too frequent to be counted. His countenance, however, was ſomewhat improved. The ſtump was quite eaſy. I directed him to take occaſionally two drops of eſſential oil of cinnamon, upon a lump of ſugar; and ordered, for his common beverage, the beſt French brandy, diluted with

with three times its quantity of water, in which as much cinnamon had been previouſly boiled as would make it grateful.

A cataplaſm was laid upon the region of the ſtomach, conſiſting of *theriac. androm.* ℥j. *aq. ammon.* ʒij.

Nine, A. M. He had not vomited ſince he began to drink the brandy diluted with decoction of cinnamon. His pulſe was at a hundred and forty-two. The hiccough ſtill affected him a little after talking.

Four, P. M. Pulſe a hundred and thirty-ſix. No vomiting. Tongue rather dry. Ordered veal broth for food. He had had no ſtool ſince his admiſſion into the Infirmary, yet was in a ſtate of ſuch extreme debility from inanition, that I thought it beſt to delay the uſe of laxatives in any form. I did not give him an opiate to-day, as he had no pain in the ſtump; but as the ſpaſmodic affections of his throat and ſtomach had been ſo conſiderably relieved by the grateful ſtimulants, which he had taken, I directed them to be continued.

24th. Pulſe a hundred and thirty-two, and ſomewhat fuller. Tongue dry. He had not got much ſleep in the night, yet he ſeemed better. Diet continued.

25th. Pulſe the ſame. The nurſe ſhewed me a broad livid ſpot upon his back, juſt above the *nates*, which was evidently an incipient mortification. I ordered that cloths wet with *aq. ammon. acet.* ſhould be kept conſtantly applied to the part affected. The decoction of bark, made warm with the ſpirituous tincture, was directed to be given in the doſe of three ſpoonfuls every two hours.

26th. Pulſe a hundred and ſixteen. The progreſs of the mortification was ſtopped.

27th. Pulſe a hundred and twelve. He began to have an appetite for food; and was allowed to take pudding and broth. The wound had a gloſſy appearance. A good deal of *pus* was diſcharged from the interſtices of the muſcles.

28th. Pulſe a hundred and ten. His tongue was more moiſt and clean. A little fleſh meat was allowed for his dinner.

His countenance was improved. The uppermoſt part of the longitudinal wound (which had been the extremity of the ſac) was healed to the extent of an inch: the reſt of it remained ſloughy, and was dreſſed with a digeſtive ointment.

From this time the granulations of fleſh upon the ſtump became good; the progreſs of healing

healing was favourable, and the cicatrization was nearly completed, at the expiration of the ſixth week after the operation; when a new ſource of trouble engaged my attention.

That ſmall and ſuperficial part of the great ſac, which I had left at its ſuperior extremity, from an unwillingneſs to amputate more of the thigh than appeared neceſſary to be removed, was now healed: but there had gradually riſen at the lower and inner part of the thigh, beneath the cicatrix, a tumour which was now about four inches in length, and between two and three inches in breadth. This contained a ſoft ſubſtance, exactly ſimilar, as far as the touch could diſcover, to that which had filled the large ſac. This tumour was painful; and now diſcharged, ſometimes a bloody ſerum, and ſometimes dark coloured blood, through four or five ſmall orifices or fiſſures in the cicatrix.

Not yet fully aware of the obſtinate nature of this diſeaſe, I hoped to produce good granulations from the internal ſurface of this tumour, and to cure my patient, by expoſing that ſurface to the air. I thought it right, at any rate, to make trial of this method; being extremely unwilling to proceed, without abſolute neceſſity, to a ſecond amputation.

Auguſt 3d. I made a longitudinal inciſion through the whole extent of the tumour; and removed the ſubſtance which it contained. This ſubſtance was exactly ſimilar to that which occupied the large tumour, and which I have already deſcribed. Some freſh blood was found in this as well as in the large tumour. When I had intirely removed the contents of the tumour, the cells, in which the morbid ſubſtance had lodged, bled freely; although no diſtinct blood-veſſel was viſible. The blood reſembled that of the veins in colour, and flowed more copiouſly when the upper part of the thigh was compreſſed, than when it lay ſtill without preſſure. The wound was filled with lint, and covered with a pledget of cerate.

No advantage, however, was obtained by laying open the tumour. The interior ſurface was found to be in too morbid a ſtate to produce ſound granulations. Blood continued to ooze out of the wound for a few days. The interior ſurface then became covered with a blackiſh ſubſtance, which gradually extended itſelf, and formed a new fungus. A variety of eſcharotics were applied, with the view of deſtroying the fungus and the morbid ſurface of the wound. But in vain.

The

The growth of the fungus always exceeded the quantity deſtroyed. Undiluted oil of vitriol, applied liberally, had very little effect.

I was now reduced to the neceſſity, either of removing the whole morbid part by exciſion; or of performing a ſecond amputation. The diſeaſed part was perceptibly circumſcribed, as well as ſuperficial; and therefore, upon a conſultation with my colleagues, it was determined to attempt the removal of the diſeaſed part without amputation.

26th. No ſooner was the thigh raiſed from the bed, for the purpoſe of applying a tourniquet, than a copious hæmorrhage took place. The tourniquet was applied with all poſſible expedition; and I began to remove the fungous ſubſtance: but every attempt to do this increaſed the hæmorrhage, ſo that we were compelled to apply a ſecond tourniquet. The greateſt compreſſion, which we could make, was not ſufficient to put an entire ſtop to the bleeding.

Upon examining the wound carefully, when the contained ſubſtance was removed, we found the muſcular fleſh degenerated into a hard maſs, which felt ſomewhat like cartilage. The adipoſe membrane was alſo diſeaſed, and was formed into large cells or pouches, in

which the fungous ſubſtance had been lodged. This examination convinced us, that the patient could not be ſaved from immediate death, but by a ſecond amputation; which was immediately performed above the diſeaſed part of the thigh.

Every part of the thigh above the inciſion appeared to be in a ſound ſtate, except the principal artery. This was filled with matter, ſomewhat reſembling ſtiff coagulated blood, which prevented the blood from flowing through the extremity of the divided veſſel. The inſide of the artery, when touched with the point of a ſcalpel, felt hard; and gave a ſound reſembling that which ariſes from gently ſcraping a bone. The principal vein was pervious, and in its natural ſtate. We had not occaſion to take up more than two ſmall arteries. The ſtump was dreſſed after Mr. Alanſon's method, by bringing the divided parts as nearly into contact as could be, and without the application of lint.

My patient was ſo much exhauſted by the hæmorrhages which had happened previouſly to the operation, and during the firſt ſtage of it, that, for a ſhort time, he was deprived of the uſe of his right arm, and could ſcarcely

ſpeak

ſpeak articulately. He was very faint; but had no deliquium, as at the former amputation. He complained of great pain at his navel. I gave him *tinct. opii* g^{tts} 40, in a cordial draught; but he ſwallowed it with ſome difficulty.

In the evening his pulſe was tremulous, and could not be diſtinctly counted. He had regained, in a great meaſure, the uſe of his right arm; but he ſtill faultered in ſpeaking. The pain at his navel was much abated. He vomited frequently; but had no hiccough, nor difficulty in breathing. I directed him to take the decoction of bark, with the addition of a little of the tincture of bark; and to drink now and then of the decoction of cinnamon with French brandy.

27th. 8. A. M. I found him very low. The diluted brandy, which had been ſo grateful and beneficial to him before, was now become unpleaſant; ſo that the ſmell of it excited retchings. I ordered him to drink a little ale whenever he choſe, as that was the liquor for which he had now the greateſt deſire. His pulſe could not be counted; the faultering in ſpeaking continued, and his countenance was very languid.

Five P. M. Pulſe a hundred and forty-five.

The vomiting had ceaſed, and all the other ſymptoms of extreme debility were abated.

The ligatures were caſt off before the expiration of a fortnight after the operation. The wound looked gloſſy, but continued to contract in its dimenſion as faſt as could be expected. He had had at times, ſince the laſt amputation, a little difficulty in breathing, attended with pain in the thorax; but now he began to complain of a troubleſome cough, which diſturbed him chiefly in the night-time. The weather was very hot, and he perſpired profuſely at nights. A diarrhæa came on, but was ſoon checked by giving him a decoction of logwood along with that of the bark. The *Elix. vitriol. acid.* abated his profuſe perſpiration. His cough became leſs troubleſome, and he breathed better. He was allowed to ſit up in his chair as much as he could bear without fatigue. He was uſually chearful. He was allowed a little fleſh meat at dinner, three or four times a week; and three half-pints of ale in the courſe of the day. His breakfaſt and ſupper conſiſted of milk porridge, or haſty pudding made with oatmeal and water. As ſoon as he was able to be removed, he was ſent home into the country. I was afterwards informed, that his cough never left him, and

that

that he died conſumptive about half a year after he had left the Infirmary.

REMARKS.

In this Caſe, the large maſs, conſtituting the tumour, appears to have been originally formed by an extravaſated fluid, which in a ſhort time became organized. It is not to be ſuppoſed, that a tumour coming on immediately after a violent ſprain, and, in the courſe of a few hours, extending itſelf from the knee half way up the thigh, could be formed in any other way than by the rupture of ſome veſſels, pouring out their fluid contents into the cellular ſubſtance of the thigh. But of what nature was this fluid? We know that pure blood will remain extravaſated for a long time unchanged. The ſubſtance found in this patient's thigh had not the appearance of pure coagulated blood. It was indeed chiefly, but not uniformly, of a red colour; and when handled it felt rather like the medulla of the brain, than coagulated blood, being of a conſiſtence ſomewhat unctuous. Was it blood mixed with a large proportion of lymph? The texture of the ſubſtance might lead to this ſuppoſition, which receives ſtrength from the conſider-

conſideration, that the tumour was ſituated in that part of the thigh where the largeſt lymphatic veſſels are found.

An ingenious friend of mine has ſuggeſted, that the aponeurotic expanſion covering the ſmall tumour on the knee, was lacerated by the fall, which ſet the fungus confined beneath it at liberty; and that from the violence done to this ſubſtance, proceeded the effuſion, which occaſioned the ſoft tumour in the thigh, ſo ſuddenly formed after the accident.

Whatever the fluid was originally, it appeared with ſufficient clearneſs to have become organized; for the contents of the tumour bled freely wherever they were broken by the hand.

The growth of this fungus was not prevented by the ſtrong aponeuroſis which covers the muſcles of the thigh; for that covering was firſt diſtended, and then ruptured in two places by the fungus.

Where the fungus was expoſed to the air, its colour was much darker, and it appeared there more like coagulated blood than in its interior part, the colour of which was ſomewhat variegated.

All the parts which lay contiguous to the fungus had a morbid appearance. The muſcular

cular fibres were become brown, and indiſtinct. The adipoſe membrane formed a variety of diſtinct pouches, filled with the fungus, the ſurfaces of which bled freely when the fungus was removed. The aponeuroſis had loſt its natural gloſs, and had acquired a browniſh hue.

It deſerves to be noticed, that at the ſecond amputation, the hæmorrhage from the morbid fungus could not be reſtrained, by the application of two tourniquets to the thigh; yet, after the amputation of the ſtump, there was no difficulty in reſtraining the hæmorrhage from the veſſels of the thigh, by the uſual preſſure of one tourniquet. As the fungus was ſituated at the extremity of the ſtump, it was highly improbable, I might ſay impoſſible, that the hæmorrhage ſhould have continued from the veins, in the degree in which it did continue, without ſome ſupply from the arterial ſyſtem.

It appears from this inſtance, which is not a ſolitary one, that the preſſure of the tourniquet upon the thigh in amputation, (and the preſſure in this caſe was much greater than uſual) does not completely obſtruct the paſſage of blood in the arteries: it only diminiſhes ſo much the force of the current, as to enable the veſſels, when in a ſound ſtate,

to

to exert their natural contractile power, ſo effectually as to prevent hæmorrhage.

The contractile power of a ſound artery is great. It is very common to ſee an artery bleed copiouſly when imperfectly divided, yet to ceaſe bleeding immediately, or in a very ſhort time after a complete diviſion. It would ſeem that this natural contractility of the capillary veſſels conſtituting the fungus was greatly diminiſhed, as a hæmorrhage from them could not be reſtrained by any degree of preſſure which we could make upon the ſuperior part of the limb.*

As this is a diſeaſe which has not hitherto been deſcribed by any author, with whoſe writings

* I do not recollect to have met with an obſervation of this curious circumſtance in any author whom I have conſulted. Yet I have ſeen the ſame occurrence more than once.

A woman was admitted into the General Infirmary, on account of a tumour near the ancle, which had ariſen from a blow given by the foot of a perſon who was inſane. When the tumour was opened, the contents had the appearance of coagulated blood. Upon attempting the removal of any part of the contained ſubſtance, a conſiderable hæmorrhage enſued, which could not be ſuppreſſed by the application of two tourniquets. In conſideration of the morbid ſtate of the parts, it was judged neceſſary to amputate the leg. After amputation, the divided veſſels ſhewed no greater tendency to hæmorrhage than in ordinary caſes of amputation.

writings I am acquainted, I have taken the liberty of calling it *Fungus Hæmatodes*, a name as expreſſive of its character as any I could deviſe.

In my remarks on this Caſe, I have ventured out of the path of *practical obſervation*, and have wandered into that of *theory*. The facts are ſtated faithfully; but I am not anxious about the theoretical reaſoning, which forced itſelf upon my mind, in a review of this curious Caſe. If any of my readers can give a more ſatisfactory explanation of the phænomena, I am content.

Pulmonary conſumption is ſometimes the conſequence of violent hæmorrhage, when the patient is greatly reduced by the evacuation, eſpecially if the hæmorrhage has been repeatedly renewed. I have ſeen this happen ſo often in patients who had no apparent tendency to conſumption, that I cannot doubt of the fact, though I can ſee no relation between the cauſe and effect.

This Caſe occurred before I was acquainted with the nature of the diſeaſe to which I have given the name of *Fungus Hæmatodes*. I am now, upon recollecting the circumſtances of the caſe, inclined to think, that the tumour in this woman's leg was of the ſame kind as that which I have juſt deſcribed.

CASE

CASE II.

July 20th, 1785, I viſited Mrs. Dean, of Linton, a maiden lady, aged fifty-four years; who had a conſiderable enlargement of the left *mamma*. She informed me, that, about three months before, as ſhe was exerting herſelf in raiſing her father (who was ſuper-annuated, and confined to his bed) ſhe felt a ſenſation as if ſomething had cracked in her breaſt. Within a few days after this accident, ſhe perceived a ſmall tumour in the part, about the ſize of a hazel-nut. This tumour increaſed gradually in bulk; was hard, and moveable. When it had arrived at the ſize of an apple, it was ſhewn to Mr. Moorhouſe, a ſurgeon at Skipton; who conſidered it as an occult cancer, and adviſed extirpation. Afterwards Mr. Prieſtley, a ſurgeon at Leeds, (who accompanied me in this viſit,) being in the neighbourhood of Linton, was conſulted. He, entertaining hopes of removing the diſeaſe by internal remedies, did not recommend an operation, but adviſed Mrs. Dean to take the *Cicuta*.

The tumour had increaſed very much within the laſt ſix weeks before my firſt ſeeing it; and, when I firſt ſaw it, extended nearly to the

the axilla on one ſide, and almoſt to the ſternum on the other. Its ſurface was uneven. The integuments were in general thick; but not univerſally ſo. In ſome parts they felt rather thin; and, upon preſſing thoſe parts, it ſeemed as if the tumour contained a fluid. When I preſſed the thick and harder parts of the tumour, I had the ſenſation of ſomething crackling beneath my fingers; as if, by the preſſure, I had broken ſome fibrous ſubſtance. Shooting pains had been felt at times in the tumour from its commencement: they were now more frequent; and Mrs. D. paſſed the nights uneaſily. She was languid, and her appetite was bad.

I was apprehenſive that the tumour had ariſen from the rupture of ſome blood veſſels, and that it would prove an untractable diſeaſe. I thought it too late to attempt extirpation: and, imagining that the integuments would ſoon give way, and that a conſiderable hæmorrhage might ſupervene upon the burſting of the tumour, I informed my patient that I could not be of any ſervice to her at the diſtance of thirty miles; and that it would be neceſſary for her to come to Leeds, if ſhe wiſhed for my aſſiſtance.

About a week after this viſit, Mrs. D.

came

came to Leeds, and put herſelf under the care of Mr. Prieſtley and myſelf. Within ten days after her arrival ſhe was ſeized with the dyſentery, which was then epidemic in the town. The aſſiſtance of Dr. Daviſon, a phyſician in Leeds, was requeſted, in the treatment of the dyſentery. During the continuance of this diſeaſe, the ſkin, covering the tumour, gave way; a dark-coloured ſubſtance aroſe in the fiſſure; and blood began to ooze out from the aperture, at the baſe of this ſubſtance.

The more I reflected on the origin, progreſs, and appearance of the tumour, the more inclined I was to believe, that the diſeaſe was exactly ſimilar to that which had affected the thigh of poor Campinet. I related this man's caſe to Dr. Daviſon, and Mr. Prieſtley; and expreſſed my opinion, that Mrs. Dean's tumour would be found to be of the ſame nature. As the ſituation of this tumour precluded the advantage of applying a tourniquet, I expected that the hæmorrhage would prove fatal, whenever a large opening ſhould be made. However, I did not chooſe to withhold my aſſiſtance, how little ſoever that aſſiſtance might avail; and conſulted the gentlemen, who attended with me, upon the

method

method to be purſued, whenever the degree of hæmorrhage ſhould render it neceſſary to make ſome farther attempt to preſerve the life of our patient.

Auguſt 19th, Mrs. Dean was nearly, but not entirely, free from her dyſenteric complaints, when the aperture in the tumour became ſo large as to diſcharge a conſiderable quantity of blood. The orifice was now filled with a looſe plug of blood. When this was puſhed inwards, a great deal of extravaſated blood, of a dark colour, ruſhed out; partly fluid, and partly coagulated.

I cut off a large oval portion of the diſeaſed integuments; with the deſign, both of preventing the hæmorrhage which they would have cauſed, and of enabling me to apply the more readily, to the remaining part of the cavity, ſuch ſtyptics as we had determined to make uſe of.

The fungous ſubſtance, which principally conſtituted this tumour, had the ſame appearance as that which I have deſcribed in Campinet's caſe; and evidently bled upon being broken. It adhered ſtrongly to the remaining part of the integuments, which formed a great number of irregular cells. Indeed, the whole internal ſurface of the ſac contain-

ing this fungus was compoſed of theſe cells; except the bottom, formed by the pectoral muſcle, where the ſurface was more even. When the whole of the contained fungus was removed from the bottom of the ſac, a portion of the pectoral muſcle, about two inches ſquare, was left uncovered. The muſcle was in a morbid ſtate; and appeared as if it had been expoſed to the air, and had begun to form granulations on its ſurface. The muſcular fibres were ſcarcely diſtinguiſhable. The whole internal ſurface of the ſac bled uniformly, as if the blood had been ſqueezed from a ſpunge. To the muſcular part I applied Ruſpini's ſtyptic; and to the remainder of the cavity hot oil of turpentine. The cavity was gently filled with lint, dipped in theſe liquids; and the applications were retained in their place by a circular bandage, put round the thorax.

Notwithſtanding our patient was kept in bed, in a horizontal poſition, during the operation, which I endeavoured to perform with all poſſible expedition; yet ſhe fell into a deliquium before the dreſſings could be applied. She was, however, ſoon recruited, and ſpoke to us cheerfully. We did not remove her in the leaſt from her poſition;

but

but made her as clean and comfortable as we could. We directed that ſhe ſhould be ſupplied frequently with wine gruel, and other cordial nutriment of the moſt grateful kind.

At two o'clock in the night her pulſe ceaſed to be diſtinguiſhable; and at eleven in the morning of the next day ſhe expired.

I did not obſerve any unuſual appearance of blood upon the bandages; but Mrs. F. at whoſe houſe ſhe lodged, afterwards informed me, that (upon laying out the body) a good deal of blood was diſcovered to have iſſued from the cavity of the tumour.

CASE III.

In 1787, Mrs. Appleyard, a middle-aged woman, conſulted me on account of a tumour in her breaſt, which ſhe apprehended to be of a cancerous nature. It occupied the whole *mamma*, was about the ſize of a ſmall melon, and was quite moveable. It had not the appearance which cancerous tumours uſually have when they affect the whole breaſt. There was no puckering of the ſkin, nor ſhrinking of the nipple; but the integuments of the breaſt had an uniform ſmooth appearance. It had not, when examined by the

touch, the uneven hardneſs of an occult cancer; neither had it the equal ſoftneſs of a tumour containing a fluid in a ſingle cyſt. Its ſurface was even; but, upon preſſure, I could feel that the contents of the tumour were not of equal denſity.

I aſſured my patient that her diſorder was not cancerous; but adviſed the extirpation of the tumour, as it was highly improbable, that any internal remedies could check the growth of it. However, that I might not ſeem inattentive to her complaints, and at her earneſt requeſt, I ordered ſome medicines for her. A little time verified my prognoſtic; and in the courſe of two months after ſhe firſt conſulted me, the tumour was ſo much increaſed in bulk, that ſhe conſented to the operation which I had propoſed.

The operation was, however, delayed for a week, on account of a ſickneſs and frequent retching, which came on immediately after ſhe had reſolved to ſubmit to this unpleaſant, though often neceſſary, method of cure. The uneaſineſs of mind which ſhe felt from the apprehenſion of an operation, ſeemed to be the ſole cauſe of theſe recent complaints. They were relieved by the uſe of aromatic and volatile medicines.

Dec.

Dec. 13th. With the aſſiſtance of Mr. Logan I extirpated the tumour, which weighed four pounds and three ounces avoirdupois. It was perfectly diſtinct from the ſurrounding adipoſe membrane; having no other connection with it than by that cellular membrane, which univerſally connects the contiguous parts of the body. When divided by the knife, it had the appearance of a diſeaſed glandular ſubſtance, intermixed with ſmall cavities containing a gelatinous, or viſcid ſerous, fluid. As the common integuments, which ſurrounded this morbid maſs, appeared to be in a ſound ſtate, I placed them in contact with the ſubjacent parts, applying plaſters and bandage ſo as to bring about a healing by the firſt intention.

My patient went on extremely well for a time, and every circumſtance flattered me with the hope of a ſpeedy and happy termination. At the end of the third week, when I was about to take my leave of her, a ſerous diſcharge began to take place from the loweſt part of the wound, which was nearly, though not completely, cicatrized. After this had continued ſome days, I perceived a ſmall elevation of the cicatrix a little above the part whence the ſerous fluid iſſued. The tume-

faction increaſed gradually, till the cicatrix was burſt open. A ſubſtance like dark coloured coagulated blood appeared in the fiſſure. I was at firſt inclined to think, that ſome part of the integuments might have remained at a ſmall diſtance from the ſubjacent parts, with which I had endeavoured to unite them; and that the ſmall veſſels, pouring out blood, might have cauſed the tumefaction which I have mentioned. I introduced my finger at the fiſſure; and, finding a cavity extending an inch or two, underneath the cicatrix, I divided the integuments at the cicatrix, and removed the coagulated blood, as it appeared to be. There was, however, a new formation of this ſubſtance: on which account I ſprinkled the internal ſurface of the recent wound with finely powdered red præcipitate; that I might produce good granulations, and firm healing. My attempts were in vain. Inſtead of an union of the parts, I obſerved a daily growth of the ſubſtance, reſembling coagulated blood, and an extended tumefaction under the adjoining integuments, which had been firmly united. There was now likewiſe a daily, though not a conſiderable, hæmorrhage from the cavity of the wound.

Theſe

Theſe circumſtances produced in me a painful conviction of the nature of this new diſeaſe; and I could not doubt that it was ſimilar to the complaint which I have deſcribed in the two laſt caſes. My patient at the ſame time became much indiſpoſed, and was affected with frequent ſickneſs and retching, as ſhe had been before the exciſion of her breaſt. I informed her friends of the dangerous ſituation in which ſhe now was, and requeſted a conſultation. Mr. Lucas and Mr. Logan, ſurgeons to the General Infirmary at Leeds, were called in: who concurred with me in thinking that it was neceſſary to remove the diſeaſed parts, as the only means which could ſave the life of our patient; though the ſucceſs of the operation was very doubtful.

Feb. 7, 1788. With the aſſiſtance of theſe gentlemen I performed the operation; making a large circular wound, and removing every part which had a morbid appearance. The fungus had ſunk into ſeveral cells, which were formed in the adipoſe membrane; and bled wherever I took hold of it.

For a few days ſhe ſeemed to be as well as we could expect. But a cough and difficulty of breathing came on before the ſymptomatic

fever had ceaſed: and ſhe died on the ſeventh day after this ſecond operation; without any bad appearance in the wound, except ſuch as extreme languor induces.

CASE IV.

Jan. 21ſt, 1789, Mrs. Storr of York, conſulted me at Leeds, on account of a tumour in the left *mamma*. She was forty-five years of age, and had ceaſed to menſtruate for a year and half. She informed me, that about three months before, ſhe had perceived a tumour nearly of the ſize of a ſmall apple. It had increaſed conſiderably in bulk; eſpecially ſince the application of a plaſter, which appeared to be the *emplaſt. litharg. cum gummi*. She felt a conſtant dull pain in the diſeaſed part; but in no great degree. The ſkin appeared rather red where the tumour was moſt prominent. The tumour was moveable, and felt hard in ſome parts; in others it gave the ſenſation of a contained fluid. It was ſituated on the exterior ſide of the *mamma*. I recommended extirpation as the only probable method of cure; and the next day, at her requeſt, I performed the operation.

The tumour adhered in part to the *mamma*, and had the appearance, when divided, of a diſ-

a diſeaſed glandular ſubſtance, interſperſed with three or four cyſts, containing a viſcid ſerous fluid. The upper part of the wound, which was made in the adipoſe membrane only, I united by two ſtitches of the interrupted ſuture. The lower part, in which a portion of the *mamma* had been divided, was united only by the help of ſticking plaſter. The upper part of the wound healed by the firſt intention; but the lower part was not completely healed till the expiration of eight weeks.

One circumſtance, which attended the healing of this wound, may deſerve to be mentioned; as it afforded ſome indication of that morbid ſtate of the parts, which ſoon after produced a fatal diſeaſe. During the healing of the lower part of the wound, my patient complained of much ſoreneſs and pain in the cicatrices of the upper part, particularly thoſe made by the punctures of the needles. Theſe were ſo very tender, that for a time ſhe could ſcarcely bear them to be touched. One of them burſt open, and formed a ſmall ſore, which did not heal until I had filled it with levigated red præcipitate. This tenderneſs did not come on immediately after the healing of the upper part of the wound,

wound, but after the interval of two or three weeks. It was not attended with any morbid appearance in the lower part of the wound.

About ſix weeks after the complete cicatrization of the wound, Mrs. S. began to feel a conſtant uneaſineſs in the part, and perceived it to be tumified. The tumefaction and uneaſineſs increaſing, ſhe came again to Leeds, to put herſelf under my care.

The tumefaction then extended about an inch and a half on each ſide of the cicatrix. When it was examined by preſſure, there was a ſenſation of a deep ſeated fluid, covered by thick integuments. The ſkin, in its moſt prominent parts, had a blue appearance.

I ſuſpected that the diſeaſe, which I have deſcribed in the three preceding caſes, had taken place: and I deſired a conſultation. Mr. Lucas viſited the patient with me; and, as we could propoſe no probable means of cure but a ſecond operation, with his aſſiſtance I extirpated the tumid parts, which contained a ſubſtance ſimilar to that deſcribed in the preceding caſes. No part of the integuments was left that had the leaſt morbid appearance; and the diſeaſe ſeemed to be completely removed.

The

The wound was ſoon filled with good granulations, and the cure proceeded in the moſt favourable manner for about three weeks. A ſmall portion of the wound at its upper part then began to look ſloughy, and formed a cavity extending about an inch under the adjoining integuments. I filled this part with *Hydrar. nitrat. ruber*; but a ſubſtance like dark-coloured coagulum of blood aroſe in it, the growth of which was not repreſſed by the eſcharotic. I thought it beſt to remove this morbid part; and, having divided the integuments about an inch and a half, I diſſected out all that appeared to be diſeaſed.

The appearance of the ſore continued favourable for ſome time after the removal of this morbid part; and the progreſs of healing was as ſpeedy as is uſual in ſores of ſuch extent. But, before the cicatrization was completed, the parts which had been healed, and the contiguous integuments, began to grow tumid, and to ſhew too clearly, that the morbid fungus, which had made a ſecond operation neceſſary, was forming again.

My hopes of a cure were now entirely deſtroyed. As every part, which had the leaſt appearance of diſeaſe, had been twice removed,

removed, I ſaw no probability that any farther ſurgical aſſiſtance could ſave the life of my patient. She returned home in the beginning of Auguſt, and died at the end of five weeks after ſhe left Leeds.

CASE V.

A boy about fourteen years old, was admitted an in-patient of the General Infirmary, on account of a large deep-ſeated tumour in the calf of his leg. The cauſe of this diſorder he judged to have been a ſprain, from a ſudden and violent exertion; for, ſoon after this accident, he perceived the calf of the diſeaſed leg to be larger than the other. The tumour had continued to increaſe during ſix months, and he was now rendered very lame by it.

It was impoſſible to aſcertain, with preciſion, either the ſituation or nature of this tumour. It was clearly ſituated behind the gaſtrocnemius muſcle, and might have its origin near the bones of the leg; ſo that an attempt to extirpate it by inciſion, was out of the queſtion. There was no pulſation in the tumour, nor any diſcolouration in the integuments. The accident which had preceded the appearance of this tumour rather indicated,

indicated, that it had ariſen from the rupture of ſome veſſels in the leg.

Upon a conſultation, no probable method of cure was ſuggeſted but that of amputation; and, the parents of the boy giving their conſent, I performed the operation above the knee.

After the operation I diſſected the leg, and found the tumour to conſiſt of a ſubſtance ſimilar to that which I have deſcribed in the preceding caſes, ſituated between the gaſtrocnemius and ſolæus muſcles, and extending a little below their edge on the outer ſide of the leg. Wherever this ſubſtance lay in contact with the muſcular fibres, they were of a brown colour, and had loſt their uſual diſtinct appearance. We could perceive no ruptured veſſel; but the lymphatics were not injected.

The patient had a good recovery.

CASE VI.

In April 1793, I viſited Mr. Thomas Ward of Saxton, near Tadcaſter, aged thirty-three years, who had a large tumour near the ancle of one leg, the circumference of which, including the leg, meaſured twenty-one inches. The account which he gave me of the origin

origin and progreſs of this tumour, was as follows:

Four years ago, laſt winter, ſoon after he had walked out in the morning, he felt ſome pain in his heel; and from that time he could not, without pain, put the heel to the ground in walking. Some months after this attack, he perceived, juſt below the ancle, a ſmall tumour, about the ſize of a horſe-bean, which was moveable, but not painful. This tumour continued to increaſe in bulk gradually, and was for ſome time unattended with pain. After ſowing ſome corn in the ſpring following the firſt appearance of this tumour, in which exerciſe he imagined he had hurt himſelf, the tumour began to increaſe more rapidly, and was then attended with pain, and an increaſing weakneſs of the leg.

In May 1792, the tumour and weakneſs had ſo far increaſed, that he was but juſt able to walk about, with the aſſiſtance of a walking ſtick. At this time he put himſelf under the care of a perſon, who applied bliſtering plaſter to the tumour, and rubbed it ſomewhat ſeverely with tow, when the cuticle was removed. Under this treatment, the ſize of the tumour, and the weakneſs of the ancle, were ſo much increaſed, that he

was

was in a few days unable to walk without crutches.

About a week before I saw this patient, the tumour had been punctured with a lancet by an old woman, under whose care he had placed himself. A dark coloured fungus, resembling coagulated blood, had arisen from the wound, and was in breadth nearly equal to that of a half crown.

The sensation which the tumour afforded, when examined by gentle pressure, compared with its contents, which were become evident by the wound made in it, left no doubt in my mind respecting the nature of the disease, and the remedy which alone could prove curative.

The mind of my patient revolted at first at the idea of amputation; but in the course of a few days, he became fully sensible of the necessity of this operation, which I performed the following week, but not before he was much reduced by the loss of blood from the fungus.

I was obliged to take up fifteen arteries, after amputating the leg, a little below the calf. The fungus, when divided, appeared variegated like a nutmeg, some parts appearing red, like blood, while others were almost white.

It

It felt greaſy when handled. The patient recovered, and continues healthy.

CASE VII.

In November 1796, Mr. Wright, of Horsforth, conſulted me on account of a large tumour, ſituated in the neck of his ſon, who was about nine years of age; and gave me the following account of the diſeaſe:

In April preceding, the little boy happened to fall againſt the poſt of a gate. The ſtroke affected chiefly the lower jaw on one ſide, and looſened four of the grinders, but made no wound. The bruiſe appeared to be inconſiderable, and was not expected to produce any unpleaſant conſequences. Towards the end of the month, the part which had been ſtruck, began to ſwell gently; and the ſwelling had a gradual, though ſlow, increaſe. In Auguſt, the ſwelling had grown to the ſize of a ſmall hen's egg. In this ſtate, a poultice was applied to the part affected, which ſeemed to increaſe the growth of the tumour, and to render the ſkin ſomewhat red.

When I was conſulted in November, the tumour was about nine inches in length, and ſix or ſeven in breadth. It extended from the

the lower jaw to the clavicle. From the appearance, and the ſenſation felt on examining the tumour by gentle preſſure, I judged this to be a caſe of the *Fungus Hæmatodes*. I informed the boy's parents of the incurable nature of the diſeaſe, and prognoſticated the ſpeedy approach of the fatal event, which took place about ten days after I had ſeen this patient. The boy's father afterwards informed me, that the tumour ſeemed to produce ſuffocation by its preſſure upon the windpipe.

CASE VIII.

Richard Finney, the driver of a ſtage waggon, conſulted me in January 1797, on account of a tumour in the back part of his neck, which had been formed in that part about two years, in conſequence of a hurt which he had received. I punctured the tumour with a lancet, that I might diſcover what was the nature of its contents, and found nothing in it but coagulated blood. I brought the lips of the puncture into contact by plaſter, that I might produce an adheſion, and immediate healing of the wound; intending to lay open the tumour at a more

convenient opportunity. I desired the man to rest from labour till the puncture should be healed. He neglected this advice, and set off soon after with his waggon. He was much exposed to the cold air, the weather being then severe; and an inflammation of the tumour soon supervened. The fever which attended this inflammation confined him upon the road for a time; but he was brought back to Leeds about a fortnight after I had punctured the part. The inflammation still continued; but with proper care subsided, and the contents of the tumour were in part discharged. That I might produce a complete evacuation of the contents without making any large wound in the neck, which now seemed unnecessary, I introduced a seton string, and made it pass through the tumour near its base. By this treatment the tumour seemed to be completely emptied, and gradually disappeared. I then withdrew the string, and the punctures healed.

In the course of a few weeks, a small tumour arose in the same part, which was evidently owing to the dilatation of the original sac by some fluid. Upon puncturing the sac, a fluid of a glairy kind, without colour, issued out. Having reaped so much benefit

from

from the uſe of the ſeton before, I made another through the cyſt in the ſame manner, hoping to bring about an adheſion of the ſides of the cyſt. My expectation, however proved abortive. Inſtead of a gradual contraction of the cyſt as after the former operation, the tumour in a ſhort time began to increaſe, and a diſcharge of blood took place from ſome fiſſures in the diſtended integuments.

May 27th. I opened the tumour in its whole extent, and removed a fungus, which was now formed in it, excepting a part which adhered ſo ſtrongly to the muſcles of the neck, that I could not clearly diſtinguiſh it from the muſcular fibres. The hæmorrhage was profuſe, and on this account alſo I was compelled to deſiſt before I had removed the whole of the fungus. The man was ſo ſoon recruited after this operation, that on the 6th of June, he was able to come to my ſurgery to be dreſſed. After repeated ſprinkling with Hydrar. nitrat. rub. the wound put on a favourable aſpect. Healthy granulations aroſe from the ſurface, and the ulcer became much contracted in its ſize. I entertained now great hopes of a complete cure; but after ſome weeks, the morbid fungus began to form itſelf at

the edges of the ſore. The integuments were divided where the fungus had elevated them from the ſubjacent muſcles, and the morbid part was ſprinkled with eſcharotics of various kinds. The fungus was reproduced faſter than I could deſtroy it, and the poor man became languid under the increaſe of this obſtinate diſeaſe. In November he was admitted a patient of the General Infirmary, and there I once more diſſected out the fungus, now become conſiderably larger. The hæmorrhage was great; but he recovered, and the ſurface of the wound once more, for ſome time, put on a favourable appearance. My hopes were again diſappointed, and the fungus became larger than ever. Almoſt every kind of eſcharotic was tried, but in vain. I could not repreſs the growth of the fungus by the undiluted vitriolic acid, by the Hydrargyrus muriatus, Antimonium muriatum, nor any other application that was uſed. In the ſpring 1798, the man left the Infirmary; a cough ſupervened, and he died the 10th of June following, exhauſted by a hectic fever, and a copious diſcharge of fetid matter from the fungus, which was then conſiderably increaſed in ſize.

Auguſt

CASE IX.

Auguſt 20th, 1801, James Richardſon, a ſtout man, aged fifty years, conſulted me on account of a large tumour on the poſterior part of his left ſhoulder. Upon a careful examination I could not doubt of its being a tumour of that intractable ſpecies, to which I have given the name of *Fungus Hæmatodes*.

As the knowledge of this diſeaſe in its incipient ſtate may be of importance, I will give a deſcription of this caſe; which I apprehend will not be found inapplicable to the general appearance of the diſeaſe, when it ariſes ſpontaneouſly, without any previous operation, upon a part not endued with great ſenſibility.

The tumour was not painful. It had ariſen to a conſiderable ſize before the patient was aware of its exiſtence; and it was firſt pointed out to him by his friends, who obſerved, that the poſterior part of one ſhoulder was become larger than the other.

It did not interrupt the motion of the muſcles upon which it was ſituated; the patient being able, as he informed me, to follow his laborious employment of a blackſmith as well as uſual.

Its ſituation ſeemed to be between the integuments and external muſcles, a little below the joint of the ſhoulder, covering a great part of the ſcapula.

Its form and ſize may be underſtood by the following meaſurement, which I took with a marked tape: from the baſe on one ſide, to that on the oppoſite ſide, where the breadth was the greateſt, carrying the meaſure over the ſummit of the tumour, it meaſured 12 inches. The meaſure taken acroſs the tumour, in the ſame way, at its ſmalleſt breadth, was 8 inches. Its baſe meaſured 23 inches.

When examined by gentle preſſure in various ways, it ſeemed to be of an uneven denſity. In ſome parts an alternate preſſure gave the ſenſation of a deep ſeated fluid. When graſped by the fingers in other parts, one might perceive an irregular hardneſs. This examination gave no pain.

It was moveable, but in a ſlight degree: not ſo much as a wen formed by an enlargement of the adipoſe membrane.

The cutaneous veins, which ran over its ſurface, were enlarged.

Some idea of its growth may be obtained from the following particulars. It was firſt

examined in July 1800, and it was then judged to be about half the size at which I found it. The patient had been lately at Harrowgate, and had uſed a hot bath there, which he apprehended had much increaſed the ſize of the tumour.

The integuments did not ſeem to be rendered thinner by the diſtention of the fungus, which I conceived to be lodged beneath and within them.

The ſkin had been irritated by ſome ſtimulating applications which had been made to it. I directed the application of the Cerat. Lap. Calam. to remove this ſuperficial inflammation; and adviſed the poor man to do nothing elſe, as I conceived the diſeaſe to be incurable.

I ſhewed this Caſe to Mr. Logan, my colleague at the General Infirmary, who concurred with me in opinion, reſpecting the nature of the complaint, and the impropriety of extirpation.

I ſaw this patient again in February 1802, and was informed by him, that he had been under the care of ſome irregular practitioners, ſuppoſed to be ſkilful in the cure of cancers. The tumour was much enlarged, and begin-

ning to ulcerate. His countenance was fallen, and his ſtrength ſeemed to be declining.

CASE X.

Ann Wood, aged 30 years, was admitted an in-patient of the General Infirmary, in February 1802, under the care of Mr. Logan, on account of a large tumour at the extremity of the fore-arm near the wriſt; and gave the following account of her caſe:

About ten months before her admiſſion, ſhe began to feel pain in the wriſt of her arm, attended with great weakneſs, but no ſenſible tumefaction of the part. About two months after this attack, ſhe perceived a ſmall tumour, near the end of the radius, about the ſize of a marble, which gradually increaſed in bulk. About five months before her admiſſion, a ſeton had been put through the tumour by a ſurgeon whom ſhe then conſulted. After this, the tumour grew more rapidly, and by degrees an excoriation took place in ſome parts of the tumour, which were more prominent than the reſt. Three months before her admiſſion, a hæmorrhage took place from one of theſe excoriated parts, at which time ſhe loſt about eight ounces of blood. The tumour had

bled

bled repeatedly ſince that time, but never to ſo great a quantity at once.

Mr. Logan called a conſultation of the ſurgeons of the Infirmary, at which it was determined to amputate the arm below the elbow, as the parts above the tumour appeared to be in a ſound ſtate. The tumour was not meaſured, but it was about the ſize of a moderate melon.

When divided after amputation, the contents were of an aſh-colour, though ſomewhat variegated. To the touch they felt greaſy, like the brain. A part of the radius, at its inferior extremity, about two inches in length, was wanting. The ulna was whole, and remained covered with its perioſteum, though the tumour lay in contact with it.

The integuments were kept in contact by means of the interrupted ſuture, and the wound was completely healed on the 13th day after amputation.

When I conſider that this diſeaſe had ſubſiſted two months, cauſing pain and weakneſs in the arm, before any tumefaction was perceived by the patient; that the tumefaction was of ſmall extent at its firſt appearance; that the perioſteum and bone had been deſtroyed by the diſeaſe in that part where it had commenced;

menced; and that neither the bone nor the perioſteum of the ulna appeared to be injured by it, though the fungus lay evidently in contact with the latter; I am inclined to think, that the diſeaſe, in this caſe, originated in the bone, or at leaſt within the perioſteum. It deſerves to be conſidered, whether in a ſimilar caſe, it would not be the beſt practice to open the tumour at its firſt appearance. This ſeems to be the only method of preventing the dreadful ravages, which we ſee this diſeaſe is capable of making, when left to itſelf. But I am far from being ſanguine, that even this method, together with the removal of what might appear morbid within the tumour when opened, would effectually prevent the growth of this obſtinate fungus.

I have now ſeen ſixteen or ſeventeen caſes of this diſeaſe, and perhaps many more, when I was not ſufficiently aware of its nature, and have not been able to effect a cure in any inſtance, but by amputation of the limb, when the ſeat of the diſeaſe was in the extremities. A few years ago, I amputated the arm of a middle aged man below the elbow, who had a tumour exactly ſimilar to that laſt deſcribed, but the ſtate of the bone was not examined, nor did I examine it in the caſe of Mr. Ward

(Caſe

(Caſe VI.) having ſeen no affection of the bone from it at that time.

If I do not miſtake, this diſeaſe not unfrequently affects the globe of the eye, cauſing an enlargement of it, with the deſtruction of its internal organization. If the eye is not extirpated, the ſclerotis burſts at the laſt; a bloody ſanious matter is diſcharged, and the patient ſinks under the complaint.

When the diſeaſe occupies merely the adipoſe or cellular membrane lying upon the ſurface of the muſcles, the tumour is not uſually painful in its beginning, nor does it impede the motion of the muſcles on which it is ſeated. But when deep ſeated in the limbs, it cauſes pain and weakneſs of the part affected. Mrs. Dean found conſiderable pain from the growth of the tumour in the mamma.

The fungus, as it increaſes in bulk, does not render the integuments uniformly thin, as in the caſe of an abſceſs. In one part the tumour, when preſſed with the hands, will afford the ſenſation of a deep ſeated fluid, while another part feels hard and uneven. In Mrs. Dean's caſe, there was a ſenſation as if ſome fibres were broken, when the tumour was handled with preſſure.

In an advanced ſtage of the diſeaſe, the integuments,

teguments, and aponeuroſis of the muſcles, (if the fungus is ſituated beneath this part) are burſt open, and the fungus which riſes through the aperture ſometimes appears black, like a maſs of coagulated blood. At other times the appearance more reſembles an excoriation. Under both theſe circumſtances hæmorrhages enſue.

In this proceſs, the integuments do not become uniformly thin, and of a red colour, as when purulent matter is making its way; but they continue to feel thick as uſual round the fungus that has burſt through them.

This fungus is an organized maſs, and bleeds wherever it is broken.

When the parts containing the fungus are divided, they are found to be in a morbid ſtate. The adipoſe membrane forms a great number of pouches, filled with the fungus, upon the removal of which the pouches bleed copiouſly, from every part of their internal ſurface.

Wherever the fungus comes into contact with the muſcles, they loſe their natural redneſs, and become brown. They alſo loſe their fibrous appearance, and cannot in every part be diſtinguiſhed from the adipoſe membrane,

To face Page 285.

PL. *7.*

brane, though a diſtinction is in general evident.

The growth of this fungus cannot always be repreſſed by the ſtrongeſt eſcharotics. Neither the hydrargyrus nitratus ruber, the hydrar. muriatus, the antimon. muriatum, nor the undiluted vitriolic acid, have been ſufficient for this purpoſe.

The annexed plate was engraved from a reduced copy of a drawing, which Mr. Logan had procured to be taken from one of his patients in the Leeds Infirmary, afflicted with the *Fungus hæmatodes* upon his arm. The circumference of the tumour, including the arm, meaſured thirty-three inches. The ſituation of the tumour rendered amputation impracticable, and the diſeaſe of conſequence proved fatal.

CHAP. V.

On Dislocations.

THOUGH the reduction of diſlocated bones is not ranked amongſt the moſt difficult operations of ſurgery; yet caſes ſometimes occur in which an experienced Surgeon may find reduction to be an arduous taſk, or may even be foiled in the attempt. A few obſervations on this branch of ſurgical practice, may not, therefore, be unacceptable to the young practitioner.

The *diſlocation of the os humeri* at the ſhoulder, is the moſt frequent ſpecies of diſlocation, which calls for the aid of the Surgeon.

Before the reduction is attempted, that part of the arm to which the extending power is to be applied, ſhould be well defended with ſome ſoft ſubſtance, otherwiſe the patient feels much unneceſſary pain in the operation. Soft leather, quilted with wool, forms a convenient defence; but I generally make uſe of a long flannel roller, as being the moſt readily obtained,

tained, with which I cover the lower part of the arm, and upper part of the fore-arm.

Mr. Lucas, when he was my colleague at the General Infirmary at Leeds, ſhewed me a method of applying a towel for the purpoſe of extenſion, which is the moſt convenient that I have ſeen; but the deſcription upon paper is ſomewhat difficult.

Take a piece of linen or callico, about three yards in length, and half a yard in breadth; fold this longitudinally till it is reduced to about three inches in breadth; then place its middle part in an elliptical form, as in Plate VIII. figure 2, and put IX the elliptical part round the limb, till the parts *h*. *i*. come nearly into contact with each other. Then put the tail *f*, through the nooſe at *i*, and the tail *g*, through the oppoſite end of the nooſe at *h*, by which means the elliptical part muſt be drawn tight round the limb, and the tails of this bandage muſt be uſed as the means of extenſion.

If the head of the os humeri remains in the axilla, and not far removed from the glenoid cavity, the reduction may ſometimes be executed with a very ſmall degree of extenſion, as in the following caſes.

CASE

CASE I.

In the ſummer 1772, a corpulent woman fell from a chair, on which ſhe was ſtanding, for the purpoſe of hanging up ſome linen to dry, and diſlocated her ſhoulder. After I had put every thing in proper order for the reduction, I deſired the aſſiſtants, who were to make the extenſion, to keep the arm elevated at a right-angle with the body, till I ſhould direct them to begin the extenſion. In doing this, they kept the arm a little upon the ſtretch, waiting for my orders. While the arm was in this ſtate, I placed my fingers below the head of the bone, that I might be ready to co-operate with them; and preſſing my fingers upwards into the axilla, that I might feel the head of the bone diſtinctly, the reduction was unexpectedly made by this gentle effort.

The reſult of this caſe determined me to try, whether reduction might not ſometimes be effected with leſs extenſion than is commonly uſed, and conſequently with leſs pain to the patient than is generally experienced.

It appeared to me, upon reflection, that the muſcles, when ſo far ſtretched as to be rendered painful, begin to re-act, and to reſiſt

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the efforts made for their farther elongation, I thought it probable, therefore, that a greater degree of extenſion might be produced before the re-action took place, if the extenſion were made very ſlowly; and that the re-action might grow leſs, or even ceaſe, after it had begun to take place, if the arm were kept in a moderate, but not painful, degree of extenſion for ſome time, before any attempt was made to puſh up the head of the bone into its articular cavity. By acting upon this principle, I have ſeveral times reduced a luxated os humeri, with the aſſiſtance of very little extenſion. I cannot ſay that this method has always ſucceeded, but it certainly deſerves to be tried; and I am inclined to think, that much extenſion is ſeldom neceſſary when the head of the bone remains in the axilla. In all caſes, the more ſlowly the extenſion is made, the more will the reſiſtance of the muſcles be eluded; the probability of ſucceſs will be increaſed, and the patient will not ſuffer any degree of unneceſſary pain.

CASE II.

In January, 1773, an elderly man diſlocated the os humeri at the ſhoulder, by falling from

a plank which ſerved as a bridge to a ditch. After I had faſtened the towels upon the arm, and given directions to the aſſiſtants, I examined the ſituation of the head of the bone in the axilla, before I gave them orders to begin the extenſion. They put the arm, however, a little upon the ſtretch in holding it by the towels; and the gentle preſſure which I made in feeling for the head of the bone produced the reduction.

I once ſaw a luxated ſhoulder reduced by the mere efforts of the patient.

CASE III.

In May, 1774, I was called to an elderly man who had diſlocated his ſhoulder by falling as he was walking. He was very uneaſy while I was making the neceſſary preparations, after I had aſcertained the exiſtence of the diſeaſe. He walked about the room, putting his arm into various poſitions, to procure a little eaſe. With this view he placed his hand upon the back of a low chair, and moving his body in different directions, he ſuddenly cried out, as if hurt more than uſual. He then ſat down, and ſaid, that he was eaſy, and could move his arm better. As ſoon as my apparatus

was

was ready, and I had taken hold of his arm for the purpoſe of fixing the towels, I was ſurpriſed to find that the os humeri was reduced. There was now a natural roundneſs in the ſhoulder below the acromion, though before a hollow was felt upon preſſing the deltoid muſcle. His elbow, which before ſtood at a diſtance from his body, could now be preſſed to his ſide with eaſe.

When the head of the bone has deſerted the axilla, and has ſlipped under the pectoral muſcle, I have obſerved, that it is brought back into the axilla the more readily, if the extenſion is made in a direction oppoſite to that in which it has paſſed from the axilla. This effect is often greatly promoted by making the extenſion with the arm elevated, as Mr. White has adviſed. But when the head of the bone has advanced far under the pectoral muſcle, ſtrong extenſion, by cloſing the paſſage through which the protuberant part of the bone ſhould return, often prevents, inſtead of promoting, reduction. A more ſucceſsful method of managing theſe caſes will be mentioned in the ſequel.

The following inſtances of difficult reduction may afford ſome inſtruction and encouragement to the young practitioner.

CASE IV.

In October, 1773, a ſtout man was brought into the Infirmary, with a luxation of the ſhoulder-joint. The head of the os brachii lay deep under the coracoid proceſs of the ſcapula. I firſt tried the method which I had moſt commonly uſed in this caſe, which was as follows: the body being ſupported, and a counter extenſion made, by means of a broad towel put round the thorax of the patient, the extenſion of the arm was made by three or four men, firſt in a direction at right angles to the body, and when the extenſion was in its greateſt degree, by pulling the arm towards the ground at an acute angle to the body, while I attempted to raiſe the head of the bone by my hands, placed as near it as I could. This method failed; ſo did that with the heel in the axilla. I then drew up the man a little from the ground by means of vertical pullies, and by this extenſion the head of the bone was brought into the axilla, ſo that it could be readily felt through the integuments, but could not be puſhed into the articular cavity. I repeated the method firſt tried, but in vain. I ſucceeded at laſt by the

following method, which is nearly that recommended by Dr. Kirkland*:

I placed my patient on a cuſhion upon the ground, and put a towel under his arm near the ſhoulder, which went over my ſhoulders. His arm was put betwixt my thighs; and the aſſiſtants, who ſat on the floor behind me, made the extenſion with towels affixed to the arm and fore-arm.

When the extenſion was made to the degree which I judged neceſſary, I raiſed up the head of the os brachii by means of the towel which was ſuſpended upon my ſhoulders, and at the ſame time depreſſed the other end of the bone, by placing my hands upon it. By this method the reduction was effected.

CASE V.

September 22d, 1774, I was called upon early in the morning to viſit Thomas Walker, of Woodlesford, a ſtrong muſcular man, and a ſtone-maſon by trade, who had been thrown from his horſe the preceding evening, and had been dragged for a hundred yards or upwards

* Obſervations upon Mr. Pott's general Remarks on Fractures, &c. p. 60.

by his foot hanging in the ſtirrup. His left arm was diſlocated at the ſhoulder, and the head of the bone was lodged deep in the axilla, beneath the coracoid proceſs of the ſcapula.

I firſt tried to reduce the bone by Dr. Kirkland's method, but in vain. I then directed the extenſion to be made in a vertical poſition of the arm, as Mr. White adviſes*, until the patient was raiſed from the ground, and immediately tried to reduce the bone with the heel in the armpit, but to no purpoſe. I made ſeveral other attempts, making the extenſion ſometimes with the fore-arm at right angles to the os humeri, ſometimes with the whole arm extended, varying alſo the direction of the extenſion. All my attempts were ineffectual. I deſired my patient to come to Leeds, that I might have the advantage of a pully, and the aſſiſtance of my colleagues at the Infirmary. About eight ounces of blood had been taken from the arm before I was called. I directed a repetition of the bleeding, and the uſe of the warm bath, as ſoon as he ſhould arrive at Leeds. I called a conſultation at three in

* Caſes in Surgery, 95; or Med. Obſervations and Inquiries, vol. 2. 373.

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the afternoon, and was favoured with the aſſiſtance of Meſſrs. Billam, Jones, and Lucas, at the Infirmary.

The blood had been drawn as I directed, but he had not been put into the warm bath.

Our firſt trial was made by raiſing the patient from the ground by a cord, paſſing over two vertical pullies, and faſtened to the arm above the elbow by ſuitable ſtraps. I tried to puſh the head of the bone into its ſocket while he remained in this ſtate of ſuſpenſion, but I could not effect it. Mr. Billam tried with his heel in the armpit, having a clue of cotton previouſly placed in the axilla: upon this clue was put the middle part of a long towel, the extremities of which I took hold of, lying upon the ground, with my foot placed upon the acromion ſcapulæ. When Mr. Billam made his extenſion, I aſſiſted by a counter extenſion, puſhing downwards the acromion, and elevating the head of the os humeri. This attempt alſo proved fruitleſs. We then repeated the ſuſpenſion, intending to uſe Dr. Kirkland's method as ſoon as he ſhould be let down. As we were removing the ſtraps from his arm, Mr. Jones ſuggeſted the idea of letting his arm fall down, without any farther extenſion. This was done

in a gentle manner, but ſo that the arm fell by its own weight. In this motion, the head of the bone ſlipped into its ſocket, but I did not perceive any jerk or ſound as is uſual in the reduction of diſlocated bones. As a good deal of force had been uſed in this caſe, it was thought prudent to take four ounces more of blood from him. He ſlept well that night, and the next day was pretty eaſy.

CASE VI.

September 22d, 1775, a middle-aged man from Aldborough near Boroughbridge, was admitted a patient of the General Infirmary, on account of a diſlocation of the os humeri, at the ſhoulder, which had happened a month before his admiſſion. The head of the bone lay behind the thick part of the pectoral muſcle, and below the coracoid proceſs of the ſcapula. Some attempts had been made to reduce the bone immediately after the accident, but without ſucceſs.

After he had lain in the warm bath about twenty minutes, the following methods were uſed to effect the reduction: After the arm was properly defended, ſtraps, to which cords were affixed, were faſtened by buckles, upon the

the lower part, and he was drawn up gently from the ground by the help of pullies. Repeated trials by this method produced no ſenſible effect. We then uſed Freke's improved Ambi, and at one trial the bone ſuddenly advanced as if a reduction had taken place; but repeated efforts in this method had not the deſired effect. We next made uſe of the methods recommended by Dr. Kirkland and Mr. White, placing a towel round the operator's neck, and holding back the inferior part of the ſcapula by means of a roller covered with cloths. Mr. Lucas and Mr. Jones afterwards tried to reduce the bone by the heel in the axilla, and Mr. Lucas perceived a noiſe during one effort, as if the bone had returned to its place. While the laſt method was in uſe, it occurred to me, that extenſion made in a direction parallel to that of the body was not likely to ſucceed, while the head of the bone lay ſo deeply ſunk, and behind the pectoral muſcle. I therefore adviſed, that one perſon ſhould extend the arm at right angles to the body, by the hold of the fore-arm, placing his foot againſt the ſide of the patient's thorax. In this way, the perſon making the extenſion would not only have a firm ſupport, but would

would alſo be enabled to repreſs the lower part of the ſcapula by his heel placed againſt it. That during this extenſion, another perſon, lying by the ſide of the patient, ſhould place his heel againſt the upper part of the os humeri, as near to its head as poſſible, and ſhould puſh it in a direction parallel to that of the patient's body. By this method, the bone altered its ſituation with ſuch a noiſe as is uſually heard in reductions, and we concluded, that the head of the bone had re-entered the ſocket; but when the arm was brought cloſe to the patient's ſide, we found that the head of the bone was ſtill in the axilla. This appearance of ſucceſs encouraged us, however, to repeat the operation, but the event was the ſame. We now imagined, that ſome portion of the capſular ligament might be folded ſo as to be intercepted between the head of the bone and the glenoid cavity, into which we judged the bone to have been twice brought. On this ſuppoſition, after making the reduction the third time, the os humeri was moved in various directions, ſometimes upon its own axis, ſometimes upwards and downwards, before we attempted to bring the arm towards the patient's ſide. Alſo, while the extenſion

was

was continued, a flattened ball of tow was thruſt up into the axilla by the heel, to prevent the head of the bone from retiring again into the axilla; the arm was then brought into contact with the patient's ſide, the extenſion being continued, though in a different direction, and the heel being gradually withdrawn as the arm approached the ſide. By theſe means the reduction was completed and confirmed. As the tendency to diſlocation was ſo great, the arm was kept for a few days in contact with the ſide by a piece of girth web put round the arm and the body of the patient, who was diſmiſſed cured.

REMARK.

I have uſed with advantage the method juſt mentioned of preventing diſlocation, when the tendency to it has been very great.

Mr. Birkes of Rothwell, had the misfortune to diſlocate the os humeri at the ſhoulder, three times in the courſe of a few years. The laſt of theſe accidents was produced merely by a horſe lifting up his head while he was putting on the bridle. His arm being hereby elevated ſuddenly, the head of the os humeri was thrown out of its ſocket. I therefore adviſed

adviſed him to wear a bandage round his arm and body, which ſhould not ſuffer the arm to recede ſo far from his ſide as to admit of a luxation. He wore this for ſeveral years, and thereby prevented a repetition of the accident.

CASE VII.

October 22d, 1793, Mr. D. aged ſixty years, and a ſtrong muſcular man, was brought to my houſe in the evening from A. about fifteen miles from Leeds, on account of a luxation of the right os humeri, which had happened the preceding evening by a fall from his horſe. Attempts had been made in vain by an eminent ſurgeon to reduce the bone. The head of the os humeri was ſunk under the thick part of the pectoral muſcle. After trying to effect the reduction while my patient ſat in a chair; and finding, that in this way I could not bring the head of the bone ſo far into the axilla as to feel it diſtinctly, I placed him upon the carpet on the floor, with his right ſide towards a table, on which ſtood two aſſiſtants. By means of towels faſtened round, or rather above, the condyles of the os humeri, they raiſed his breech from the floor. The extenſion made

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by this effort in a vertical direction, drew the head of the bone into the axilla. It ſeemed to advance as far as the acromion, and gave a ſnap againſt the acetabulum, ſo that I concluded the head of the bone had ſlipped into the ſocket. Upon letting the arm fall, I found, however, that the bone was not reduced. I then attempted the reduction with the heel in the armpit, and afterwards in Dr. Kirkland's method, but without ſucceſs.

I now took eight ounces of blood from Mr. D. and ſent him to his inn in a chair; directing the application of a bread and milk poultice to the ſhoulder. A ſolution of the bitter cathartic ſalt was alſo given.

After Mr. D. had left my houſe it occurred to me, that as the vertical extenſion had brought the head of the bone into contact with the acetabulum, I ſhould probably have ſucceeded in the reduction, if the aſſiſtants had moved forwards while the arm was in a ſtate of extenſion, and had thereby inclined it a little towards the horizontal poſition.

23d. In the morning I took Mr. D. to the Infirmary, where Mr. Lucas and Mr. Logan met me at my requeſt. Before any attempts were

were made to reduce the bone, ſix ounces of blood were drawn from the arm, while Mr. D. ſtood upright, with the view of producing ſome ſickneſs by the operation; but the evacuation did not ſenſibly affect him.

Mr. Lucas having ſaid upon a former occaſion that he had not failed in his attempts to reduce a luxated ſhoulder ſince he had applied the towels in the manner already deſcribed; an attempt was made while Mr. D. ſat in a chair, Mr. Lucas holding back the inferior part of the ſcapula. This trial failed of ſucceſs. The arm was afterwards extended in a vertical direction by means of pullies.

I then put in practice the method which had the preceding evening given the greateſt hopes of ſucceſs, with the additional movements that had occurred to me after Mr. D. had left my houſe. Two towels were faſtened round the arm, as before, juſt above and upon the condyles of the os humeri; the fore-arm being placed at right angles to the arm, and ſupported in that poſition by an aſſiſtant. Each towel was held by a perſon ſtanding on the counter of the ſhop, while Mr. D. ſat upon a carpet ſpread on the floor. I directed the aſſiſtants to elevate Mr. D. gently from the floor,

and,

and, while he remained elevated, to move ſlowly forwards in the direction in which his face was placed. By this method the arm was first extended vertically, and then with an angle, gradually approaching towards a horizontal poſition. I ſtood behind my patient, placing two fingers of each hand in the axilla, ready to puſh upwards the head of the bone, when I ſhould feel it advanced ſufficiently in the axilla. Before the arm was brought down to an angle of 45 degrees with the horizon I made the requiſite preſſure upwards, and the head of the bone paſſed into its ſocket.

Mr. D. ſtaid at Leeds till the next day, and ſeemed to have ſuffered leſs from the various attempts to reduce his arm, than one might have expected. He ſoon regained the uſe of his arm.

Farther experience alone can determine whether this method of reduction is ſuperior to thoſe which I have mentioned before. It has this advantage, that it requires a very ſmall number of aſſiſtants. One ſtout man, or two at the moſt, will ſuffice for elevating a luſty perſon from the floor in the manner directed.

Whether,

Whether, in the former difficult caſes which I have related, the frequent extenſion of the muſcles had brought them into a ſtate of debility and non-reſiſtance, and had thereby made our laſt efforts ſucceſsful; or whether our last efforts were accidentally better adapted to elude the difficulties which oppoſed the reduction, I ſhall leave to the judgment of the reader. Perhaps both theſe cauſes might contribute to our ſucceſs.

It will be obſerved, that in ſeveral of the caſes above recited, the counter extenſion was applied ſo as to preſs back the inferior angle of the ſcapula, and depreſs the acromion. This is contrary to the directions given by Mr. Bromfield in his Chirurgical Obſervations, who uſed to cauſe the acromion to be puſhed backwards, ſo that the glenoid cavity might be ſeparated as far as poſſible from the head of the os brachii during the extenſion. Theſe different methods of practice merit an attentive compariſon, that it may be decided on which ſide the ſuperiority lies.

It is not completely ſettled amongſt Surgeons whether the fore-arm, during the extenſion, ought to be in a right line with the arm, or at

at right angles to it. Mr. Pott* and Mr. Thompſon† ſtrongly recommend the latter; while Mr. White‡ is clearly of opinion that the former is preferable. Experience has not determined my mind on this point. My common method is to bend the fore-arm to a right angle with the arm; but in ſome of the moſt difficult caſes which I have ſeen, ſucceſs attended the attempts when the fore-arm was in a right line with the arm.

If, in a diſlocation of the ſhoulder, the tendon of the long head of the biceps muſcle is not torn from its groove in the os humeri, I ſhould conjecture a priori, that the ſtretching of this tendon, by the extenſion of the fore-arm, would contribute to bring the head of the bone into contact with the glenoid cavity, as the tendon paſſes from the head of the bone to the neck of the ſcapula over that cavity. But if the tendon is torn intirely from its groove, it may be ſo ſituated as to form an impediment to the reduction, and in that caſe the relaxed ſtate of the biceps muſcle would be preferable. Mr. Thompſon found the tendon ſo much removed from its

* Pott's Works, vol. i. p. 468. 8vo. edit.

† Med. Obſ. and Inquiries, vol. ii. p. 344.

‡ White's Caſes, p. 109.

place, and ſo much ſtretched by a præter-natural curvature, that the fore arm could not be brought to a right line with the arm. When this is the caſe, it is undoubtedly proper to keep the biceps muſcle relaxed during the extenſion.

If the fore-arm can be eaſily brought to a right line with the arm during the ſtate of diſlocation, and the ſurgeon wiſhes to make the extenſion with the fore-arm in that direction; he may ſtill conveniently apply the extending power to the diſlocated bone, and prevent any injury to the joints of the elbow or wriſt, by fixing the fore-arm in an extended poſition, by means of a flannel roller paſſed round the elbow, and then applying the towels juſt above the condyles of the os humeri.

Opportunities of diſſecting the ſhoulder during a ſtate of diſlocation are ſo rare, that we ſtill remain ignorant of the preciſe nature of the injury, done to the ſeveral parts concerned, in ordinary caſes. Mr. Thompſon found the capſular ligament intirely torn off from the neck of the os humeri, the bone broken, and a ſhell of it torn off by the tendons of the ſupra & infra ſpinatus muſcles. It appears alſo, that the long tendon of the biceps muſcle was torn from its groove, though

though he does not expreſsly ſay ſo. But we can ſcarcely imagine that ſo much injury is done to the bone in every diſlocation. Dr. Hunter was of opinion, from conſidering the ſtructure of the joint, and from experiments made upon dead bodies, that the capſular ligament was lacerated in every diſlocation of the ſhoulder; but he did not carry his opinion ſo far as to ſuppoſe that the ligament was always torn away from the neck of the os humeri, as in Mr. Thompſon's caſe, and as Dr. Kirkland afterwards obſerved in ſome experiments made upon brutes. It is remarkable, that no inſtance of diſlocation of the os humeri ſhould have been found among the great number of bodies examined by that excellent anatomiſt Morgagni. He mentions one inſtance of a luxation of the os femoris, but gives no other deſcription of the ſtate of the joint than that he found the round ligament relaxed.*

I once ſaw a compound diſlocation of the os humeri, the head of the bone being puſhed through the integuments in the axilla, and in

* Quod ad femur attinebat, revera luxatum inventum eſt, laxato videlicet eo ligamento quo femoris caput intra innominati oſſis acetabulum alligatur.
Epiſt. LVI. Art. 7.

that caſe the long tendon of the biceps was torn from its groove in the neck of the bone; the tendons of the ſupra & infra ſpinatus muſcles were alſo ſeparated from the bone, and had torn off a large ſhell of bone, as in the caſe related by Mr. Thompſon.

Since the preceding obſervations were written, three caſes of diſlocated os humeri have occurred at the General Infirmary, in which a method of reduction was uſed with ſucceſs, which may probably prove beneficial, when the head of the bone is found lying behind the pectoral muſcle.

CASE VIII.

Henry Baldwin, aged ſixty-two years, was admitted a patient of the General Infirmary, January 23d, 1801, for a diſlocation of the ſhoulder. The head of the os humeri lay behind the pectoral muſcle at a conſiderable diſtance from the glenoid cavity of the ſcapula. Very powerful extenſion, in a variety of directions, was uſed without ſucceſs. We could not, either by vertical or horizontal extenſion with pullies, bring the head of the bone into the axilla. After repeated fruitleſs trials,

trials, I directed that eight ounces of blood ſhould be taken from the ſound arm; that the patient ſhould be put into the warm bath; that a purgative ſhould be given, and a mild poultice applied to the ſhoulder till the next day.

Theſe means removed the ſoreneſs occaſioned by the extenſion, and the next day the patient found himſelf as eaſy as he had been before the extenſion was uſed.

As the head of the bone lay at a conſiderable diſtance from the ſocket, I was apprehenſive that the extenſion of the pectoral muſcle might have cauſed a ſtricture upon the neck of the bone, and thereby prevented the head from returning into the axilla. I determined therefore to try what a gentle motion of the bone in various directions, accompanied with a ſlight extenſion, would effect.

While I was uſing this method, without the aid of any aſſiſtant, my colleague, Mr. Chorley, who was with me, put his hand upon the head of the bone, which he could feel through the pectoral muſcle, and thruſt it towards the cavity of the joint. Our motions happening to correſpond, the head of the bone paſſed eaſily into the axilla, and was then reduced without difficulty, two aſſiſtants

making the extenſion while I preſſed upwards the head of the bone.

CASE IX.

John Brooksbank, aged ſixty, and of a thin habit, was admitted March 9th 1801, under the ſame circumſtances. Mr. Logan, whoſe patient he was, after ſome ineffectual attempts to reduce the bone by ſtrong extenſion, made uſe of the method which had ſucceeded in the preceding case. He moved the bone in various directions, while I preſſed the head of it towards the glenoid cavity, into which after a few trials, it entered, and the patient was diſmiſſed cured.

The ſame method of reduction was uſed with ſucceſs in the caſe of a middle-aged man, who was brought to the Infirmary in December laſt, with a diſlocation of the os humeri, the head of which lodged behind the pectoral muſcle. Preſſure upon the head of the bone, aſſiſted by gentle extenſion, brought it into the axilla, and the reduction was then eaſily effected.

It will readily be conceived, that violent extenſion of the muſcles may often cloſe up the ſpace through which the head of a diſlocated

cated bone ſhould return, when it has been driven to a great diſtance from its acetabulum, and when this is the caſe, preſſure made upon the head of the bone, with moderate extenſion, muſt be a more ſuitable method of practice than the moſt violent extenſion.

I had uſed this method with ſucceſs in a diſlocation of the os femoris, nineteen years before the laſt recited caſes occurred, as will be ſeen in the next caſe.

Of the Diſlocation of the Os Femoris.

A diſlocation of the os femoris at the hip-joint may happen two ways, either forwards and downwards, or backwards and upwards. My meaning is, that I have ſeen it happen in theſe two ways; for I leave to others the taſk of deſcribing diſeaſes which they have not ſeen. Inſtances of both theſe kinds of diſlocation are rare. I have ſeen but three inſtances of each in a courſe of forty-three years' practice, though during thirty-four years of that period, I have attended an Infirmary in which caſes of accident are numerous. I will deſcribe the ſymptoms of both theſe ſpecies of diſlocation, and the method of reduction uſed in

each caſe, as clearly as I can; and I hope the young practitioner, whoſe anatomical knowledge is not defective, may obtain ſome uſeful information from theſe deſcriptions.

One caſe, where the bone was diſlocated backwards, was of ſo long ſtanding, that it was judged to be incurable. The other two caſes were recent, and were treated with ſucceſs in the ſame manner; ſo that the recital of one caſe will afford all the information that I can give on the ſubject.

CASE X.

In July 1782, a middle aged, and pretty ſtrong, man, was brought into the General Infirmary, who, by the fall of a waggon against him, had ſuffered the diſlocation of the right os femoris backwards and upwards.

The inferior extremity on the affected ſide had an awkward appearance. It was conſiderably ſhorter than the correſponding limb. The toes were turned inwards. The thigh would not admit of a rotatory motion on its own axis. The limb could not be extended without pain to the patient. When he was laid in a prone poſition, the head of the os femoris might be felt through the glutæus

maximus, and nearly about the centre of that muscle.

According to the beſt judgment which I can frame from the anatomy of the parts, I ſhould conceive, that the head of the bone lay at the edge of the ſacro-ſciatic notch, near the inferior and poſterior edge of the glutæus medius. In this poſition, as the anatomical reader will readily conceive, the head of the bone lay toward the ſpine, and the great trochanter towards the ſide of the patient. There was no apparent contuſion on the hip.

To effect a reduction in this caſe it was evident, that the extenſion of the limb muſt be made in a right line with the trunk of the body, and that, during the extenſion, the head of the bone muſt be directed outwards as well as downwards. It appeared alſo, that a rotatory motion of the os femoris on its own axis towards the ſpine (the patient lying prone) would elevate the great trochanter, would bring it nearer to its natural poſition, and direct the head of the bone towards the acetabulum. Theſe circumſtances being well weighed in conſultation, it was determined to proceed in the following manner:

A folded blanket was wrapped round one of the bed-poſts, ſo that the patient, lying in a prone

a prone poſition, and aſtride of the bed-poſt, might have the affected limb on the outſide of the bed. The bed was rendered immovable, by placing it againſt a ſmall iron pillar, which had been fixed for the purpoſe of ſupporting the curtain rods. The leg was bent to a right angle with the thigh, and was ſupported in that poſition by Mr. Lucas, who, when the extenſion ſhould be brought to a proper degree, was to give the thigh its rotatory motion, by puſhing the leg inwards, that is, towards the other inferior extremity. Mr. Jones ſat before the patient's knee, and was to aſſiſt in giving the rotatory motion, by puſhing the knee outwards at the ſame moment. I ſat by the ſide of the patient, to preſs the head of the bone downwards and outwards during the extenſion. Two long towels were wrapped round the thigh juſt above the condyles, one towel paſſing on the inſide of the knee, the other on the outſide. Three perſons made the extenſion; but when we attempted to give the thigh its rotatory motion, we found it confined by the towel which paſſed on the inſide of the knee and leg. We therefore placed both the towels on the outſide; and in this poſition the extending force concurred in giving the rotatory motion. The firſt effort

that

that was made, after the towels were thus placed, had the desired effect, and the head of the bone moved downwards and outwards into the acetabulum.

The man recovered very well.

Thirty years had nearly elapsed, after the opening of the General Infirmary at Leeds, before any patient was brought to it with a dislocation of the thigh forwards and downwards. Nor had I, during a period of thirty-eight years, seen that accident in my private practice. During the year 1797, three patients were brought into the Infirmary, who had suffered this accident. Though I had never seen this disease, yet I had carefully considered it, and had determined to act, when called upon, according to the method laid down by Dr. Kirkland, the only author who had given me any satisfactory ideas upon the subject. I communicated these ideas to my colleagues, when this case first occurred; and meeting with their approbation, a method similar to that recommended by Dr. Kirkland was pursued with success in all the patients.

In this species of dislocation, as the head of the bone is situated lower than the acetabulum,

bulum, it is evident, that an extenſion made in a right line with the trunk of the body, muſt remove the head of the bone farther from its proper place, and thereby prevent, inſtead of aſſiſting, reduction. The extenſion ought to be made with the thigh at a right angle, or inclined ſomewhat leſs than a right angle, to the trunk of the body. When the extenſion has removed the head of the bone from the external obturator muſcle, which covers the great foramen of the os innominatum, the upper part of the os femoris muſt then be puſhed or drawn outwards; which motion will be greatly aſſiſted by moving the lower part of the os femoris, at the ſame moment, in a contrary direction, and, by a rotatory motion of the bone upon its own axis, turning the head of the bone towards the acetabulum.

Before I relate the manner in which theſe three motions were effected, and combined, it will be proper to deſcribe the ſymptoms which indicated the exiſtence of this diſlocation. The appearance of the affected parts in all the three patients was ſo exactly ſimilar, that the deſcription of any one of them will be ſufficient. The head of the bone ſeemed removed to a ſomewhat greater diſtance from

the

the acetabulum in one patient, whoſe caſe I ſhall now deſcribe.

CASE XI.

Auguſt 6th, 1797, Simeon Slack, aged twenty-one years, was brought into the Infirmary, on account of a diſlocation of the right os femoris, occaſioned by a fall from his horſe. He was immediately put to bed, and placed in the poſition moſt eaſy to him. I found him lying upon his back, with his right thigh ſtretched outwards, and reſting upon a pillow, with his knee bent. Any attempt to bring the thigh nearer to a right line with the trunk of the body, gave him great pain, nor could it be brought nearer to a right line, without making a conſiderable extenſion.

The right thigh appeared much thicker than the left, at its ſuperior and interior part. The muſcles were here upon the ſtretch. The hollow which may uſually be felt between the flexor and extenſor muſcles, at the upper part of the thigh, was in this caſe filled up. The head of the bone could not be diſtinctly felt through the muſcles, yet from the appearance, and the touch, it was ſufficiently evident, that the head of the bone lay upon the great foramen of the os innominatum. It

ſeemed

ſeemed probable, that it had receded ſo far from the acetabulum as to be in contact with the deſcending part of the os pubis.

There was a conſiderable hollow at the upper and outer part of the thigh, where the great trochanter is uſually felt projecting.

The right thigh appeared to be three or four inches longer than the left.

The foot of the affected limb was not turned outwards with reſpect to the knee, but maintained its uſual relative poſition.

The following method of cure was put in practice with ſucceſs:

The lower bed-poſt, on the right ſide of the bed on which the patient lay, was placed in contact with a ſmall immovable iron pillar (about an inch ſquare in thickness), ſuch as in our wards are uſed for ſupporting the curtain rods of the beds. A folded blanket being wrapped round the bed-poſt and pillar, the patient was placed aſtride of them, with his left thigh cloſe to the poſt, and his right thigh on the outſide of the bed. A large piece of flannel was put between the blanket and the ſcrotum, that the latter might not be hurt during the extenſion.

The patient ſat upright, with his abdomen in contact with the folded blanket which

covered

covered the bed-poſt. He ſupported himſelf by putting his arms round the poſt, and an aſſiſtant ſat behind him to prevent him from receding backwards. He was also ſupported on each ſide.

Two long towels were put round the lower part of the thigh, in the manner before deſcribed, after the part was well defended from excoriation by the application of a flannel roller. The knot, which the towels form, was made upon the anterior part of the thigh, that the motion intended to be given to the leg might not be impeded by the towels.

The thigh being placed in a horizontal poſition, or rather a little elevated, with the leg hanging down at right angles to the thigh, I sat down upon a chair, directly fronting the patient, and directed a gentle extenſion to be made by the aſſiſtants ſtanding at my left ſide. This was done with the view of drawing the head of the bone a little nearer to the middle of the thigh, and the extenſion had this effect. I then placed the two aſſiſtants, who held the towels, at my right ſide, by which means the extenſion would be made in a direction a little inclined to the ſound limb. Mr. Logan ſtood on the right ſide of the patient, with his hands placed on the upper

and

and inner ſide of the thigh, for the purpoſe of drawing the head of the bone towards the acetabulum, when the extenſion ſhould have removed it ſufficiently from the place in which it now lay.

I deſired the aſſiſtants to make the extenſion ſlowly and gradually; and to give a ſignal when it arrived at its greateſt degree. At that moment Mr. Logan drew the upper part of the bone outwards, while I puſhed the knee inwards, and alſo gave the os femoris a conſiderable rotatory motion, by puſhing the right leg towards the left. By theſe combined motions the head of the os femoris was directed upwards and outwards, or, in other words, directly towards the acetabulum, into which it entered at our firſt attempt made in this manner.

The ſcrotum, as the patient aſſured me, was not hurt in the leaſt by the extenſion.

The other two patients, who were brought to the Infirmary in March preceding, had been treated on the ſame principle, but every ſtep in the operation was not ſo diſtinctly marked. The firſt was a boy, whoſe thigh was reduced while he ſat upright, and aſtride of the bed-poſt. The ſecond was a man twenty-ſeven years of age, who was not brought to the

Infirmary

Infirmary till the ſixth day after the accident. A bone ſetter had been ſent for the day after the accident, who uſed great force by the aſſiſtance of eight or nine men, as the patient informed us. But as he made the extenſion in a right line with the trunk of the body, he failed of ſucceſs. The patient was rendered ſo ſore by the extenſion, that he could not bear to be removed till the fifth day afterwards.

I placed this patient in a ſupine poſture, upon a bed laid on the floor. The extenſion was made by a ſingle perſon, who ſtood upon a chair, and held the thigh in a vertical poſition, or rather ſomewhat inclined towards the patient's abdomen. The motions given to the os femoris were nearly ſimilar to thoſe which I have deſcribed, and effected the reduction. The patient was able to walk about the ward, without crutches, before the expiration of a week.

In all the three patients the affected limb, immediately after the reduction, was longer than the ſound limb; but gradually regained its proper length.

Of the Diſlocation of the lower Jaw.

The practical obſervations which I have to make on the treatment of this diſeaſe are few; but they may be of ſome uſe to the young practitioner.

One of the condyles of the lower jaw is often diſlocated while the other remains in its proper place, and it is not always eaſy to know when this is the caſe. One would expect, from a conſideration of the ſtructure of the parts, and from the deſcription given in ſyſtems of ſurgery, that the chin ſhould be evidently turned towards the oppoſite ſide; but I have repeatedly ſeen the diſeaſe, when I could diſcern no alteration in the poſition of the chin. The ſymptom which I have found to be the beſt guide in this caſe is, a ſmall hollow which may be felt behind the condyle that is diſlocated, which does not ſubſiſt on the ſound ſide. If the ſurgeon proceeds in the treatment of this partial diſlocation, as if it had taken place in both condyles, he will throw an impediment in the way of the reduction, and perhaps will be foiled in his attempts.

The method of reduction recommended by

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ſome of our beſt writers on ſurgery is, firſt to pull the jaw forwards till it moves ſomewhat from its ſituation, and then to preſs it forcibly downwards, and moderately backwards. The firſt part of this proceſs does not appear to me neceſſary from theory, and in practice I have found it uſeleſs, to ſay the leaſt. I have ſucceeded the beſt by ſimply preſſing the lower jaw downwards, and backwards, with my thumbs placed as near the angles of the jaw as poſſible.

If both ſides of the lower jaw are preſſed upon, while one ſide only is diſlocated; the reduction of the diſlocated condyle is rather prevented. It is the beſt method, therefore, to examine carefully whether both the condyles are diſlocated, before any attempt is made, and to apply the force to that ſide of the jaw only which has ſuffered diſlocation. I am inclined to think, that the application of preſſure to one ſide of the jaw at once will not be injurious, even when both condyles are diſlocated, having repeatedly ſucceeded with eaſe in a complete diſlocation, by reducing the condyles ſingly, after I had made an unſucceſsful effort to reduce them both at the ſame time.

I have known two perſons in whom this

diſlocation frequently happened. Not only yawning, but even opening the mouth incautiouſly in eating would cauſe it.

Of the Diſlocation of the Thumb.

A peculiar difficulty attends the reduction, when the head of the metacarpal bone, which is joined to the firſt phalanx of the thumb, is luxated completely, and depreſſed towards the palm of the hand. A diſlocation in the oppoſite direction is eaſily reduced.

A tranſverſe ſection of the anterior extremity of the metacarpal bone exhibits the form of a wedge, the narroweſt part being towards the palm of the hand. There are two tubercles on each ſide of the anterior extremity of the metacarpal bone, whence the lateral ligaments go off in part to the firſt phalanx of the thumb. Upon meaſuring the diſtance of theſe tubercles from each other, I have found thoſe two tubercles, which are neareſt to the palm of the hand, to be only 3-8ths of an inch from each other, when the tubercles on the poſterior part of the ſame bone were at the diſtance of 5-8ths of an inch. Suppoſing therefore the head of the metacarpal bone to be preſſed forcibly be-

tween the lateral ligaments, towards the palm of the hand, the extremity of the metacarpal bone paſſes like a wedge between the lateral ligaments, and having paſſed through between them, it cannot return, as the poſterior broad part of the bone preſents itſelf to the more contracted aperture between the ligaments. From an anatomical conſideration of the ſtructure of this joint, it ſeems impoſſible that the metacarpal bone ſhould paſs in this direction to a complete diſlocation, without tearing off ſome part of the lateral ligaments; yet ſo much of the ligaments may remain, as to prevent the return of the bone to its natural ſituation.

Whether theſe obſervations account for the difficulty of reduction in this ſpecies of diſlocation, or not; I know from experience, that the reduction is in ſome caſes extremely difficult, if not impracticable

When I was a pupil at St. George's Hoſpital in the year 1758, a patient, who had ſuffered a diſlocation of the thumb, was diſmiſſed incurable, the ſurgeons, who were men of the greateſt eminence, not being able to effect the reduction. Mr. Bromfeild then informed the pupils, that he had known a ſurgeon increaſe the force of extenſion to ſuch a degree, in at-

tempting reduction in this diſlocation, that he tore off the thumb at the ſecond joint.

In the year 1767 Mr. Billam, at that time a ſurgeon in Leeds of conſiderable experience, came to my houſe with a young man, who by falling againſt a ſtone had diſlocated the metacarpal bone of the thumb, in the manner above deſcribed. Mr. B. had attempted the reduction in vain, and we had jointly no better ſucceſs. We tried not only by extenſion, accompanied with preſſure upon the diſlocated extremity of the bone, but alſo by giving the bone a kind of rotatory motion on its own axis; but all in vain. This caſe led me to examine the joint attentively, both in the ſkeleton, and in a preparation of the joints kept in ſpirits; and cauſed the obſervations which I have noted above.

I was lately called to an accident of this kind, and being foiled in my firſt attempts to reduce the bone, I deſired the patient to keep her hand in a mild poultice for ſeveral days, intending to repeat my attempts. But the patient would not ſuffer me to make another trial; ſatisfying herſelf with putting a cover of leather upon her thumb. Whether ſhe had made application to any other ſurgeon after my firſt failure, I do not know.

CHAP. VI.

ON INTERNAL DERANGEMENT OF THE KNEE JOINT.

The joint of the knee is ſo firmly ſupported on all ſides by tendinous and ligamentous ſubſtances; that the bones of the thigh and leg are very rarely ſeparated from each other, ſo as to form a *diſlocation*, in the common ſenſe of the term. Great violence muſt take place, and a conſiderable laceration muſt happen, before the tibia can be completely ſeparated from the os femoris. Yet this joint is not unfrequently affected with an internal derangement of its component parts; and that ſometimes in conſequence of trifling accidents. The diſeaſe is, indeed, now and then removed, as ſuddenly as it is produced, by the natural motions of the joint, without ſurgical aſſiſtance: but it may remain for weeks or months, and will then become a ſerious misfortune, as it cauſes a conſiderable degree of lameneſs. I am not acquainted with any author who has deſcribed either the diſeaſe or the remedy; I ſhall, therefore, give ſuch a deſcription as my own experience has furniſhed me with, and ſuch as will ſuffice to diſtinguiſh a com-

plaint, which, when recent, admits of an eaſy method of cure.

This diſorder may happen either with, or without, contuſion. In the latter caſe it is readily diſtinguiſhed. In the former, the ſymptoms are equivocal, till the effects of the contuſion are removed. When no contuſion has happened, or the effects of it are removed, the joint, with reſpect to its ſhape, appears to be uninjured. If there is any difference from its uſual appearance, it is, that the ligament of the patella appears rather more relaxed than in the ſound limb. The leg is readily bent or extended by the hands of the ſurgeon, and without pain to the patient: at moſt, the degree of uneaſineſs cauſed by this flexion and extenſion is trifling. But the patient himſelf cannot freely bend, nor perfectly extend the limb in walking; but is compelled to walk with an invariable and ſmall degree of flexion. Though the patient is obliged to keep the leg thus ſtiff in walking; yet in ſitting down the affected joint will move like the other.

The complaint which I have deſcribed may be brought on, I apprehend, by any ſuch alteration in the ſtate of the joint, as will prevent the condyles of the os femoris from moving truly in the hollow formed by the

ſemilunar cartilages and articular depreſſions of the tibia. An unequal tenſion of the lateral, or croſs ligaments of the joint, or ſome ſlight derangement of the ſemilunar cartilages, may probably be ſufficient to bring on the complaint. When the diſorder is the effect of contuſion, it is moſt likely that the lateral ligament on one ſide of the joint may be rendered ſomewhat more rigid than uſual, and hereby prevent that equable motion of the condyles of the os femoris, which is neceſſary for walking with firmneſs.

The method of cure, which I am about to propoſe, muſt not be uſed while there is any inflammatory affection, or ſwelling of the joint; but only when theſe effects of contuſion are removed. The following caſes will farther illuſtrate the nature of this complaint; and point out the method which I have hitherto found ſucceſsful in removing it.

CASE I.

In 1782, I was deſired to viſit the late William Sotheron, Eſq. of Darrington; and found him affected with an inability of moving the joint of one knee. This complaint came upon him ſuddenly, the morning of the day preceding

preceding my viſit, as he was turning himſelf in bed. He felt ſome pain at the inſertion of the tendon of the biceps femoris into the head of the fibula; and that tendon ſeemed to be rather upon the ſtretch; in other reſpects the appearance of the joint was perfectly natural. As Mr. S. was then in an emaciated ſtate from other complaints, I had an opportunity of examining the joint to the greateſt advantage. There was no ſwelling in any part of it. I could bend and extend the affected limb as readily as that which remained uninjured. There was no protruſion of the ſemilunar cartilages. My patient felt no pain when I preſſed my fingers upon the joint in any direction. He informed me, that he had twice before had a ſimilar lameneſs, which at both times had left him inſtanteouſly. He was chiefly uneaſy at the continuance of this attack.

He had occaſion to walk out of the room ſoon after my arrival; and I then obſerved, that he could not place his foot flat upon the floor, nor bend the joint as uſual when he raiſed the affected limb in walking.

Soon after his return into the room, while he ſtood talking with me, he cried out on a ſudden, "I am quite well," and immediately

was

was able to walk about without the leaſt degree of lameneſs.

CASE II.

In 1784, the honourable Miſs Harriet Ingram (now Mrs. Aſton), as ſhe was playing with a child, and making a conſiderable exertion, in ſtretching herſelf forwards, and ſtooping to take hold of the child, while ſhe reſted upon one leg, brought on an immediate lameneſs in the knee joint of that leg on which ſhe ſtood. The diſorder was conſidered as a ſimple ſprain; and a plaſter was applied round the joint. As the lameneſs did not diminiſh in the courſe of five or ſix days, I was deſired to viſit her.

Upon comparing the knees, I could perceive no difference, except that, when the limbs were placed in a ſtate of complete extenſion, the ligament of the patella of the injured joint ſeemed to be rather more relaxed than in that joint which had received no injury. When I moved the affected knee by a gentle flexion and extenſion, my patient complained of no pain; yet ſhe could not perfectly extend the leg in walking, nor bend it in raiſing the foot from the floor; but

but moved as if the joint had been ſtiff, limping very much, and walking with pain.

I thought it probable, that the ſudden exertion might in ſome degree have altered the ſituation of the croſs ligaments, or otherwiſe have diſplaced the condyles of the os femoris with reſpect to the ſemilunar cartilages; ſo that the condyles might meet with ſome reſiſtance when the flexor or extenſor muſcles were put into action, and thereby the free motion of the joint might be hindered, when the incumbent weight of the body preſſed the thigh bone cloſely againſt the tibia; though this derangement was not ſo great as to prevent the joint, when relaxed, from being moved with eaſe.

To remedy this derangement, I placed my patient upon an elevated ſeat, which had nothing underneath it that could prevent the leg from being puſhed backward towards the poſterior part of the thigh. I then extended the joint by the aſſiſtance of one hand placed juſt above the knee, while with the other hand I graſped the leg. During the continuance of the extenſion I ſuddenly moved the leg backwards, that it might make as acute an angle with the thigh as poſſible. This operation I repeated once,

and

and then desired the young lady to try how she could walk. Whatever may be thought of my theory, my practice proved successful; for she was immediately able to walk without lameness, and on the third day after this reduction she danced at a private ball without inconvenience, or receiving any injury from the exercise.

CASE III.

In October 1786, the young lady, who is the subject of the last case, had the misfortune to produce the same injury in her knee, in rising hastily out of bed. After the lameness had continued about a week, without any amendment, I was consulted. The method of cure above described was made use of, with the same immediate success.

CASE IV.

Master Thompson of Hull, a young gentleman at Mr. Hodgson's academy in Leeds, suffered a contusion and sprain of the knee joint, by climbing up behind a post-chaise in motion, the wheel of which caught hold of his leg,

and

and gave it a ſevere twiſt. I ſaw him a few hours after the accident. The joint was ſwelled, and in a very painful ſtate. I directed him to be put to bed; and uſed ſuch remedies as I judged moſt likely to prevent inflammation. The ſwelling and pain ſoon went off; ſo that he was able, at the expiration of a week, to move about. A plaſter was then put round the joint, and he was permitted to walk out.

From this time there was no improvement in the motion of the joint. He could run, but it was in a very awkward and imperfect manner, for he could not ſet his foot flat upon the ground. He was obliged in walking to reſt upon his toes whenever he raiſed the ſound limb from the ground, and to keep the knee a little bent, being incapable of extending the limb in a progreſſive motion. A perſon, obſerving the manner in which he performed this exerciſe, would have thought his knee to be ſtiff; yet there appeared to be no rigidity in the joint, when it was moved by the hands of another perſon, while he himſelf ſat in a chair.

When he had remained in this ſtate nearly a fortnight, without any amendment, I was perſuaded that the condyles of the os femoris

were

were prevented from moving in a true direction upon the tibia and ſemilunar cartilages, either by ſome irregular contraction of the tendinous or ligamentous ſubſtances ſurrounding the joint, or by ſome other cauſe of internal derangement, which time might rather increaſe than remove. I determined, therefore, to attempt his relief by the method above mentioned. I extended, and then bent the limb to a conſiderable degree, repeating the operation two or three times. He was enabled immediately to walk in a natural manner, and in a few days regained the perfect uſe of his limb.

CASE V.

In October 1790, the Rev. Thomas Dikes of Hull, who then lived at Berwick in Elmet near Leeds, ſuffered a contuſion of the knee, by the fall of his horſe, as he was riding. The cuticle was rubbed off in ſome places. A violent pain was brought on, which continued in the knee for about an hour and half after the accident; and the joint during this time became ſwelled and diſcoloured. In the courſe of a week the ſwelling ſubſided. The *ceratum ſaponis* was then put round the knee, and he was permitted to walk a little.

a little. At the expiration of a month after the accident, his power of walking was not at all increaſed, yet the injured knee appeared like the other. I could bend and extend the limb without difficulty, and without giving him pain; but when he walked he could give the joint no motion by the natural efforts of the muſcles. He walked, to uſe his own expreſſion, "as if he had no joint in the knee."

Theſe ſymptoms led me to hope that I might be of ſervice to him by the extenſion and flexion which I have deſcribed. But as the joint had remained ſo long without its proper uſe, I could ſcarcely flatter myſelf with the expectation of immediate ſucceſs. I extended and bent the limb with rather more force than I had uſed in the preceding caſes; yet upon the firſt trial he could not uſe the joint ſo well as I wiſhed. I repeated the operation after the interval of a few minutes, and he immediately regained the power of walking as well as uſual, except that he felt a little weakneſs for a few days.

I have ſeen ſeveral caſes of this diſeaſe beſides thoſe above deſcribed; but the ſymptoms and treatment being ſimilar, I ſhall not trouble my reader with a recital of them.

CASE

CHAP. VII.

On loose Cartilaginous Substances in the Joints.

THE exiſtence of looſe cartilaginous ſubſtances in the joint of the knee, has been noticed by ſeveral modern authors. The method of extracting theſe ſubſtances, and that of treating the patient after the operation, have been deſcribed by Mr. Bromfeild in the appendix to his firſt volume of *Chirurgical Obſervations*; and by Mr. Ford in the fifth volume of *Medical Obſervations and Inquiries.* This operation is conſidered by theſe authors as the only method of cure. But, although it has often been attended with ſucceſs, yet, as the late *Medical Society* have obſerved, it has ſometimes "been followed with violent inflammation, fever, and death itſelf." It would therefore be of ſervice to mankind, could a method be invented of curing this diſorder with ſafety, or rendering it of no inconvenience to the patient.

Such a method I have found, in a few inſtances, in the uſe of a well-adapted laced knee-cap. And as in one of theſe inſtances the diſeaſe was more than uſually troubleſome, I think I do not exceed the bounds of probability in hoping, that it will generally prove ſucceſsful; at any rate, it deſerves a trial before the dangerous operation of opening the joint is attempted: eſpecially as there is reaſon to believe, that, in ſome caſes, looſe cartilaginous ſubſtances, or ſubſtances reſembling them, are capable of becoming diſſolved in the joint, without the aſſiſtance of any remedies.

CASE I.

In October 1781, Mr. Snowden, an apprentice to a linen-draper in Leeds, conſulted me on account of a looſe hard ſubſtance, which he had lately felt in the joint of the knee. It ſeemed to be about the ſize of a hazel-nut. It paſſed very readily from one part of the joint to another upon a gentle preſſure, and during the ordinary motions of the limb. He became ſenſible of the exiſtence of this looſe ſubſtance in the joint ſoon after his recovery from the effects of a

contuſion

contuſion of the knee, which he had ſuffered from a fall; before which accident he had not the leaſt complaint in the part.

While this ſubſtance remained in the interior parts of the joint, he could walk without inconvenience; but whenever it got between the condyles of the os femoris and the tibia, ſo that he could feel it through the capſular ligament, it gave him pain, and produced lameneſs.

Theſe circumſtances induced me to think, that the application of a knee-cap, laced cloſely, might retain the ſubſtance within the interior parts of the joint; or, at leaſt, prevent it from remaining ſo long between the condyles of the os femoris and the tibia, as to create much uneaſineſs. The utility of this bandage exceeded my expectation: for he not only found no inconvenience from the moveable ſubſtance after he began to wear the knee-piece; but at the expiration of twelve months he aſſured me, that he was no longer ſenſible of the exiſtence of the diſeaſe, even when he walked without his bandage.

CASE II.

October 26th, 1781, Mr. Brigham, houſe-ſteward to the late General Cary, conſulted me on account of two looſe ſubſtances in the joint of the knee, which rendered him unable to go about his uſual employment, without conſiderable difficulty and pain. He informed me, that, about two years before, he had the misfortune to ſlip down a declivity in the front of Leven-grove houſe, the ſeat of General Cary; and thereby received ſo violent a ſprain in his knee, that he was for a time unable to walk. When the immediate effects of the ſprain were removed, he firſt perceived the ſubſtances in the joint. A variety of applications were made uſe of to relieve his lameneſs; and the application of a cauſtic was recommended for the removal of the looſe ſubſtances; but to this propoſal he would not conſent. He had no degree of lameneſs or weakneſs in the knee, previous to the accident I have mentioned; but was ſtout and active.

Upon examining his knee, I found two looſe and hard ſubſtances within the capſular ligament. They moved rapidly, upon preſ-

ſure,

ſure, from one part of the joint to another. I could ſometimes feel them both at the ſame time; but never found them in contact with each other. There was alſo a ſmaller cartilaginous ſubſtance (ſo I judged it to be) attached to the exterior part of the tendon of the vaſtus externus femoris. This was alſo moveable to a certain diſtance, and ſeemed to be ſituated on the outſide of the capſular ligament. Theſe ſubſtances incommoded him ſo much upon motion, that he was frequently compelled to ſtop in walking; and the pain which they cauſed was often ſo acute, as to make him cry out.

I found it more difficult to reſtrain the motion of the looſe ſubſtances in this caſe, than in that of Mr. Snowden; and therefore procured a *quilted* knee-piece, which was made under my inſpection. I took an exact meaſure of the knee; and made the quilting to project in two places, where the knee-piece was to preſs upon the hollow part of each ſide of the patella: for there the ſubſtances uſually made their appearance. I adviſed Mr. Brigham to wear alſo compreſſes of plaſter ſpread upon leather, on each ſide of the patella, if the quilting ſhould not ſufficiently reſtrain the motion of the looſe cartilages.

General Cary informed me, in April 1784, that Mr. Brigham, though not perfectly well, could walk about with eaſe, and even run, and leap, without injuring himſelf, or uſually exciting pain. Wiſhing to know the iſſue of this caſe, I wrote to Mr. Brigham, requeſting him to inform me of the preſent ſtate of his knee. In his anſwer, dated Auguſt 1ſt, 1791, he gives me the following account:

"After I had worn your bandage a few "days, laced very tight, I found my knee "near perfectly well; and when I keep the "bandage tight it continues ſo ſtill, and has "done ever ſince I was with you at Leeds: "but I can find the lumps not at all reduced, "though they are no hindrance to me in any "common exerciſe. But before I made uſe of "the bandage, I was not able to walk with-"out the aſſiſtance of either crutch or ſtick."

In January 1792, Mr. Brigham called upon me at Leeds. He had ceaſed wearing the quilted bandage for ſeveral years, and now wore only a common laced knee-cap. The ſubſtances produced no impediment in walking, and were now ſeldom perceived. After a trial of ten years he had found this mode of treatment to anſwer every purpoſe he deſired.

CASE III.

Auguſt 1788, Mr. Lee, of Leaconfield-park, near Beverley, conſulted me, and gave me the following account of his complaint:

About three months before his application to me, he received a violent ſtroke, from a horſe, upon his knee; which cauſed a conſiderable ſwelling of the joint. Three or four weeks after this accident, when the ſwelling was diſperſed, he perceived a ſmall moveable ſubſtance in the joint, which gave him great uneaſineſs in walking. He conſulted a ſurgeon of eminence in the neighbourhood, who adviſed the extraction of the ſubſtance, as the only method of cure.

Being apprehenſive that the operation would be attended with ſome degree of danger, he was unwilling to ſubmit to it without the concurrent opinion of ſome other ſurgeon.

I recommended the uſe of a laced knee-piece; from which he found ſuch relief, that he could immediately walk with eaſe and firmneſs.

September 20th, 1791, Mr. Lee called upon me in his road to Buxton, and informed me, that he had continued to wear the knee-piece

till within the laſt month; when the rheumatiſm, affecting his knee as well as ſome other joints, had rendered the wearing of the bandage painful. He had not felt the looſe ſubſtance for about two months before he left off the uſe of his bandage; nor had he felt it ſince the bandage had been removed.

CASE IV.

Being at York upon buſineſs, I was requeſted by the late Rev. Mr. Cappe to examine the elbow of Mr. W. Lee, of Leeds, who was then under his tuition. This young gentleman had hurt the joint conſiderably by a fall in the ſtreet, betwixt five and ſix weeks before I ſaw him. I did not ſee the ſurgeon who had attended him; but was informed, that the extremity of the Olecranon was ſuppoſed to have been broken off, from the exiſtence of ſome looſe ſubſtances, which were diſcovered in the joint upon the ſubſiding of the ſwelling cauſed by the contuſion.

Upon examination I could readily feel two looſe, hard, and roundiſh ſubſtances in the joint. The ſwelling being entirely diſperſed, I could alſo diſtinctly feel the extremity of the Olecranon; and was perſuaded, that the

ſubſtances

ſubſtances which I found in the joint were not pieces of bone broken off from that proceſs. Mr. Lee could move the arm with freedom, and was not much incommoded by theſe ſubſtances.

The ſubſtances gradually diminiſhed; and at laſt became entirely diſſolved, as I ſhould ſuppoſe, for they could not be felt in any poſition of the joint.

I cannot aſcertain the period of the diſſolution, as I very rarely examined the joint; and as ſeveral years intervened between my firſt and laſt examination of it.

REMARKS.

When the preceding caſes occured, I had not ſeen Reimarus's Theſis *De Fungo Articulorum*; nor did I know, that bandages had been tried, and had been found uſeful in ſome inſtances for this complaint. The late Mr. Middleton, ſerjeant-ſurgeon to the army, informed Reimarus that he had cured a patient by the application of plaſter and bandage to the knee; ſo that upon removing the bandage, after it had been applied ſome months, the diſeaſe did not return. Mr. Middleton

Middleton knew another caſe in which the ſame treatment had proved ſucceſsful. But it is added, what I ought not conceal, that the ſame method had been tried in St. George's hoſpital without ſucceſs, in one inſtance; in which the pain was increaſed while the ſubſtance was kept under the patella, although the patient had before found relief from this treatment. The ſubſtance was therefore removed by inciſion into the joint *.

Theſe looſe ſubſtances differ ſomewhat in their ſtructure. Some have been found upon examination to be ſmall bones, covered with a cruſt of cartilage; while others have been found cartilaginous throughout.

The origin of theſe ſubſtances remains yet obſcure. Mr. Ford thinks it moſt probable, that in his patient, "the cartilage was primarily attached by ſmall ligaments to the joint, but at length increaſing in bulk, it was ſeparated from its attachment by the injury received in the fall." † In one inſtance, mentioned by Reimarus, ſome diſeaſe ſeems to have exiſted in the joint before the patient ſuffered that contuſion of the

* See Reimarus de Fungo Articulorum, § 27, 54, &c.

† Medical Obſ. and Inquiries, vol. 5. p. 329.

knee, which was followed by the perception of a looſe ſubſtance.

" Æger ille in Noſoc. Georg. licet in eo-
" dem genu dolorem aliquem jam a tribus
" annis ſenſerat, accedente et a multo motu
" tumore; hæc tamen gravia non fuiſſe, nec
" corpuſculum illud omnino ſe percepiſſe aie-
" bat antequam genu læſerit." Ib.

In thoſe inſtances which have occurred in my practice, the patients had neither the leaſt degree of lameneſs, nor of weakneſs in the knee, prior to the injuries which they ſuffered in the joint. And this ſeems to have been the caſe in almoſt all the inſtances which have been publiſhed, where any notice is taken of the patient having ſuffered an injury in the joint.

As diſſections of the knee have ſometimes diſcovered the exiſtence of cartilaginous ſubſtances, attached to the interior parts of the joint by ſmall pedicles; and as theſe ſubſtances, when looſe, may be ſo confined within the joint as to create neither pain nor lameneſs; the idea of their being *detached*, rather than cauſed to exiſt, by the accidents which have preceded the perception of them, ſeems very rational. On the other hand, as the cauſes of the generation of theſe morbid

appen-

appendages of the joints is totally unknown to us; and as they have ſo often been firſt perceived after the joint had ſuffered ſome conſiderable contuſion; it is not improbable, that in ſome caſes the morbid ſtate of the joint, after ſuch contuſion or other injury, may give riſe to their production. This ſeems to have happened in the 4th of the preceding caſes.

If any caſe ſhould occur, in which the patient can obtain no relief from a well-adapted bandage; but is under the neceſſity of ſubmitting to the extraction of the looſe ſubſtance, the ſurgeon ought to attend to the advice given by the late *Medical Society*, in the poſtſcript to Mr. Ford's paper on this ſubject.

"Beſides ſuch chirurgical management "as may be thought beſt for keeping the "lips of the wound in perfect contact, the "limb ſhould be kept immovable, and every "thing ſhould be avoided than can either "irritate the part, or heat the body."

CHAP. VIII.

On Wounds of the Joints.

THE operation propoſed for extracting looſe cartilaginous ſubſtances from the joint of the knee, leads me to offer a few remarks on wounds of the joints, a ſubject of conſiderable importance in the practice of ſurgery. The obſervations of the Medical Society, above quoted, very judiciouſly point out the danger of ſuch wounds, and the proper treatment for preventing the bad conſequences which often ariſe from them.

The utmoſt care ſhould be taken in theſe caſes to prevent inflammation. Upon this circumſtance chiefly depends a ſucceſsful termination. I have ſeen many large wounds of the great joints healed without the ſupervention of any dangerous ſymptoms, where due care has been taken to prevent inflammation; while injuries, apparently trifling, will often be followed by a train of diſtreſſing and dangerous conſequences, where ſuch care has been neglected. It is generally eaſier to

prevent

prevent inflammation in the joints, after a wound, than to arreſt its progreſs when once begun. I ſpeak now of inflammation affecting the capſular ligament. A ſlight degree of redness and tenderness in the integuments only is of little consequence; but when the capſular ligament becomes inflamed, the formation of abſceſſes, attended with a high degree of fever, and ultimately a ſtiffneſs of the joint, are the common consequences, if the life of the patient is preserved. The recital of a few caſes will illuſtrate this ſubject, and point out the great advantage of timely care to prevent inflammation when a joint is wounded.

CASE I.

In 1787, Mr. Hargrave, a joiner and master-builder in Leeds, happened to fall, as he was walking up ſome ſteps into his warehouſe, and to ſtrike the end of his thumb against one of the ſteps. By this accident he suffered a compound diſlocation of the laſt joint of his thumb. He immediately replaced the bones, which returned to their proper ſituation with eaſe. Finding no great degree of pain after the reduction, and not aware

aware of any bad conſequence from a wound of the joint, he did not immediately apply for any ſurgical aſſiſtance. He wrapped a linen rag round the thumb, and continued to go about his buſineſs, hoping that the wound would ſoon be healed. The next day he covered his thumb with cerate, and remained free from any considerable degree of pain till the evening. Inflammation now began to take place, which ſoon occupied the whole of his hand, and extended along the fore-arm up to the elbow. In this ſtate of the diſeaſe I was conſulted; but it was too late to prevent a high degree of inflammation, accompanied with much ſymptomatic fever, and the formation of ſeveral large abſceſſes in the fore-arm, along the courſe of the lymphatics. Notwithſtanding the uſe of bleeding, purgative and other cooling medicines, the application of the mildeſt poultices, with a ſtrict attention to reſt, and a horizontal poſition of the limb, the fever ran ſo high that he was ſometimes a little delirious. As the abſceſſes were chiefly formed beneath the faſcia of the muſcles, I made inciſions through the faſcia wherever I could perceive a fluctuation of matter. Theſe operations diminished the tenſion of the limb,

abated

abated the fever, and ſeemed to be the means of preſerving the life of my patient. I was obliged to make ſeven inciſions (ſome of them large) at different times, in the fore-arm, and two on the back part of the hand. Upon his recovery, however, no injury remained, except a ſtiffneſs of the laſt joint of the thumb, which had ſuffered the compound diſlocation.

CASE II.

In 1767, I was deſired to viſit James Oakes, aged thirty years, who, in cutting ſome wood, which he held againſt his knee, with a ſharp ſemi-circular knife, ſuch as the coopers uſe, had divided the ligament of the patella, and a portion of the capſular ligament on each ſide of the patella. The accident had happened ſome weeks before I ſaw him. I found the knee ſwelled, ſomewhat inflamed about the internal condyle of the thigh, and very painful. The leg, though now kept conſtantly in a horizontal poſition, was œdematous.

Mr. B. who was attending him, had introduced a ſeton at the external part of the wound, and had drawn it through an opening made

made on the outſide of the thigh, a little above the external condyle, for the purpoſe of affording a free diſcharge to the matter of an abſceſs formed there. His pulſe was very frequent, and he was obliged, on account of the pain, to take ſixty or ſeventy drops of laudanum every night, which did not, however, procure much reſt.

There was no apparent inflammation in the ham, when I firſt ſaw him, but in the courſe of a few days an abſceſs began to form itſelf there, which was opened as ſoon as the part became ſufficiently prominent. The purulent matter which was diſcharged, was dark coloured, and very fetid. After this opening, the ſwelling of the leg abated, and the matter, having a free exit, became better conditioned. The matter inſinuated itſelf ſomewhat beneath the integuments of the leg and thigh; but by an enlargement of the wound, and the application of rollers, the extenſion of the matter was prevented.

The painful ſtate of the joint, and the ſymptomatic fever abated. Before the expiration of January, his pulſe was come down to ninety, and he ſlept moderately in the night time, ſometimes without an opiate. The ſeton was removed, and he was now permitted to ſit up every day.

February 11th, his pulſe was at ſixty-two. The wounds after this time healed favourably, but a ſtiffneſs of the joint remained.

CASE III.

In 1784, a ſtout young man was brought into the Infirmary at Leeds, with a tranſverſe wound penetrating the knee joint juſt above the patella. Mr. Lucas had the care of the accident-patients this week; but as he was out of town, I was requeſted to attend to this caſe.

The patient had been working in the woods, and, a woodman's bill had fallen from a bough above him, and ſtriking the loweſt part of the thigh, had made a tranſverſe wound about two inches in length, dividing the tendon of the rectus femoris cloſe to the patella. A wound was made through the capſular ligament, ſo large that I could eaſily introduce my finger into the joint.

After examining the interior parts of the joint with my finger, that no extraneous body might be left there, I united the lips of the wound by three ſtitches of the interrupted ſuture, taking care to lay hold of nothing with the needle but the integuments. I could not remove all the blood from the

inſide

inſide of the joint, for that continued to flow as long as my finger remained in the wound. Neither could I favour the diſcharge of that blood which remained in the joint, by any method of placing the limb which would anſwer my principal intention. But I hoped that, if inflammation could be avoided, the extravaſated blood would be abſorbed without danger.

That I might keep the knee quite ſteady, and the injured parts in a ſtate of relaxation, I placed the man in a ſupine poſture, with his leg upon a pillow in a heavy fracture-box, and covered the wound with ceratum ſaponis, ſpread upon a pledget of tow. This method kept the anterior parts of the knee, with the rectus femoris, in a ſtate of the greateſt relaxation; and the external air was excluded without making any preſſure upon the injured parts. I gave directions that all poſſible care ſhould be taken to prevent the motion of the joint upon any occaſion.

The patient complained of ſmarting in the wound for about half an hour after the dreſſing, but had afterwards no return of pain.

Mr. Lucas continued the ſame treatment, and cut out the ligatures upon the tenth day after the accident. The patient recovered

ſo well, that in the ſpace of four weeks he became able to move about in the ward upon crutches.

He regained the perfect uſe of his limb.

CASE IV.

October 4th, 1798, Sarah Swordie, aged eighteen years, was brought into the Infirmary, on account of a wound in the elbow-joint, which ſhe had juſt received from the wadding of a piſtol, fired very near her, during the rejoicing for Admiral Nelſon's victory over the French fleet, in the Bay of Aboukir. The wound was made near the olecranon, through the flat tendon of the extenſor cubiti. The parts were contuſed and lacerated. The capſular ligament was divided ſo as to admit readily the introduction of a finger within the joint. A conſiderable number of grains of gunpowder were lodged in the integuments. I examined carefully the cavity of the joint, but could not find any extraneous ſubſtance lodged there.

Though it was not probable, from the contuſed ſtate of the parts, that an union by the adheſive proceſs could be obtained;

yet, in order to diminiſh as much as poſſible the ſize of the wound, and exclude the external air, I drew the integuments into contact by ſome ſtitches of the interrupted ſuture. The young woman being put to bed, I placed the arm upon a pillow, in an extended poſition, that, the wounded parts might be kept in a ſtate of relaxation. The arm was covered with a poultice made of bread and water. An opiate was given immediately, and a gentle laxative the next morning. The young woman was not ſuffered to get out of bed on any occaſion, nor was her arm removed from the pillow except when gently raiſed for the purpoſe of applying the poultice.

The ſymptoms of inflammation were trifling, and ſoon went off. The integuments had been ſo much contuſed, that the ligatures did but retain the wounded parts in contact for a few days. The edges of the wound then ſloughed off, but the ſize of the wound was diminiſhed by the lips having been retained in contact for ſome days. The arm became quite eaſy in the courſe of a few days.

On the 14th day I laid aſide the poultices,

and drew the lips of the wound towards each other with ſticking plaſter.

The patient regained the perfect uſe of the elbow; and December 5th was diſcharged cured.

CASE V.

William Hide, aged twenty-one years, was brought into the Infirmary, May 9th, 1799, on account of a wound which he had juſt received in the ancle-joint by a hatchet. The ſtroke had been given in a perpendicular direction; and the inſtrument had not only divided the capſular ligament, but had alſo cut off a portion of the articular extremity of the tibia, about an inch in length and half an inch in breadth; and a ſmaller portion from the edge of the aſtragalus. I diſſected out the former; but the latter lay ſo deep in the wound, and was ſo ſtrongly attached to the ſoft parts, that I judged it to be the moſt prudent meaſure to leave it in the wound, as I ſhould not have been able to take up any blood-veſſel that might have been wounded in the diſſection. Beſides, the attachment of this ſmall piece of bone to the ſoft parts was ſo ſtrong, that I was under

under no apprehenſion of its being caſt off, or becoming injurious to the joint. The integuments were united by ſuture, and the limb was placed in the moſt eaſy poſition in bed, after being covered with a mild poultice.

The future treatment of this patient was committed to Mr. Logan, in whoſe abſence I had taken care of him, who placed the limb in a fracture-box upon the third day after the accident. The inflammation was trifling. The poultice was continued about a fortnight. At the end of the third week the patient was allowed to ſit up, the wound being nearly healed; and at the expiration of the fourth week the wound was completely cicatrized. He was now directed to move the joint, and to walk a little; but by too great exertions he brought on an inflammation about the joint. Reſt, with the repeated application of leeches, and the aq. litharg. acet. comp. removed the inflammation.

June 24th, he was made an out-patient, and was ſoon after that diſcharged cured.

CASE VI.

Gervaſe Hodgſon, a little boy, about five years of age, playing in the fields at the

time of harveſt, received a wound from a ſcythe, which divided the capſular ligament of the ancle-joint, and took off a ſmall piece of bone on the inner ſide of the extremity of the tibia. He was brought to the Infirmary, and fell under my care. I united the divided integuments by ſuture, taking care to avoid any puncture of the capſular ligament. The limb was wrapped in a poultice, and the patient confined to his bed. The integuments became inflamed, and the ſutures burſt open. An abſceſs was formed on the oppoſite ſide of the ancle, the opening of which gave him great relief. It was about two months before the wounds were healed, but he regained the perfect uſe of his ancle.

CASE VII.

John Senior, aged nine years, was admitted into the General Infirmary May 2d 1801, on account of a contuſed and lacerated wound in the right arm. He was following a large iron roller, drawn by a horſe, in the fields, and was holding a rope in his hand, which happened to become entangled with the roller while in motion, in ſuch a manner that his arm was ſuddenly drawn beneath the roller.

roller. A large wound was made in the elbow-joint and the arm, both of which had ſuffered great contuſion. The capſular ligament of the joint was laid open; and the articular extremity of the os humeri was broken obliquely upwards, ſo that the greater part of the internal condyle of the bone was ſeparated from the external, in the hollow which lies between theſe two projections.

As the external condyle of the os humeri, and the bones of the fore-arm remained uninjured, as the great blood veſſels were entire, and the muſcles had not ſuffered any conſiderable laceration, I determined to attempt the preſervation of the limb. I firſt diſſected out all the broken pieces of bone, and after placing the integuments in their natural ſituation, I united them by the interrupted ſuture. I wrapped the arm in a poultice of bread and water, and placed it in the moſt eaſy poſition upon a pillow in bed. The limb was kept in this poſition, except when elevated for the purpoſe of applying the dreſſings.

The contuſion had been ſo great, that the integuments were caſt off on the inner ſide of the arm, from one to two inches in breadth, from the elbow to the axilla, but no inflam-

mation

mation enſued. The boy was quite eaſy, except during the times of dreſſing the wound. A ſinus was formed under the integuments at the axilla, which I was obliged to open. The uſe of the poultice was continued till the tumefaction of the limb had completely ſubſided, and the wound was filled with granulations.

At the expiration of five weeks he was able to walk about the houſe. He was made an out-patient July 10th, and in Auguſt was diſcharged cured.

After the boy was made an out-patient, the granulations became ſpongy, and ſomewhat foul, and the wound ſeemed indiſpoſed for cicatrization. In this ſtate he received great benefit from the following application, which is often ſingularly uſeful in ſcrofulous ſores, when the granulations are ſpongy.

℞. Aq. puræ ℥xv.
Spt. Roriſmarin. ℥j.
— Lavend. c. ʒj.
Zinci vitriolat. ʒſs. fiat Solutio.

The ſores were kept conſtantly covered with folded linen wet with this ſolution, without any other dreſſing. It was applied afreſh three or four times a day.

CASE

CASE VIII.

I was desired by Mr. Wormald, surgeon, who now resides at Harrowgate, to visit the son of John Baraclough, of Adwalton, and to take with me every thing necessary for the amputation of his arm.

A cart, in which the child was riding to the hay field, had been overturned, and its upper edge falling upon his right arm, had cut the elbow joint quite across, on the anterior side, and had broken the inferior part of the os humeri transversly, about an inch and half above its articular extremity. Below this fracture the end of the bone was also broken in different directions. The extensor muscles were not injured, and there remained so large a portion of the flexors undivided, that I thought the boy might enjoy a considerable use of his arm, if the wound in the joint could be healed.

I dissected out the whole extremity of the os humeri from the part where it had suffered the transverse fracture, and after bringing the integuments into contact, I placed the limb gently bent at the elbow upon a pillow, and surrounded with a mild poultice.

The

The ſymptoms conſequent upon this accident and operation were extremely favourable. No inflammation ſupervened. The boy recovered, and was able to perform the motions of flexion and extenſion with his arm, though the joint which had ſuffered ſo great a loſs was not ſo firm and ſtrong as that of the other arm.

Being deſirous of knowing how far the functions of the arm could be performed with the loſs of the inferior articular extremity of the os humeri, I lately requeſted this patient, who is now fifteen years of age, to call upon me, that I might have an opportunity of examining the preſent ſtate of his arm.

May 18th, 1802, he favoured me with a call, and permitted me to make ſuch an examination as I thought proper.

The cicatrix extended from the tendon of the biceps to the olecranon, and was ſituated on the exterior ſide of the joint.

The tendon of the extenſor triceps was attached, as uſual, to the ſuperior part of the ulna; but the olecranon might be moved in any direction, having now no ſupport from the condyles of the os humeri. I could eaſily place my fingers on the hooked extremity

mity of the olecranon, which now lay on the inner ſide of the os humeri.

The inferior extremity of this bone extended downwards below the higheſt part of the ulna, and was attached to the middle of the cicatrix.

There was a round bag, about the ſize of a large nutmeg, containing ſome fluid ſubſtance, united with the extremity of the os humeri, and lying betwixt it and the olecranon. It ſeemed probable to me, that this might be a part of the capſular ligament, which I had left upon diſſecting out the extremity of the os humeri, and which, having attached itſelf to the end of the bone, was now filled with ſynovia.

The head of the radius could not be felt. It ſeemed to be ſunk deep amongſt the muſcles of the fore-arm, and was covered by the extremity of the os humeri.

The length of the mutilated bone was about an inch and half leſs than that in the ſound arm.

The right fore-arm was moderately muſcular and plump, but not ſo thick as the left. Above the elbow the right arm was much ſmaller than the left.

The

The young man could perform the motions of flexion and extenſion very readily with the right arm; but not thoſe of pronation and ſupination with the fore-arm alone. He imitated this motion very well by giving a rotation to the whole arm.

He could place his hand upon his head, by giving the arm a ſwinging motion; but he could not lift a glaſs of wine to his mouth. His father informed me, that he could lift heavy weights, and do many other things with his arm in a depending poſition.

I was informed that he could write pretty well with the right hand; and I obſerved that he made uſe of his right hand ſo as to give conſiderable aſſiſtance to the left, in putting on his neckcloth, which I had removed for the purpoſe of meaſuring the length of his arms.

CHAP. IX.

Compound Luxation of the Ancle Joint.

WHEN the fibula is broken near the joint of the ancle, the tibia almoſt always ſuffers a partial diſlocation. If the integuments are not lacerated by the tibia, it is eaſily replaced, and with due care the fracture may be cured without injury to the joint. But when the force is very great, which produces this fracture, the extremity of the tibia ſometimes burſts through the integuments, and thus forms a compound luxation of the joint. This is a very ſerious accident, and the beſt mode of treatment has not yet been aſcertained by ſurgical writers. Probably there are few ſurgeons who have ſeen a ſufficient number of theſe caſes to enable them to form a deciſive judgment on this ſubject.

The late Mr. Gooch, who was an able ſurgeon, ſays, "If the ſurgeon ſhould judge "it adviſable to attempt ſaving a limb under "ſuch

" ſuch threatening circumſtances, I am in-
" clined to think he will be more likely to
" ſucceed by ſawing off the head of the bone,
" eſpecially if it has been long quite out,
" and expoſed to the air.*"

He then relates a caſe of this kind, in which Mr. Cooper of Bungay ſawed off both the head of the tibia and fibula, by which means he preſerved the limb, and made it ſo uſeful, that the patient was able to walk and work for his bread; of which ſucceſs Mr. Gooch was a witneſs. Encouraged by this ſucceſs, I purſued the ſame method of cure in the following caſe.

CASE I.

September 16th, 1766, Mr. W. Hebden, about fifty-ſix years of age, was attacked by a bull, which threw him down, and cauſed a compound luxation of the tibia at the right ancle. The fibula was broken near the extremity of the tibia. The head of that bone, which lies below the tibia, remained attached to the aſtragalus. There was a conſiderable laceration of the integuments and capſular

* Gooch's Caſes in Surgery, p. 103, ed. 1st.

ligament

ligament on the inner ſide of the ancle; but on the outer ſide they remained whole. The tendo achillis, as well as the flexor and extenſor tendons of the foot, appeared to be uninjured. About two inches of the extreme part of the tibia lay expoſed, which I ſawed off, together with the correſponding part of the fibula. The leg was afterwards placed upon its outſide, in a relaxed poſition, and was covered with a poultice. An opiate was given.

2d day. He had reſted well. Pulſe ninety-five; full and hard. Nine ounces of blood were taken from his arm.

3d day. Pulſe ninety-eight; not ſo full. Had reſted tolerably without an opiate. A ſolution of cathartic ſalt was given.

4th day. Pulſe ſeventy. Wound looked well.

6th day. Pulſe ſeventy-ſix. Suppuration had taken place in a part of the leg, a little above the wound, which had been bruiſed by the bull. The matter had paſſed into the wound.

9th day. I made an opening on the outer ſide of the tendo achillis, to diſcharge the matter lodging in the wound, now become rather too offenſive. Granulations ſhoot up well from the ſides of the wound.

11th day. Pulſe eighty. The matter was diſcharged in part through the depending orifice. Granulations had ariſen from the cartilaginous covering of the aſtragalus.

15th day. Pulſe ſeventy-ſix. A large ſlough of the capſular ligament lay in the wound. Quantity of pus diminiſhed. The bruiſed part above now diſcharged very little matter. Bandage is now uſed without poultice.

18th day. Pulſe ſixty-eight. The wounded part began to feel ſtiffer.

22d day. A glairy fluid began to appear in the wound. The ſlough was caſt off about this time. The wound continued to leſſen very faſt, being filled with granulations. His appetite good. He had been allowed animal food as ſoon as the firſt inflammatory ſymptoms ceaſed.

From this time he recovered well, and I left him to the care of the ſurgeon who had been firſt called in.

I was in hopes that this patient would have been able to walk ſtoutly; but in this I was diſappointed. He walked indeed without a crutch, but his gait was slow, his leg remaining weak, and his toes turning outwards, which rather ſurprized me, as his leg

was

was very ſtraight when I ceaſed attending him.

A light ſteel ſupporter, as recommended by Mr. Gooch, ought to have been uſed in this caſe when the patient began to walk abroad.

I have not recited this caſe with the view of recommending a ſimilar practice in all caſes of this accident, for I have not always adopted it; nor am I of opinion, that the ſame mode of treatment, whether by replacing the bones, ſawing off their extremities, or amputating the limb, ought to be univerſally practiſed. When the laceration of the capſular ligament and integuments is no greater than is ſufficient to permit the head of the tibia to paſs through them, and when at the ſame time the joint or contiguous parts have ſuffered no other injury, I ſhould recommend the replacing of the bone, and an union of the integuments by ſuture, with the ſubſequent treatment above recommended in wounds of the joints.

CASE II.

In September 1798, I was deſired to viſit a young man at Walton, near Wakefield,

who, by being thrown out of a wiſkey the preceding evening, had ſuffered a compound diſlocation of the tibia at the ancle. The ſurgeon who was attending him had replaced the bone not long after the accident, and had put ſplints upon the leg, with a pretty tight bandage. I found the limb ſomewhat ſwelled, with a tendency to inflammation. The orifice, through which the tibia had paſſed, was conſiderably cloſed. Under theſe circumſtances I did not think it neceſſary or proper to make any ſuture of the integuments; but after removing all compreſſion, I placed the leg in a bent poſition on its outer ſide, and applied a mild poultice. The patient recovered extremely well; but about three months after his cure an ulcer took place in the integuments which had been lacerated, and finding that this did not heal readily, he came to Leeds to put himſelf under my care. After the ulcer was healed, which happened in the courſe of three weeks, I procured a ſteel ſupporter, as the ancle was rather weak, and the tibia had a tendency to project inwards. This enabled him to walk with eaſe.

If the laceration of the joint be very great, and the contuſion conſiderable, I ſhould judge

it the moſt ſafe method to amputate the leg; but I am ſtrongly inclined to think, that the loſs of the limb is rarely neceſſary in a compound luxation of the tibia, which is not attended with any other injury, except a fracture of the fibula, and this muſt of courſe take place whenever ſuch a luxation occurs, unleſs the aſtragalus is alſo diſlocated. Mr. Gooch relates a caſe of this kind, but ſpeaks of it as a ſingular accident. I have ſeen one, and but one inſtance of it. The reduction of the bones was impracticable, and amputation was judged to be abſolutely neceſſary. The caſe which I ſaw occurred in 1758, when I was a pupil of St. George's Hoſpital in London. The patient was a corpulent woman, who in alighting from a horſe on which ſhe had been riding ſingle, happened to catch hold of the ſtirrup with the heel of one ſhoe. In conſequence of this ſhe came down to the ground upon the other foot, with ſo much violence that the inferior extremities of the tibia and fibula, together with the aſtragalus, were forced through the capſular ligament and integuments. Mr. Bromfeild, whoſe patient ſhe was, finding reduction to be impracticable, immediately amputated the leg, but the woman did not recover.

CHAP. X.

On Retention of Urine.

A Retention of urine in the bladder, when the natural efforts are incapable of affording relief, is, in male ſubjects, a diſeaſe of great urgency and danger. This retention may ariſe from a variety of cauſes, which operate as a mechanical impediment to the flow of urine; ſuch as ſtrictures in the urethra, calculous concretions fixed in any part of that canal, abſceſſes in the penis or perinæum, &c. each of which muſt require a ſpecific mode of treatment. It is not my deſign, however, to enlarge upon theſe cauſes of retention; but to conſider the diſeaſe in its moſt ſimple ſtate, and to confine my obſervations chiefly to that mode of relief, which ariſes from the uſe of the catheter.

Perſons advanced in years are more ſubject to this complaint than thoſe who are young, or middle aged. It is often brought on by an incautious reſiſtance to the calls of nature; and, if not ſpeedily relieved, gene-

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rally excites ſome degree of fever. It is ſometimes attended with a conſiderable degree of fever, and an inflammatory affection of the bladder, which terminates in a diſcharge of purulent matter, and a fatal hectic.

The diſtinction, which has ſometimes been made, between a *ſuppreſſion* and *retention* of urine is practical and judicious. The former moſt properly points out a defect in the ſecretion of the kidnies; the latter, an inability of expelling the urine when ſecreted.

The diſeaſe of which I am ſpeaking, under the term *retention of urine*, is, an inability, whether total or partial, of expelling, by the natural efforts, the urine contained in the bladder. The characteriſtic ſymptom of this diſeaſe, previous to the introduction of the catheter, is a diſtenſion of the bladder (to be perceived by an examination of the hypogaſtrium), after the patient has diſcharged all the urine which he is capable of expelling.

As this complaint may ſubſiſt, when the flow of urine from the bladder is by no means totally ſuppreſſed, great caution is required to avoid miſtakes on this ſubject.

Violent efforts to make water are often excited at intervals, and during theſe ſtrainings ſmall quantities of urine are expelled.

Under theſe circumſtances, the diſorder may be miſtaken for the ſtrangury.

At other times, a morbid retention of urine ſubſiſts, when the patient can make water with a ſtream, and diſcharge a quantity equal to that which is commonly diſcharged by a perſon in health. Under this circumſtance, I have known the pain in the hypogaſtrium, and diſtenſion of the bladder, continue, till the patient was relieved by the catheter.

And laſtly, it ſometimes happens, that when the bladder has ſuffered its utmoſt diſtenſion, the urine runs off by the urethra, as faſt as it is brought into the bladder by the ureters. I have repeatedly known this circumſtance cauſe a ſerious miſapprehenſion of the true nature of the diſeaſe.

In every caſe of retention of urine which I have ſeen, the diſeaſe might be aſcertained by an examination of the hypogaſtrium, taken in connection with the other ſymptoms. The diſtended bladder forms there a hard and circumſcribed tumour, giving pain to the patient when preſſed with the hand. Some obſcurity may ariſe upon the examination of a very corpulent perſon; but in all doubtful caſes the catheter ſhould be introduced.

I have

I have ſeen but a few caſes of the *iſchuria renalis*, or complete ſuppreſſion of the ſecretion of urine by the kidnies. The diſeaſe proved fatal in all my patients except one, in whom it was brought on by the effect of lead, taken into the body by working in a pottery. It ſubſiſted three days, during a violent attack of the colica pictonum, and was then removed, together with the original diſeaſe. I found no difficulty in diſtinguiſhing this diſorder, in any of the caſes, from the *iſchuria veſicalis*, though, for the ſatisfaction of ſome of my patients, I introduced the catheter.

Before I proceed to deſcribe that method of introducing the catheter which I have found moſt ſucceſsful, I ſhall premiſe a few anatomical obſervations on the parts concerned in this operation; and ſhall point out the principal difficulties which occur in it, when the diſeaſe is in its moſt ſimple ſtate.

In all operations on the parts contained within the pelvis, it is neceſſary to keep in mind the angle which the axis of the pelvis forms with that of the abdomen. When the body is upright, the oſſa pubis approach conſiderably towards a horizontal poſition. Now, as the bladder is connected with the poſterior

posterior surface of the ossa pubis, the depressed position of these bones gives a considerable curvature to the membranous part of the urethra, which passes round their inferior angle. This part of the urethra is about an inch in length. Its coats are thin. They are unprotected by the corpus cavernosum, and are immediately surrounded by a yielding cellular and adipose membrane. The prostate gland, when divided horizontally, somewhat resembles the figure of a heart stamped upon a pack of cards. Its point is turned towards the ossa pubis. The urethra enters the gland at its point, and passes through it, running upwards and a little backwards. The greater part of the prostate gland lies behind the urethra. The neck of the bladder descends lower before than behind, and is much strengthened in its anterior part with muscular fibres.

In our attempts to introduce the catheter, we should have regard to the curvature of the urethra, its connexion with the contiguous parts, and the manner in which it passes through the prostate gland. If the curve described by the point of the catheter, in an attempt to introduce that instrument, is less than the curve of the urethra, it is evident,

evident, that the point of the catheter will be puſhed againſt the poſterior part of the urethra, inſtead of following the courſe of that canal. The poſterior part of the urethra has nothing contiguous to it which can ſupport it; and no conſiderable degree of force is neceſſary to puſh the point of the catheter through that part, between the bladder and the rectum. If this accident is avoided, ſtill the point will be puſhed againſt the inferior ſurface of the proſtate gland, and cannot, in this direction, enter the bladder.

The truth of this ſtatement is farther manifeſt from the aſſiſtance which one receives, in the introduction of the catheter (whenever it ſtops at the proſtate gland), by elevating the point of the inſtrument with a finger introduced within the rectum. This gives a greater curvature to the courſe of the inſtrument, and facilitates its entrance into the proſtate gland. When I come to deſcribe the uſe of the flexible catheter, I ſhall mention another method of giving the point of the inſtrument a direction conſiderably curved, while it paſſes through the membranous part of the urethra, and farther illuſtrate the advantage of this manœuvre. There is no great danger of puſhing the point of the catheter

through

through the anterior coats of the urethra, as they are ſupported by the oſſa pubis, and as the urethra enters and paſſes through the proſtate gland in a direction nearly vertical.

The difficulty of performing this operation, ariſing from the cauſes above mentioned, ſhews the impropriety of puſhing forwards the point of the catheter before its handle is ſufficiently depreſſed. If the catheter is puſhed on while its handle is in a vertical poſition, it is evident that the point muſt move in a horizontal direction. Any force uſed in this direction greatly endangers the wounding of the urethra. But if the catheter is puſhed forwards when the handle is in a horizontal poſition, the point of the inſtrument will then aſcend in a vertical direction, which is the moſt proper for its paſſing through the membranous part of the urethra, and proſtate gland, without injury.

Another difficulty, which ſometimes occurs in the introduction of the catheter, ariſes from the inflamed and dry ſtate of the urethra. In this caſe the catheter does not move freely in the urethra, and the proper turns cannot be made with eaſe and exactneſs.

The previous introduction of a bougie, well covered with lard, greatly facilitates, in this caſe,

caſe, the paſſage of the catheter. But great caution ſhould be uſed if the bougie meets with reſiſtance, as even this inſtrument is capable of penetrating the coats of the urethra, when its point does not take a proper direction.

CASE I.

I was called one morning to aſſiſt a young man, who had been in great pain all the preceding night from a retention of urine, and who had been drinking freely of gin, to enable him to make water. I immediately made uſe of an elaſtic gum catheter, covered with freſh lard, which entered the urethra without difficulty. It had ſcarcely paſſed half the length of the penis, when the reſiſtance became ſo great from the adheſion of the urethra to the inſtrument, that I thought proper to withdraw it. That part of the catheter, which had been in the urethra, appeared dry as if it had been wiped with a cloth. I then introduced a ſmall bougie, well anointed, which dilated and moiſtened the urethra; and thereby enabled me to introduce the ſame catheter with eaſe.

Having premiſed theſe general obſervations, I ſhall proceed to point out the method

of

of directing the catheter, which I have found moſt effectual.

I place my patient upon a bed, in a recumbent poſture, his breech advancing to, or projecting a little beyond, the edge of the bed*. If the bed is ſo high, that his feet do not reſt upon the floor, I ſupport the right leg by a ſtool, or by the hands of an aſſiſtant. The patient's head and ſhoulders are elevated by pillows; but I leave the lower part of the abdomen in a poſition nearly, if not entirely, horizontal. I commonly introduce the catheter with its convex ſide towards the abdomen; and, having gently puſhed down the point of the inſtrument, along the ſymphyſis pubis, till its paſſage in that direction is ſtopped by the curvature of the urethra, I turn the handle of the catheter towards the navel, preſſing at the ſame time its point againſt the ſymphyſis pubis. Without this preſſure, the point of the inſtrument is apt to recede, and in that caſe it does not

* I prefer a recumbent to an erect poſture, becauſe it is eaſier to the patient, and keeps him more ſteady during the operation. Beſides, as this poſture is often neceſſary on account of the patient's weakneſs, and is, to ſay the leaſt, equally convenient; I give it the preference, that I may not ſuffer any embarraſſment from being compelled to do it in a poſition to which I am not accuſtomed.

readily

readily enter the membranous part of the urethra. In making the turn I ſometimes keep the handle at the ſame diſtance from the patient's abdomen, and ſometimes make it gradually recede; but in either method I avoid puſhing forwards the point of the catheter any farther than is neceſſary to carry it juſt beyond the angle of the ſymphyſis pubis. When I feel that the point is beyond that part, I pull the catheter gently towards me, hooking, as it were, the point of the inſtrument upon the pubis. I then depreſs the handle, making it deſcribe a portion of a circle, the centre of which is the angle of the pubis. When the handle of the catheter is brought into a horizontal poſition, with the concave ſide of the inſtrument upwards, I puſh forwards the point, keeping it as cloſe as I can to the interior ſurface of the ſymphyſis pubis; for when paſſing in this direction, it will not hitch upon the proſtate gland, nor injure the membranous part of the urethra*.

* In giving inſtructions to my pupils reſpecting this operation, I adviſe them to conduct the inſtrument as if the urethra was glued to the ſymphyſis pubis on both ſides (that is, both within and without the pelvis); obſerving that, although this is not anatomically true, the idea will lead them to act in a manner moſt conducive to a ſucceſsful and ſafe introduction of the catheter.

Theſe

Theſe directions are equally applicable, whether the ſurgeon, in making the turn, moves the catheter ſlowly, without taking hold of the penis, as Mr. Ware adviſes *; or moves it ſomewhat rapidly, holding the penis in the left hand, as other authors have adviſed.

They are applicable alſo when the catheter is introduced with its concave ſide towards the abdomen †, except that inſtead of making the turn, the handle muſt from the beginning be kept near the abdomen, till the point has reached the angle of the ſymphyſis pubis. The ſame method likewiſe, mutatis mutandis, may be followed, if the patient remain in an erect poſture during the operation.

I have hitherto ſuppoſed the ſurgeon to make uſe of a ſilver catheter. If he uſes a flexible one, covered with elaſtic gum, it is of great conſequence to have the ſtilet made of ſome firm metallic ſubſtance, and of a proper thickneſs. I always make uſe of braſs wire for this purpoſe. If the ſtilet is too ſlender, the catheter will not preſerve the ſame curvature during the operation; and it will be difficult, if not impoſſible, to make the point

* Memoirs of the Medical Society, vol. 2, Art. 30.

† Bell's Surgery, vol. 2, p. 34.

of

of the inſtrument paſs upwards behind the ſymphyſis pubis in a proper direction. If the ſtilet is too thick, it is withdrawn with difficulty.

When the stilet is of a proper thickness, this inſtrument has one advantage over the ſilver catheter, which is, that its curvature may be increaſed while it is in the urethra. This alteration in the ſhape of the inſtrument is often of great uſe when the point approaches the proſtate gland. The advantage to be obtained by it firſt occurred to me on the following occaſion.

CASE II.

I was introducing the elaſtic gum catheter in a patient whoſe proſtate gland was much enlarged, and upon whom the operation was, on this account, rendered difficult. Finding ſome obſtruction near the neck of the bladder, I determined to withdraw the ſtilet that I might ſee whether the urine would run off through the catheter. When I began to draw out the ſtilet, holding the catheter with my left hand, I rather repreſſed the inſtrument, and was agreeably ſurprized to find,

that as I drew out the ſtilet the catheter paſſed into the bladder.

This accidental ſucceſs put me upon conſidering the effect produced by withdrawing the ſtilet, and I immediately perceived, that as ſoon as the ſtilet is moved the curvature of the catheter is increaſed. In the operation, therefore, by this motion of the ſtilet, the point of the catheter muſt be lifted up, and will thereby be prevented from ſtriking againſt the inferior ſurface of the proſtate gland, and will be directed into the neck of the bladder. This discovery has been of great uſe to me in many difficult caſes. It will be underſtood by any one who obſerves the motion which a flexible catheter makes upon withdrawing the ſtilet*. The effect, however, is loſt, if the ſtilet be too ſlender; for in that caſe it is rendered ſtraight by the act of withdrawing it, and conſequently it cannot increaſe the curvature of the catheter.

There is another method of introducing the elaſtic gum catheter, which ſometimes anſwers very well, though it will not always

* The effect of withdrawing the ſtilet in part will be fully underſtood by a view of the ſecond figure in plate vii. The dotted lines repreſent the curvature which the catheter takes in the act of withdrawing it.

ſucceed.

ſucceed. It is this. Take a catheter which has acquired a conſiderable degree of curvature and firmness, from having lain by for a long time with a curved ſtilet in it*. Introduce this, without the ſtilet, with its concave ſide towards the abdomen; obſerving the caution above given, to avoid puſhing on the point of the inſtrument, when it has arrived at the ſymphyſis of the pubis, until its handle is depreſſed into a horizontal poſition. If the urethra has not been injured, and is in a moiſt ſtate, this method often ſucceeds; but chiefly after an elaſtic catheter has been kept for ſome days in the urethra. Cases occur, where a frequent extraction of the urine is neceſſary, and where the ſurgeon is at ſuch a diſtance from his patient as to be unable to give a frequent attendance. Under theſe circumſtances, if the patient cannot be removed, we are under the neceſſity of leaving a catheter in the urethra, until the method laſt deſcribed can be performed with

* A catheter, which has acquired the exact form of the urethra, would be preferable; but ſuch an one cannot always be procured.

The exact form of an old flexible catheter, which had lain a conſiderable time in the urethra, and which had ſo much rigidity as to retain its form after it was withdrawn, is given in plate vii. fig. 1.

eaſe. It may then be committed to the care of a dextrous and intelligent ſervant, or even of the patient himſelf.

Whatever method of performing this operation is purſued, the catheter ſhould be introduced with the greateſt gentleneſs. When any obſtruction occurs, the deſign of the ſurgeon ſhould be to *evade* rather than *overcome* it. Unſucceſsful attempts may render a caſe extremely difficult, which was not ſo before. I wiſh to impreſs upon the mind of my reader, that a moderate force, improperly directed, is capable of injuring the urethra in ſuch a manner, as to render the operation almoſt (and without a juſt knowledge of the injury, altogether) impracticable. It muſt be obvious to every ſurgeon, that long continued or violent attempts, have a tendency to increaſe the inflammation of the urethra. But the accidents to which I mean particularly to direct the attention are, the formation of a kind of pouch in the urethra, and the laceration of its membranous part. I ſhall relate an inſtance of each of theſe, and deſcribe the methods uſed to ſurmount the difficulty which they afforded to the introduction of the catheter.

CASE

CASE III.

I was conſulted for a gentleman advanced in years, who laboured under a retention of urine, attended with much fever, and pain in the hypogaſtrium. His ſurgeon had repeatedly drawn off the urine; but could not any longer introduce the catheter, on account of an obſtruction in the moſt depending part of the urethra, in its paſſage through the perinæum. Before I made any attempt to introduce the catheter, I gave the patient, with the concurrence of the phyſician and ſurgeon who were attending, fifty drops of tinct. opii, and put him into a warm ſemicupium. As he was now much reduced, and of a gouty habit, bleeding was not uſed. As ſoon as he was taken out of the warm bath, I placed him in the poſition above deſcribed, and attempted to introduce the catheter with its convex ſide towards the abdomen. When the point of the inſtrument arrived at the loweſt part of the urethra, I made the turn as uſual, but could not elevate the point behind the ſymphyſis pubis. The urethra ſeemed to be completely obſtructed, as if it had terminated at the part I have mentioned.

I had no reaſon to think that the urethra was lacerated, as the obſtructed part felt ſmooth; but I apprehended that a kind of pouch was formed there, (by the dilatation of ſome crypta of the urethra, or in ſome other way) which acted as a valve in the canal. As in all the attempts to introduce the catheter its convex ſide had been directed towards the abdomen, I thought there was reaſon to conclude, that this valve was formed in the inferior ſide of the urethra. I judged, therefore, that the moſt probable method of evading the difficulty would be to keep the point of the catheter, from its first introduction, as cloſe to the ſuperior ſide of the urethra as poſſible. I had before varied the direction of the inſtrument without ſucceſs, and was now convinced, that I could not keep its point in cloſe contact with the ſuperior ſide of the canal, unleſs the concave ſide of the catheter was turned towards the abdomen. An attempt made in this manner prevented the point of the inſtrument from entering the pouch formed in the urethra, and enabled me to reach the bladder. The catheter, which was a flexible one, was retained in the urethra; and by the aſſiſtance of gentle laxatives,

atives, with cooling and demulcent medicines, and a proper diet, our patient recovered.

The greatest impediment to the introduction of the catheter (in caſes of ſimple retention of urine) ariſes from the laceration of the membranous part of the urethra, when the point of the inſtrument has paſſed through it, between the bladder and the rectum. I am not aware that I have ever met with a caſe, in which the urethra was perforated between the bladder and the oſſa pubis; nor do I think ſuch an accident is likely to happen. Many authors have given cautions againſt injuring the membranous part of the urethra; but I do not recollect any one, except Mr. Bromfeild, who has ſpoken of this injury as a caſe which he had often met with. Mr. B. ſays,* "I have ſeen *ſeveral inſtances*, "where, from a ſlit having been made through "that part of the urethra by the inſtrument, "and in order to prevent future ſuppreſſions, "bougies have been uſed; the conſequence "was, that the bougies finding a readier "paſſage through the ſlit, than into the "neck of the bladder, a falſe route was ob-"tained. Three inſtances of which I lately

* Chirurgical Obs. vol. 2. p. 302.

" ſaw." He then relates the caſe of a patient, who had been repeatedly ſearched for the ſtone by himſelf, and another eminent ſurgeon, neither of whom could ever make the ſound paſs into the bladder, on account of a perforation in the membranous part of the urethra, betwixt the bladder and the rectum.

I am now fully perſuaded, that this accident occurs more frequently than is commonly imagined; that it may happen in the hands of a ſurgeon accuſtomed to introduce the catheter, and when no great force has been uſed; and that it always renders the operation difficult, and ſometimes impracticable to thoſe who are not aware of the nature of the difficulty which they have to encounter.

And here I muſt confeſs, that it was an error in my own conduct which firſt led me to conſider this ſubject with peculiar attention, and which has ſince enabled me to preſerve the life of ſome of my fellow creatures.

A little boy was brought to me about thirty years ago, who had ſymptoms of a ſtone in the bladder. I had not at hand a ſound ſmall enough to enter his urethra, except one which had its point ſomewhat conical. I had then been much accuſtomed to introduce the ſound and catheter, and

was not conſcious of uſing any improper force at this time. However, when the inſtrument had paſſed to a ſufficient extent, I found reaſon to ſuſpect that it was not in the bladder. Upon introducing my finger into the rectum, I was ſurprized to feel the ſound ſo diſtinctly through the coats of the inteſtine, as to leave no doubt that I had perforated the membranous part of the urethra betwixt the proſtate gland and the rectum. I immediately withdrew the ſound, and diſmiſſed the boy for that time, who ſuffered no other inconvenience from this accident than a little ſmarting for a few days upon making water.

This injury, ariſes chiefly, I apprehend, from the method (which, as far as I have ſeen, is not an uncommon one) of puſhing forwards the catheter before its handle has been depreſſed. By this method, the courſe of the inſtrument croſſes that of the urethra; and the point of the catheter, preſſing againſt the poſterior ſide of the membranous part of the urethra, is eaſily forced through the coats of that canal. The want of due curvature in the catheter, and of ſufficient bluntneſs in its point, greatly contribute to facilitate this injury.

When

When the membranous part of the urethra has been pierced, the point of the inſtrument paſſes more readily into the wound, than into the bladder. For the wound being made near the proſtate gland, where an elevation of the point of the inſtrument is required; it becomes very difficult to avoid the aperture, and purſue the natural courſe of the canal. The following caſe will point out the method which I have uſed to enſure ſucceſs in the operation, when rendered difficult by this accident.

CASE IV.

In January 1787, I was deſired to viſit an old gentleman forty-five miles from Leeds, who was labouring under a retention of urine, and could not any longer be relieved by the ſurgeon who attended him. I arrived at three in the morning, and found the phyſician and ſurgeon waiting my arrival. The latter gave me the following hiſtory of the caſe: That Mr. M. having been ſeized with a retention of urine betwixt three and four weeks before, he (the ſurgeon) had extracted the urine without difficulty, and had repeated the

the operation twice, and ſometimes thrice in the day, during three weeks. He then began to find ſome obſtruction in the urethra near the proſtate gland, which increaſed at every operation, till he was unable any longer to introduce the catheter. The patient had now been three days without relief, and the bladder was largely diſtended. Upon introducing the catheter, its point, when it had approached the proſtate gland, paſſed into a ſubſtance that felt ragged and fibrous. I had no doubt, from this ſenſation, that the poſterior ſide of the urethra was perforated. The object now was to keep the point of my catheter cloſe to the anterior ſide of the urethra, as it paſſed through its membranous part, that I might avoid the wound, which the point of the inſtrument entered with readineſs. The ſtilet of my flexible catheter, which I firſt uſed, was rather too weak; I therefore bent a ſilver catheter, at the diſtance of about an inch from its point; that having a greater curvature than uſual in that part, I might be enabled to keep the point of the inſtrument more cloſely in contact with the anterior part of the urethra, and thereby paſs over the wound made in the poſterior

ſide

ſide of that canal. This method, aſſiſted by the mode of introduction already deſcribed, was attended with ſucceſs, and I drew off about four pints of urine.

As I could neither ſtay with my patient, nor leave him with propriety in this ſituation, I thought it neceſſary to introduce an elaſtic gum catheter, which might remain in the urethra till the wound ſhould be healed. I procured ſome braſs wire of a proper thickneſs, with which I made a ſtilet; and having given it the ſame curvature as that of the ſilver catheter with which I had extracted the urine, I introduced it about four hours after the former operation, and fixed it by tying it to a bag truſs put upon the patient.

It is remarkable, that I drew off a quantity of urine from the bladder that had been emptied but four hours before, nearly equal to that which was found in the bladder, after the retention had ſubſiſted three days.

The life of my patient was preſerved at this time; but the catheter was ſuffered to remain in the bladder. After ſome weeks an inflammatory affection enſued, which brought on a diſcharge of purulent matter, and the patient

died

died hectical about ſix months after my viſit.*

I could relate other caſes of a ſimilar nature which have occurred to me; but as I have ſucceeded with the aſſiſtance of an elaſtic gum catheter, either by withdrawing

* The following accounts, which I received from Mr. M.'s ſurgeon, ſhew the progreſs of the complaint after my viſit.

"Feb. 19th, 1787.

"Our patient, Mr. M. ſeemed to enjoy a good ſtate "of health from Jan. 4th, to Feb. 4th, when he had a "diſcharge from the urethra ſimilar to that of a gleet, "attended with a little inflammation of the glans penis. "He has alſo for this week paſt found a little uneaſineſs "when he wanted to have his water drawn off." (I ſuppoſe by taking the cork out of the flexible catheter, which I had left in the urethra.)

"July 1st, 1787.

"Mr. M.'s complaint ſtill continues.——The irrita-"tion is ſo great as to require the water to be drawn off "every two hours. For ſome time paſt there has been "a quantity of mucus and pus rather fetid diſcharged "with the water, which has been ſo corroſive as to "deſtroy the inſtrument you left, and alſo one that "was introduced the 27th ult. For the laſt fortnight "the diſcharge has been leſs offenſive, but mixed with "blood, which alarms him much.

"The flexible catheter is conſtantly withdrawn, "when Mr. M. jun. is at home, except in the night, "when his father dare not ſleep without it. He" (the ſon I ſuppoſe) "can introduce the flexible one very "well, but cannot the common one."

the

the ſtilet in part at the moment when I wiſhed to increaſe the curvature of the catheter, or by giving the inſtrument a conſiderable degree of curvature previouſly to its introduction, I ſhall not trouble my reader with a more particular relation.

In one caſe, where the urethra had been injured near the ſymphyſis pubis, by a violent contuſion, (my patient's horſe having fallen backwards upon him, and ſtruck the parts with the pommel of the ſaddle) I drew off the urine with a ſilver catheter of unuſual thickneſs, after I had failed with inſtruments of a ſmaller bore. In this caſe I ſuſpected a rupture of the urethra, and was obliged to elevate the point of the catheter with my finger in the rectum, before it would paſs the injured part. I was alſo obliged to uſe repeated bleeding, purgatives, the warm bath, and large doſes of opium, before I could ſucceed in the introduction. After the firſt introduction I uſed the elaſtic gum catheter, in the manner above directed.

The invention of the flexible catheter, covered with elaſtic gum, has been of great utility in this important operation of ſurgery; but it is a queſtion not yet decided, whether the cure is more promoted by leaving the

catheter

catheter in the urethra until the patient regain the power of expelling his urine, or by extracting the urine twice a day, and withdrawing the catheter after each operation.

As far as it concerns the removal of the inflammatory ſymptoms, I do not ſee that any general rule can be laid down. I have ſeen ſome patients who could not bear the catheter to remain in the urethra without great uneaſineſs; while others have recovered from the firſt inflammatory ſtage of the diſeaſe, even in bad caſes, without appearing to be hurt by wearing the catheter conſtantly. Yet, upon the whole, I prefer the removal of the catheter after each operation, in all ordinary caſes; and now always uſe this method, when my patient is near, and under my own immediate care.

With regard to the reſpective merits of theſe methods, as promoting the complete cure of the diſeaſe, my opinion ſeems at preſent to be decided. I have tried theſe different methods ſo often, and in caſes ſo nearly ſimilar, that I can ſcarcely entertain a doubt, that a perſon regains the power of expelling his urine much ſooner when the

catheter

catheter is withdrawn after each operation, than when it is left in the urethra.

The beſt method of retaining the catheter in the urethra, which I have tried, is the following. To each ſide of a bag truſs, made with a ſtrap to go over the penis, I ſew on three ſmall loops of tape. The lower loops are fixed to the middle of the truſs; the two higher to the extremities of that part which goes over the penis. When the truſs is put on, and a piece of very narrow flat tape is put through the rings of the catheter, I put the oppoſite ends of the tape firſt through the lower loops on each ſide, and then through the middle loops; and after carrying the ends of the tape acroſs each other beneath the penis, and making them paſs through the higheſt loop on each ſide, I tie them above the penis upon the middle of the pubes. By this method the catheter is kept steady, if the patient is moderately cautious. To prevent the extremity of the catheter from catching hold of the patient's clothes, I ſometimes apply a T bandage over the bag truſs and catheter, or faſten the middle ſtrap of ſuch a bandage over the ſuſpenſory, by which method the catheter may be kept quite ſecure.

I have

I have already mentioned ſome circumſtances, which have a tendency to miſlead the medical practitioner, in the treatment of the diſeaſe which I am now conſidering; and it may be of uſe to add a few obſervations on theſe ſources of deception.

CASE V.

In the early part of my practice, about forty years ago, I was attending Mr. Hepworth, an elderly man, who laboured under a retention of urine. I had drawn off his water morning and evening for a few days, when I was informed, that he had regained the power of relieving himſelf. About a pint of urine was ſhewn to me, as the quantity which he had made in the courſe of the night with a natural ſtream. I began to apprehend that my attendance would be no longer neceſſary; but as he ſtill complained of the ſame uneaſineſs in the hypogaſtrium, I examined the ſtate of the abdomen, and was ſurprized to find the bladder diſtended as much as it had uſually been before his urine was extracted, and the operation was found to be as neceſſary as it had been before.

This caſe taught me the neceſſity of con-

tinuing to introduce the catheter, till it clearly appears, that the patient can empty his bladder by the natural efforts.

CASE VI.

About two years ago I was desired to visit a patient early in the morning, whom I had repeatedly attended on account of a retention of urine. He complained of considerable pain in the hypogastrium, though he had made two quarts of urine in the course of the night. I found his bladder distended, and drew off about a pint of urine, which he had not been able to expel.

When there has been a necessity for extracting the urine by the catheter during two or three weeks, the power of expelling it voluntarily generally returns by degrees. The propriety of omitting the operation is not to be determined by the quantity of urine which the patient expels, but by the power of emptying the bladder.

Another source of deception is the involuntary discharge of urine, which sometimes succeeds a retention that is not relieved by the catheter. This is not so frequent an occurrence as the former; but it is highly dangerous,

dangerous, when the proper means of relief are neglected.

CASE VII.

I was desired to visit Mr. Lawn, of Hunslet, near Leeds, an old man, who had laboured under an incontinence of urine about fourteen days. Upon inquiring into the manner in which this disease commenced, I found that it had been preceded by an inability of expelling his urine. This circumstance led me to examine the abdomen, when I found the bladder distended greatly, and giving pain when pressed upon. I extracted the urine by means of the catheter; but notwithstanding the temporary relief which this operation afforded him, he died the following day, though the complaint in his bladder seemed to be the only disease which had affected him.

CASE VIII.

May 17th, 1798, I visited Mr. B. aged sixty-seven years, who lived about sixteen miles from Leeds, and laboured under an incontinence of urine.

About a fortnight before I saw him, he

had been ſeized with an inability of diſcharging his urine freely, attended with conſiderable pain in the hypogaſtrium. In the courſe of two or three days he loſt entirely the power of expelling his urine by any voluntary efforts, and it began to flow from him involuntarily, and inceſſantly.

I found him in a very weak ſtate. His tongue was white, and rather dry. His pulſe frequent. His thirſt conſiderable. He was reſtleſs, being able to get very little ſleep, and having a conſtant uneaſineſs in the abdomen. The hypogaſtrium was enlarged, and felt very ſore when preſſed upon. The bladder was in a diſtended ſtate, and roſe ſomewhat higher than the navel. The penis was ſore from the conſtant flow of urine.

I had ſuſpected the nature of his complaint, from an imperfect account which I had received from a friend of the patient, who came to deſire my attendance; and in conſequence of this ſuſpicion, I had brought with me a flexible catheter, and a bag-truſs.

I immediately extracted his urine, though with ſome difficulty, and left the catheter in the urethra, ſecured by means of the bag-truſs, in the manner above deſcribed.

He begged that he might have ſomething

to

to drink which was cooling, as his ſurgeon had confined him chiefly to gin and water for beverage, to enable him to expel his urine more freely. I gave him a baſon full of milk, which he drank with the greateſt pleaſure. I wiſhed to have brought him to Leeds with me, but he thought himſelf unable to bear the journey, and was deſirous to remain at home. I adviſed him to let off the urine every four or five hours.

27th, I viſited Mr. B. again, drew out the catheter, and after cleaning it, and removing the calculous matter which adhered to its extremity, I replaced it. He could not yet expel his urine.

A week after this viſit Mr. B. was brought to Leeds. I waited a few days after his arrival before I withdrew the catheter; but did not obſerve any natural efforts which could enable him to expel his urine. On the 11th day after the laſt introduction I took out the catheter, the extremity of which, for the ſpace of an inch, was curiouſly encruſted with calculous matter.

I now extracted his urine twice a day, withdrawing the catheter after each operation. I attended him at ſeven in the morning, and at nine in the evening, as there was always a

more copious ſecretion of urine in the night-time than in the day. White matter, of a purulent appearance, flowed from the bladder with the laſt portion of urine.

As his nights were not paſſed comfortably, and as the painful deſire to make water returned ſometimes very early in the morning, I gave him for ſeveral nights a bolus at bed time with calomel gr. v. and opium gr. j. which procured comfortable reſt, and ſeemed to haſten on the power of expelling his urine.

At the expiration of a week, after I had begun to introduce the catheter twice a day, he found a little involuntary diſcharge of urine in the morning as he lay in bed, and could then expel a ſmall quantity by the natural efforts. At this time he roſe to make uſe of the chamber-pot, but no ſooner did he increaſe his efforts, than the flow of urine ceaſed. I adviſed him to lay ſome pieces of blanket ſo as to receive his urine when it began to flow involuntarily, and to uſe the moſt gentle efforts as he lay upon his ſide, when the involuntary discharge ceaſed. By this method the urine flowed in greater quantity, than by ſtraining over the chamber-pot.

The purulent appearance of the laſt portion of urine ceaſed gradually, after I had

begun

begun to extract his urine twice a day; and at the expiration of ſixteen days he needed no longer the aſſiſtance of the catheter.

CASE IX.

One evening I received a meſſage from a young gentleman, deſiring my attendance upon his father the next day. The meſſage was accompanied with the following letter: "My poor father has been exceeding ill for "the laſt fortnight. He was ſeized about "that time with conſiderable pain, which "Dr. —— and Mr. —— who attend him, "think proceeded from ſome diſorder in the "urinary veſſels. It was attended at firſt "with a ſuppreſſion of urine, but has ſince "changed to an involuntary diſcharge, which "occaſions great pain and irritation."

I went over to —— the next day, and took a catheter along with me, apprehending that the diſeaſe might prove to be a retention of urine. As ſoon as I was ſeated by the ſide of my patient's bed, I examined the hypogaſtrium, and found the bladder forming a hard tumour, which extended rather higher than the navel.

I deſired that the ſurgeon might be ſent

for immediately, and comforted my patient with the proſpect of ſpeedy relief.

The diſeaſe had now ſubſiſted ſixteen days, and had begun in the following manner. Mr. —— was awaked about two o'clock in the morning, with a painful motion to make water, a complaint to which he was ſomewhat liable; but at this time he could diſcharge no urine. He remained in this diſtreſſing ſtate for ſome hours; but in the courſe of the day (he could not recollect at what hour) the urine began to flow involuntarily. This evacuation, however, afforded him but a ſmall degree of relief. He continued to have a conſtant uneaſineſs, attended with great reſtleſſneſs; ſo that from the commencement of the attack his repoſe ſeldom continued above an hour at one time. He was feveriſh. Various remedies had been adminiſtered; and before my arrival, the fever had abated in ſome degree, and the pain was ſomewhat diminiſhed. His tongue had become clean.

As ſoon as the ſurgeon arrived, the catheter was introduced, and four pints of urine were extracted. This was not high coloured, as is generally the caſe in a complete retention. I attributed its paleneſs to the conſtant

influx of urine from the kidnies, and the conſtant flow from the urethra.

I never knew a patient appear to receive ſo little relief by the extraction of ſo large a quantity of urine. He was very weak, and continued to be reſtleſs and uneaſy.

As this operation did not enable Mr. —— to expel his urine by the natural efforts, it was extracted again the following morning, and then exceeded ſomewhat four pints in quantity. In the evening of the ſame day, the urine drawn off was about a pint and half.

On the third day an elaſtic gum catheter was left in the urethra, and ſecured by means of a bag-truſs.

Four days after I had left my patient, I received a meſſage to inform me, that the catheter had ſlipped out of the urethra. The meſſenger brought me the following account from the phyſician who was attending.

" Some days ago the urine was very fetid,
" and alkaleſcent, and at the bottom there
" was a conſiderable quantity of ſanious
" mucus, which laſt has continued to appear,
" but the urine diminiſhes in quantity. Laſt
" night not more than from three to five ounces
" was diſcharged at a time, and that much

" loaded

" loaded with bloody mucus. He has alſo " complained of ſmarting and burning latter- " ly when it was drawn off. The pulſe has " ſtood at ninety day after day."

I ſet off immediately to viſit Mr. ——, but before my arrival the ſurgeon had replaced the catheter. The urine which was let off after this replacement was not more tinged with blood than it had been the preceding day; but at five in the afternoon, more than half the quantity of fluid which ran through the catheter was pure blood, and coagulated as it flowed. The quantity of blood which flowed at this time was about four ounces. The blood was florid, as if recently extravaſated. Upon inquiry, I found that the belt of the bag-truſs had been ſuffered to ſlide down below the hips, and had conſequently drawn out the catheter.

I put on a freſh ſuſpenſory; added ſhoulder ſtraps to it, and alſo a broad piece of ſingle calico, which was put on as a ⊤ bandage over all, for the purpoſe of covering the extremity of the catheter. This additional part was faſtened to the belt behind with ſmall buttons, and was pinned before; ſo that it might be readily removed when Mr. —— had occaſion to uſe the night-chair.

Our

Our patient was evidently ſunk with the hæmorrhage. A cold ſweat lay upon his arm the remainder of the day, and his pulſe was more feeble than uſual.

We had directed Mr. —— to abſtain from wine, or to take very little, on account of the tender ſtate of the bladder; but the degree of debility which ſucceeded the hæmorrhage induced us to change the plan of diet. We now directed him to drink half a pint of wine in the courſe of the day, partly old hock, and partly red port. We ordered the following medicines for him:

℞. Decoct. Cort. Per. ℥vij.
Tinct. ----- ſimp. ℥j. miſce ſumat ~~coct.~~ iij ſextis horis.

℞. Aq. puræ ʒx. ſpt. cinnamomi.
Syr. ſimp. aā ʒj. tinct. ferri muriat. gtts xx. miſce fiat hauſtus ſextis horis ſumendus.

Theſe medicines were to be taken alternately every three hours.

The next day Mr. —— ſeemed much recruited by the change of diet, and the medicines. His cold ſweats were gone off, and his pulſe in the afternoon, when I left him, was at eighty-eight. He was able to walk a little about his room. His urine was highly tinged

tinged with blood of a dark colour, but no freſh blood appeared.

Dr. —— informed me by letter, that on the third day after this viſit, a ſeparation in the urine appeared, the dark-coloured ſediment falling to the bottom. After that day there was no ſediment, but the urine continued clear, and without fetor.

At the expiration of a fortnight I paid a third viſit to Mr. ——. His urine had ſtill continued clear, but was rather high coloured. Pulſe ſeventy-eight. Tongue clean and moiſt. Appetite good. Strength encreaſed.

The catheter was removed, that a trial might be made whether our patient had regained the power of expelling his urine. The inability ſtill remained, and the catheter was replaced.

At the expiration of a week after my laſt viſit, Mr. —— came to Leeds. The retention of urine had now ſubſiſted forty-ſeven days, during thirty-one of which the catheter had remained in the urethra, except when withdrawn for the purpoſe of trying our patient's ability of relieving himſelf.

Mr. —— was not now ſo free from inflammatory ſymptoms as when the catheter was laſt withdrawn. His urine had a higher colour,

colour, and an offenſive ſmell. Some flakes of purulent mucus were diſcharged along with it; and he felt pain in his bladder when the laſt portion of urine was flowing through the catheter. I was apprehenſive that his diet had been too generous, with the view of encreaſing his ſtrength.

I tried the effect of extracting his urine every twelve hours, without leaving the inſtrument in the urethra. But the ſecretion of urine was uſually ſo copious in the night-time, that he was in a very painful ſtate for ſome hours before the appointed time arrived for extracting his urine in the morning, notwithſtanding he uſually took two grains of opium at bed-time. I determined, therefore, to leave the catheter again in the urethra, and try by a ſtrict regimen, and other appropriate means, to remove the inflammatory ſymptoms which ſtill remained. Mr. —— left off the uſe of fleſh meat and wine, took gentle laxatives occaſionally, and drank the lac amygdalæ, with mucilage of gum arabic added.

I removed the catheter after it had remained about a fortnight in the urethra; and as my patient could not yet relieve himſelf, I thought it beſt to extract his urine every

every eight hours, (viz. at ten in the evening, at ſix in the morning, and at two at noon) to prevent too great an accumulation in the bladder. This method was attended with ſuch ſucceſs, that at the expiration of a week he began to expel a conſiderable part of his urine by the natural efforts. I continued to introduce the catheter once or twice a day, for a few days, and then once in two or three days, till I found him capable of emptying the bladder. He had received ſo much benefit from the opiate, that he continued to take a ſingle grain every night at bed-time.

After remaining two or three weeks longer at Leeds, to try the effect of exerciſe, and his uſual mode of living, he returned home perfectly free from the diſorder, which had afflicted him nearly three months, and which had repeatedly been attended with very dangerous ſymptoms.

REMARKS.

I have related this caſe at ſome length, as it affords much inſtruction in the management of this important diſeaſe.

1. We ſee how ſoon a complete retention of

of urine may change to an involuntary diſcharge, the bladder ſtill remaining in a diſtended ſtate. I queſtioned Mr. —— very ſtrictly reſpecting the time at which the involuntary emiſſion of urine took place; but he could not recollect the hour exactly. The information which I received from thoſe who attended him led me to conclude, that the total ſuppreſſion had not continued above twelve hours before the involuntary diſcharge commenced. This ſpeedy alteration in the appearance of the diſeaſe, cauſed the antecedent ſuppreſſion to be overlooked; and led to an omiſſion of the appropriate remedy.

2. I have frequently obſerved, as occurred in this caſe, that a copious ſecretion of urine immediately ſucceeds the firſt extraction, when the retention has not been ſpeedily relieved. The quantity of urine extracted after twelve hours exceeded that which had been drawn off at the firſt operation by about half a pint. In Mr. M.'s caſe (Caſe IV.) the quantity of urine extracted after the ſhort interval of four hours, was nearly equal to that which had been previouſly extracted after a complete retention had ſubſiſted for three days.

3. In extracting the urine regularly night and

and morning, with the exact interval of twelve hours, I have often obſerved, that the quantity of urine ſecreted in the night, has exceeded that ſecreted in the day. This occurred in an unuſual degree in the preſent caſe. The quantity of urine drawn off in the evening ſeldom amounted to a pint, and ſometimes did not exceed half a pint; while the ſecretion in the night-time was often more than two quarts. Nay, it happened ſometimes, that Mr. —— diſcharged three or four pints in the violent ſtrainings which accompanied this abundant nocturnal ſecretion, while a painful retention continued, ſo that I drew off an additional pint in the morning.

4. This caſe ſhews, as clearly as a ſingle one can ſhew, that a patient ſooner regains the power of emptying his bladder by the natural efforts, when the catheter is withdrawn after each extraction, than when it is ſuffered to remain conſtantly in the urethra.

To the above remarks I have the pleaſure to add, that the gentleman whoſe caſe is laſt related, has been more free from the attacks of painful micturition ſince his recovery, than he had been for a conſiderable time before.

I cannot

I cannot conclude theſe obſervations, without urging the propriety of an early introduction of the catheter in this diſeaſe. Delay is not only fruitleſs, in general; but alſo renders the operation more dangerous, as well as more difficult, and uſually protracts the completion of the cure. Beſides, the great degree of inflammation which the bladder ſuffers, when the extraction of the urine is long delayed, brings on ſometimes a ſuppuration in the part. I have ſeen many inſtances of this. The retention has indeed been cured, but a diſcharge of purulent matter has ſucceeded, and the patient has died tabid. If the circumſtances of the caſe require bleeding, purging, the injection of a clyſter, or the uſe of a warm bath; a delay for theſe purpoſes may be beneficial: but delay ſhould only be conſidered as preparatory to a more ſafe introduction of the catheter.

PLATE VII.

Fig. 1. repreſents the exact form of an old flexible catheter, which had lain a conſiderable time in the urethra of a male patient. I have obſerved the ſame form in other catheters, which had been ſuffered to remain in the urethra, and which had firmneſs enough to retain that degree of curvature which they had acquired in the urethra.

Fig. 2. ſhews the effect which is produced in a catheter by withdrawing the ſtilet, if it is ſufficiently firm. The figure in outlines, which is neareſt to that of the inferior catheter, was taken when the ſtilet had been withdrawn about half an inch.

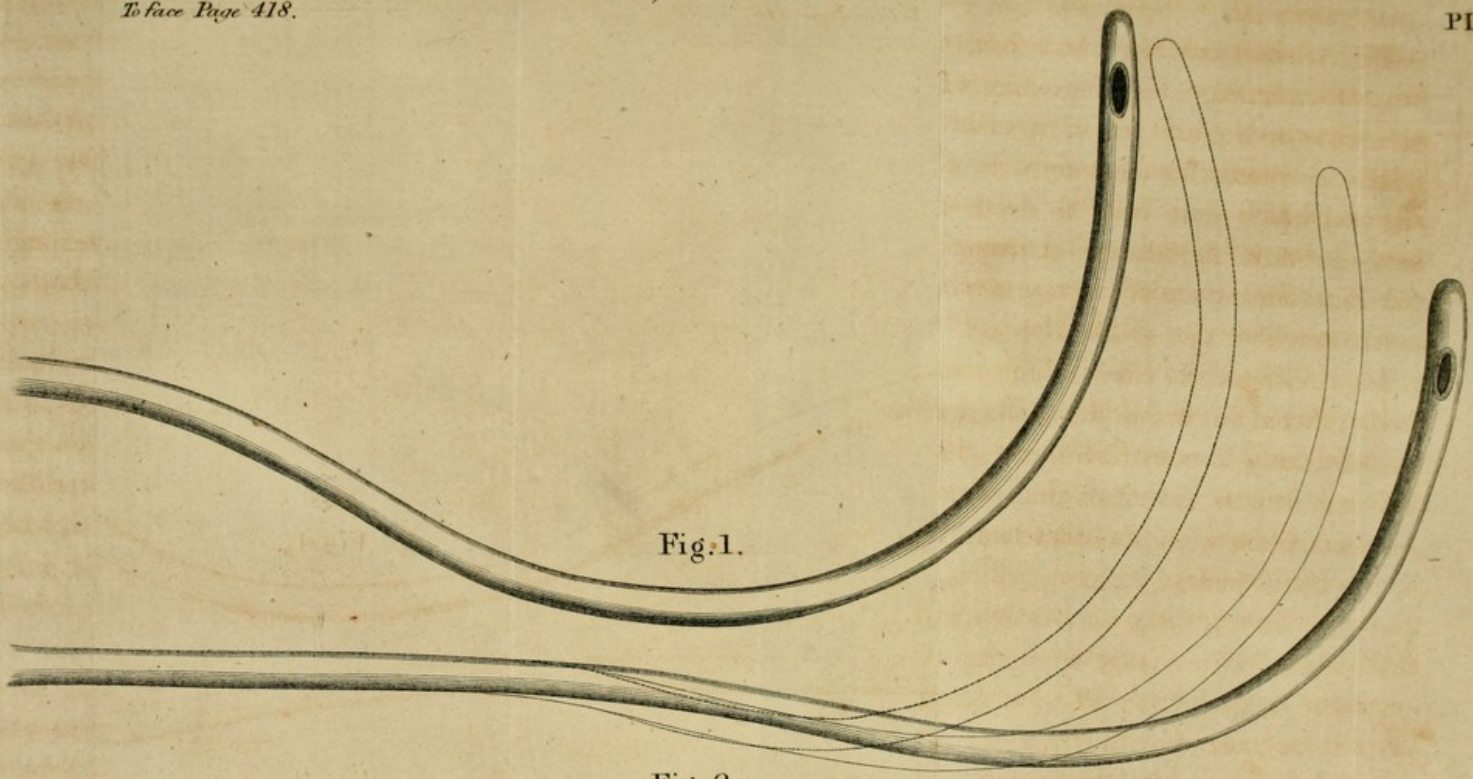

Fig. 1.

Fig. 2.

CHAP. XI.

On the Cure of the Procidentia Ani in Adults.

CASE 1.

IN autumn 1788, Mr. W. of Hull, conſulted me on account of a complete and moſt troubleſome *procidentia ani*, which came on whenever he had a ſtool, and continued for ſome hours; the gut gradually retiring, and at laſt diſappearing, until he had occaſion to go again to the vault. The returns of this diſeaſe were invariable, and ſo diſtreſſing, when they happened in the day-time, that he had brought himſelf into the habit of having a ſtool every other evening, a little before bed-time. After each ſtool he uſed to place himſelf in a chair, and make a gentle preſſure upon the prolapſed part, which afforded him a little relief: he then lay down in bed; and, the inteſtine by degrees regaining its natural ſituation, he found himſelf in the morning free from the prolapſus. While the inteſtine

remained prolapſed, there was a copious diſcharge, from the part, of a ſerous and mucous fluid mixed with blood.

Although he had no pain, nor other inconvenience, during the intervals of theſe attacks, yet the *anus* did not return to its natural ſtate. It was conſtantly ſurrounded by a thin pendulous flap, which was formed by the integuments, and hung down to the extent of three-fourths of an inch in general. The *anus* was alſo ſurrounded with ſeveral ſoft tubercles of a bluiſh colour, which were ſituated at the baſis and interior part of the pendulous flap. Theſe tubercles had the ſame appearance as thoſe which often remain in perſons who have been frequently afflicted with the external piles; and were evidently formed by the extremity of the *rectum*.

Mr. W. gave me the hiſtory of his diſorder; which he afterwards wrote down, as follows:

"When I was ſeven or eight years old, "I remember to have ſuffered much pain by "the bowel coming down after a ſtool; but "I think this complaint did not continue "long with me. From that age till about "twenty-two, I enjoyed an excellent ſtate "of health, and had no appearance of any "complaint in the *anus;* only I remember

"that

" that I uſed often to feel an inclination to
" ſit pretty long at the vault, which I in-
" dulged probably too much.

" About the age of twenty-two, on going
" to the vault, I for the firſt time perceived
" that I had voided a good deal of clear blood;
" but do not remember that I had any pain
" at that time. After this I was often,
" if not generally, troubled with a little
" diſcharge from the *anus*, which was uſually
" of blood. I commonly perceived ſome
" heat and uneaſineſs after a ſtool, and theſe
" gradually increaſed, together with a ſmall
" protuberance on the edge of the *anus*;
" which laſt I think I did not perceive till
" ſome weeks, perhaps months, after the
" firſt diſcharge of blood. The diſcharge
" after ſtool increaſed by degrees, ſo that
" in twelve or eighteen months after the firſt
" attack I was obliged to apply linen cloths
" to the part affected.

" I was now conſtrained to mention my
" diſorder, and various applications were
" made uſe of for my relief, as the powder
" of nut galls mixed with hog's lard, elder
" ointment, and a ſolution of Roman vitriol,
" but without effect. Opening electuaries,
" ſulphur, &c. were preſcribed for me, but

" to as little purpoſe, the diſorder ſtill in-
" creaſing. After about two years, I ſeldom
" parted with a ſtool in leſs time than twenty
" or thirty minutes; and often voided a good
" deal of blood. Thus I continued for ſeve-
" ral years, the pain after each ſtool, and the
" protuberances gradually increaſing, as did
" alſo the diſcharge of blood and mucus.

" After enduring this complaint ſeven or
" eight years, I applied to Mr. Sharp, an
" eminent ſurgeon in London, who gave me
" an ointment to apply after each ſtool, ſome
" ſoapy pills to take, and recommended the
" uſe of a clyſter a little before going to ſtool;
" but this laſt I could never effect, though it
" was that from which he ſeemed to expect
" the moſt benefit.

" For many years paſt I have ſeldom had
" a ſtool oftener than every other day, and
" *always* with great pain after it. For two
" or three years paſt the pain has ſeldom
" ſubſided in leſs time than from four to ſix
" hours. In the intervals I have been able
" to walk or ride on horſeback with eaſe:
" and I have in other reſpects enjoyed a
" good ſtate of health, excepting ſometimes
" a depreſſion of ſpirits, and more nervous
" feelings than formerly. My legs have

" occa-

" occaſionally ſmall ſcarlet ſpots upon them,
" and are ſometimes ſwelled about the ancles.
" I think it is now about fifteen years
" ſince the firſt attack of bleeding. I can-
" not ſay how long the gut has been in the
" habit of coming down; but I think it did
" not come down much, if at all, when I
" conſulted Mr. Sharp ſeven years ago;
" though the pain was then quite ſimilar to
" what it has been ſince, only it did not
" continue ſo long."

I recommended a trial of the following lotion, for waſhing the part affected during the ſtate of prolapſus; and I alſo adviſed him to keep it applied to the *anus* in the intervals, by means of a thick compreſs ſupported by the ⊤ bandage.

℞. Aq. Calcis ſimp. ℔ ij.
Cort. Quercûs contuſ. ʒ iv.
f. Infuſum per hebdomadam, et colaturæ adde
Spt. Vini rect. ʒ iv. f. lotio.

He thought himſelf for a time ſomewhat relieved by the application: but farther trial ſhewed, that the relief obtained was inconſiderable; and that the diſeaſe was too obſtinate to be cured by ſuch treatment.

To obviate the bad effects which aroſe

from the long continuance of the *prolapſus* after each ſtool, I tried to reduce the inteſtine ſoon after it came down; but the attempt gave him much pain, and afforded no relief. I was ſatisfied upon the trial, that the reduction was impracticable.

Although the prolapſed part of the inteſtine conſiſted of the whole inferior extremity of the rectum, and was of conſiderable bulk; yet the impediment to reduction did not ariſe from the ſtricture of the *ſphincter ani*; for I could introduce my finger with eaſe during the *procidentia*: but it ſeemed to ariſe from the relaxed ſtate of the loweſt part of the inteſtine, and of the cellular membrane which connects it with the circumjacent parts.

My attempt proved vain as to its immediate object, yet it ſuggeſted an idea which led to a perfect cure of this obſtinate diſorder.

The relaxed ſtate of the part which came down at every evacuation, and the want of ſufficient ſtricture in the *ſphincter ani*, ſatisfied me, that it was impoſſible to afford any effectual relief to my patient, unleſs I could bring about a more firm adheſion to the ſurrounding cellular membrane, and increaſe the proper action of the ſphincter. Nothing ſeemed to me ſo likely to effect theſe purpoſes, as the removal of the pendulous flap, and

the

the other protuberances, which ſurrounded the anus. I hoped that the inflammation cauſed by this operation would produce a more firm adheſion of the rectum to the ſurrounding cellular ſubſtance; and I could not doubt that the circular wound would bring on a greater ſtricture in the *ſphincter ani*. I explained my ideas to my patient, and he thought it right to ſubmit to the operation which I propoſed.

November 13th. After having given a gentle laxative, I removed with the knife all the pendulous flap above deſcribed, and the moſt prominent of thoſe bluiſh ſoft tubercles which immediately ſurrounded the anus. Very little blood was loſt by the inciſions.

15th. Mr. W. continued eaſy; but an effort to go to ſtool, which he made this day, cauſed a ſmall part of the rectum to appear within the ſphincter ani. I hoped that this prolapſed part would have gradually retired as it uſed to do; but, inſtead of this event, the rectum came down in greater quantity, attended with much pain. I attempted to procure eaſe by giving opiates, and applying fomentations, and did not immediately try to reduce the prolapſed part, having before the operation found ſuch attempts ineffectual. However,

However, the prolapſus continued ſo long, that the appearance of the part began to alter; and I ſaw it would be hazardous to permit the rectum to remain any longer in this ſituation.

16th. This day at noon I made an attempt to reduce the inteſtine, and ſucceeded with the greateſt eaſe. After the reduction Mr. W. complained of ſo much pain in the *hypogaſtrium*, that in the evening I thought it proper to bleed him, and to purge him gently with the ol. ricini.

Theſe means afforded the deſired relief, and the ſucceeding evacuations by ſtool did not again bring down any part of the rectum. But, as ſome pain in the lower belly ſucceeded the evacuations, I thought proper to reſtrain this by giving an opiate. I directed a mild and ſlender diet, the drinking of linſeed tea, lac amygdalæ, &c. gave a little ol. ricini every morning, or every other morning, and gave an opiate after a ſtool had been procured. By proceeding in this manner for ſome days, regular ſtools were procured without any permanent inconvenience. My patient recovered very well, and was freed from this diſtreſſing complaint, which had afflicted him ſo many years.

In

In March 1789, I received a letter from Mr. W. of which the following is an extract:

" Dear Sir,

" Agreeable to your kind requeſt I ſit " down to inform you how I go on. For " ſome time paſt I have been very regular " in my body, having generally had a call " every day, ſo that I have ſeldom had occa- " ſion to uſe the caſtor oil. I apprehend I " am now nearly the ſame as before the " complaint commenced; only that I con- " ceive the contraction occaſioned by the " operation is ſtill greater than is natural; " but I find very little inconvenience from " that, as I guard againſt coſtiveneſs. In " one inſtance I am perhaps ſomewhat dif- " ferent from others; that is, immediately " after an evacuation the lips of the anus " (as I conceive) contract haſtily, and in that " contraction give a little ſharp pain, but it " is over perhaps in leſs than a minute. I " never bleed now; nor do I perceive any " ſymptoms of my old complaint, for which " I deſire to be ever and unfeignedly thank- " ful. It is a bleſſing which I truſt I ſhall " never forget."

In May 1791, I had the pleaſure of a viſit from

from Mr. W. who then informed me, that he continued well. He ſaid he felt a very ſmall protuberance at the anus, not longer than an eighth, or at the moſt a quarter, of an inch, when he went to ſtool; eſpecially if he ſtrained more than uſual. But this went away immediately after the evacuation, and gave him no trouble.

CASE II.

Mr. K. of Wetherby, conſulted me in October 1790, on account of a troubleſome *procidentia ani*, attended with frequent bleeding, and with the external piles. He had been ſubject to diſcharges of blood, at times, upon going to ſtool, for twenty years. The piles had frequently burſt, and then becoming flaccid they grew eaſy, and he felt no inconvenience from them for a time. During the laſt two years they had continued to increaſe in ſize, and had not burſt as uſual. They were become ſo troubleſome, that he could neither ride nor walk with eaſe.

I found ſeveral ſoft tubercles ſituated at the verge of the anus. Thoſe which were the moſt prominent were ſituated on one ſide of the anus; on the oppoſite ſide there were none very prominent.

I recom-

I recommended the operation which I had performed in Mr. W.'s caſe, and with the conſent of my patient I extirpated the larger tubercles on one ſide of the anus.

The part was healed at the end of three weeks, and Mr. K. returned home much relieved. He favoured me with an account of his ſtate in June 1791, and again in September 1792. In theſe letters he informed me, that the operation had answered his expectation, ſo that he could ride or walk without the leaſt inconvenience. However, the ſmall tubercles which were left had rather increaſed in ſize, and ſometimes diſcharged blood. The part on which the operation had been performed remained ſmooth, but was not free from occaſional diſcharges of blood.

He continued to have a ſlight degree of prolapſus upon going to ſtool; but even when the fœces were hard the gut aſcended ſpeedily, and without aſſiſtance.

He concludes his laſt letter by ſaying, "I am well ſatisfied with the operation."

CASE III.

January 28th, 1791, Mr. E. of T. conſulted me on account of a diſorder which he called

called the bleeding piles, and gave me the following relation of his caſe.

For three or four years he had been ſubject to bleed at the anus upon going to ſtool; at which time he felt an unuſual preſſing downwards. But it was not till within the laſt five or ſix months that he was conſcious of any deſcent of the gut: during which time it had deſcended always when he went to the vault, and he ſeldom failed on that occaſion to bleed conſiderably. The blood flowed from him in a ſtream; and the hæmorrhage had increaſed to ſuch a degree, that according to his own eſtimate, he had of late loſt near a pint of blood at a time. Of this, however, he could not be certain; as he never made uſe of a cloſe ſtool. He could generally reduce the prolapſed part by gentle long continued preſſure; but ſometimes it remained down for twenty-four hours, during which time he had a copious diſcharge of bloody ſerum.

He uſually had a ſtool every ſecond or third day.

Theſe frequent and large bleedings had reduced him, and made him weak; yet his pulſe was not frequent, nor very feeble. He had conſulted a phyſician and ſurgeon in the

the neighbourhood; but, as the latter informed me, no examination had been made of the parts affected. When I viſited him this day at T. I examined the ſtate of the anus, and found no protruſion of the interior parts; but there was a pendulous flap of integuments, about three-fourths of an inch in length, which in part ſurrounded the anus. As he had no ſtool while I remained at his houſe, though I ſtaid all night there, I could form no judgment of the prolapſus but from his own account.

I adviſed him to inject every other day a mild clyſter, made with a pint of water-gruel and a large ſpoonful of treacle; and to take in the morning, a few hours before the injection of the clyſter, a deſert ſpoonful of caſtor oil. I cautioned him againſt ſitting long at the vault, or uſing any ſtraining efforts. I informed him that the prolapſed inteſtine would produce a ſenſation as if he had not diſcharged all the fœces; and begged that he would be particularly aware of this deception, leſt he ſhould increaſe the hæmorrhage by unneceſſary ſtrainings. I adviſed him to waſh the prolapſed part with the aſtringent lotion which I had recommended to Mr. W. (Caſe I.); and, until that could

be

be prepared, to make uſe of brandy in the ſame way. And I recommended to him to reduce the inteſtine immediately after the waſhing, which was to be uſed as ſoon as the fœces were diſcharged; that, if the hæmorrhage ſhould return, it might be ſuppreſſed as ſoon as poſſible.

This method of treatment prevented the return of the hæmorrhage, but did not cure the prolapſus. Mr. E. afterwards informed me, that he thought he had greater difficulty in reducing the prolapſed inteſtine after he had uſed the aſtringent lotion for a week or two.

Finding the complaint at a ſtand, he came to Leeds on March 14th, that he might be more immediately under my care. He then complained of conſtant uneaſineſs at the anus: and, upon examination, I found engaged within the ſphincter ani a ſmall portion of inteſtine, the extremity of which was viſible externally, and had a livid hue. I was of opinion, from the account which he gave me, that this part had remained prolapſed during the laſt ſix or ſeven days. I informed him of his ſituation, and adviſed him to reduce the part immediately. His bowels were kept open; and he was enjoined

to abſtain from exerciſe until this part ſhould have regained its natural ſtate.

At the expiration of a week I carefully examined the affected parts, after he had walked awhile abroad, and found a ſmall portion of the inteſtine adhering in one part to the ſphincter ani. This adhering portion I extirpated with a pair of ſciſſars; hoping that the removal of it might allow the rectum to retire into its natural poſition, and perhaps might prevent the *procidentia*. At any rate I thought it right to uſe firſt a method more gentle than one which I had in view, and which I reſerved to the time of neceſſity.

This treatment afforded no relief; but the inteſtine deſcended as uſual when the patient went to ſtool. I now determined upon uſing the method which had ſucceeded ſo well in the two preceding caſes.

Friday, April 8th, after having informed my patient of the nature and neceſſity of the operation which I propoſed for his relief, and encouraged him with the hope of a favourable termination; I removed the pendulous flap cloſe to the anus, and cut off about a quarter of an inch of the interior red lining of the ſphincter ani, formed by the extremity of the inteſtine, which was rather looſe, and

projected a little. A ſmall artery was opened on the left ſide, which bled freely for a ſhort time; but, as the extremity of it lay looſe without any immediate connexion with the cellular membrane, and as it ſoon ceaſed to bleed, I did not apply a ligature.

About an hour after the operation, I was ſent for in haſte, and found the wounded parts bleeding freely. I was obliged to take up, with a needle, a blood-veſſel on each ſide of the anus. The application of the ligature was attended with conſiderable difficulty, and could not be effected until an aſſiſtant had ſeparated the wounded parts as much as poſſible.

Sunday 10th, Mr. E. took a table-ſpoonful of *ol. ricini*, and had a ſtool, without either hæmorrhage or deſcent of the inteſtine.

Tueſday 12th, he took another doſe of the oil, and had three ſtools in the courſe of the day. At the third ſtool, which was attended with unuſual irritation, the *procidentia ani* returned. I was not informed of this event 'till Wedneſday morning, when I effected the reduction of the inteſtine without difficulty.

Wedneſday noon I found the gut in it's prolapſed ſtate again, and was informed, that

that it had come down almoſt immediately after I had left my patient in the morning. Mr. E. had alſo reduced it, but without any permanent good effect. The parts were now very ſore, and the inteſtine had begun to change colour. I gave him Tinct. Opii g^{tts} xx, to remove the uneaſineſs, which was conſtant; and adviſed the application of a poultice of milk and bread, to abate the ſoreneſs.

I found him much eaſier in the evening, but the gut was in the ſame ſtate. I thought it better to try the effect of cold applications, than to repeat the handling of the parts; and deſired him to keep cloths dipped in cold water conſtantly applied, and to change them frequently.

Thurſday 14th. He had had much headach in the night, and had been reſtleſs; yet his pulſe remained calm, and he had very little uneaſineſs. The gut was in the ſame ſtate. He had uſed the cold wet cloths in the evening for two hours, but without the deſired effect. I again replaced the prolapſed part of the inteſtine, which was about the ſize of a large nutmeg; and held the part in its natural ſituation for a minute or two.

In the afternoon I repeated my viſit, and had the ſatisfaction to find that the natural

contractile power of the inteſtine had effected what I had attempted in vain. The gut had deſcended ſoon after I left him in the morning, as my patient thought, but had afterwards retired ſpontaneouſly, after having been down, in general, for forty-eight hours.

After this time the *procidentia ani* returned no more; but the cure proceeded as well as I could wiſh. I directed a laxative clyſter every other day, to procure an eaſy motion; but did not permit Mr. E. to take the caſtor oil, or any other purgative, until the parts were healed. He was perfectly well at the expiration of three weeks after the laſt operation.

CASE IV.

William Willans, of Hunſlet, weaver, aged thirty-three years, was admitted a patient of the General Infirmary at Leeds, under the care of Dr. Daviſon.

As he complained of a frequent *procidentia ani*, I was deſired to examine the part. I found a tumour about the ſize of a large nutmeg, conſiſting of a portion of the rectum inverted, which had deſcended on the right ſide of the anus, and adhered to the integuments,

guments, which immediately ſurround the anus, on that ſide. The integuments made a pendulous flap when the inteſtine was prolapſed; but when it was reduced, that flap was drawn inwards, and the anus had its natural appearance. A portion of the villous coat of the rectum, about the breadth of a ſilver three-pence, was abraded. The patient gave me the following hiſtory of his complaint.

About thirteen years ago he began to be afflicted with the bleeding piles, having ſome pain and hæmorrhage when he went to ſtool. He had rarely an evacuation without a diſcharge of blood, which ſometimes flowed from him in a ſtream. He was not then ſenſible of any deſcent of the inteſtine; but about ten or eleven years ago a portion of the gut began to deſcend at every evacuation. This deſcent was not, however, confined to the times of his going to the vault; it came on alſo while he was employed in labour. The complaint gradually increaſed; but was not always equally troubleſome. Sometimes he was free from the prolapſus for a week or two, except when he had a ſtool: at other times the gut would deſcend repeatedly in the ſpace of an hour, while he was ſitting

employed in his occupation of a carpet weaver. Now and then the part became ſo ſore with the frequent reduction, that he was under the neceſſity of ſuffering it to remain prolapſed until reſt in a horizontal poſture had ſo far abated the ſoreneſs, that he could bear the pain of attempting its reduction.

Since he came into the Infirmary he had been unable to pump water into a ciſtern, without bringing on the procidentia ani.

This diſorder had reduced his ſtrength conſiderably, ſo that he was almoſt rendered unfit for the proſecution of his uſual employment.

September 10th, I requeſted a conſultation of the other ſurgeons who attend the Infirmary; and after informing them of the ſucceſs which I had met with in the cure of this obſtinate diſeaſe, by the method related in the preceding caſes, I propoſed making uſe of the ſame for the relief of this patient. Mr. Lucas recommended the ſeparation of the inteſtine from the flap of integuments, without the exciſion of any part, as a method likely to give leſs pain to the patient, and to prove equally ſucceſsful. In compliance with his advice, I made ſuch a ſeparation, and then reduced the inteſtine.

This

This operation proved rather more tedious than that of exciſion. The inteſtine deſcended about two hours after the operation, although the patient had remained in bed in a horizontal poſition.

Whenever he had a ſtool, whether ſpontaneouſly, or by the aſſiſtance of laxative medicines given internally, or by clyſter, the evacuation was attended, except on one day, with a deſcent of the inteſtine.

The wounded parts were healed in the ſpace of three weeks. The gut continued to come down whenever he had a ſtool; but he could reduce it with more eaſe; and when he left the Infirmary he had no prolapſus except at the time of going to ſtool. He did not chooſe to ſubmit to any farther operation in order to obtain a more perfect cure.

In the beginning of January 1792, he called upon me to inform me, that the inteſtine had begun to deſcend a little now and then, when he did not go to ſtool. I adviſed him to uſe the aſtringent waſh, made with infuſion of oak bark in lime water, &c. as mentioned above.

CASE V.

The following caſe is ſo well deſcribed by the lady who was the ſubject of it, and who wrote it down at my requeſt after her recovery, that I have nothing to add but an account of the means uſed for her cure.

" Dear Sir,

" If I could have the moſt diſtant " hope, that a ſtatement of my caſe would " be of uſe to any of my fellow creatures, it " would be a great gratification. The con- " ſideration that it is poſſible you may have " a ſimilar caſe, is a great inducement to me " to make an attempt to deſcribe my truly " diſtreſſing ſituation, though I am ſenſible " I am very unequal to the undertaking.

" It is more than twenty years ſince my " complaint firſt made its appearance. At " firſt a ſmall part of the ſeat came down " when I had an evacuation, but when re- " turned gave me little pain or inconvenience. " It continued in this ſtate ſome years. Af- " terwards the part became more relaxed, " and frequently came down when I walked, " or ſtood, particularly in warm weather. " After I had continued in this ſituation

" ſome

" ſome time, the part became very ſore, and " came down in a much greater degree, and I " had very frequent bleedings, and during the " diſcharges I was generally reduced very " low and weak. Sometimes I have been a " month or ſix weeks without any returns of " the bleeding.

" In October laſt the ſoreneſs and bleeding " came on in ſo terrible a manner, I was " reduced to the greateſt diſtreſs and weak- " neſs. I daily loſt ſix or eight ounces of " blood when I had an evacuation, and the " pain would continue many hours ſo violent, " I was under the neceſſity to preſs upon " the part, which was the only relief I had.

" In January (1799) I came to Leeds. " It is unneceſſary to ſay what was done " there."

The lady was at this time much reduced by the frequent and copious hæmorrhages from the rectum. I found, upon examination, a ſoft tubercle on two oppoſite ſides of the anus, which did not retire along with the prolapſed parts of the rectum. Theſe I extirpated, but at different times, wiſhing to try whether the removal of one of them might not bring on a ſufficient ſtricture, upon healing, to ſupport the extremity of the rectum.

The

The good effects produced by these operations are described in the subsequent part of her letter, in the transcript of which I shall omit one sentence, as it only contains the effusion of kind partiality.

" I am now by the blessing of God, and " the means used, wonderfully restored. I " can now walk as far as my strength will " allow, without any inconvenience from my " old complaint, though it yet comes down " in a small degree when I have an evacua- " tion, but never at any other time. I have " had no return of the bleeding, or soreness, " and at present I am very comfortable, and " I have every reason to hope I shall conti- " nue so. - - - - - - -

" I did not think I was within the reach " of human aid. I have only to regret that " I did not apply sooner, as my constitution " would not have received so severe a shock, " as I am sensible it has done from the long " continuance of my complaint. I am yet " weak and low, and I have not the perfect " use of my legs; but I am happy to say I " recover daily, and I trust I am again to " know the blessing of health.

" I am, &c.

" June 26th, 1799. " J. T."

Tumour in the Rectum.

CASE VI.

In October 1764, I was conſulted by William Hargrave, of Bramley, near Leeds, on account of his ſon, about eighteen years of age, who had had for two years a tumour in the rectum, which was protruded without the anus, whenever he had a ſtool, and generally diſcharged blood at thoſe times. This complaint had been attended from its beginning with pain in the lumbar region, which commenced upon his receiving a blow on that part as he was ſtooping. He had never been healthy ſince this accident. His appetite was great, but he was ſoon faint after eating. He was extenuated, and had loſt much of his ſtrength.

I deſired the young man to ſit down upon a cloſe-ſtool, containing a little warm water, and to uſe ſuch efforts as he knew would bring the tumour into view. I found it to be about the ſize of a nutmeg, adhering to the inteſtine by a narrow baſis. In its appearance it reſembled a large pile; but was of a firmer

a firmer texture than the piles uſually are, unleſs when inflamed.

I recommended the extirpation of this tumour; but did not think exciſion to be adviſable, as it would have been very difficult to reſtrain a hæmorrhage in a part of the inteſtine ſo diſtant from the anus, as that occupied by the baſis of this tumour. I therefore made a ligature round the baſis, and then puſhed up the tumour into its place above the ſphincter ani. On the third day I found the tumour much ſhrivelled, and applied a ſecond ligature. Neither of theſe operations gave my patient any conſiderable pain.

On the 5th, the father of the young man informed me, that the ligatures had come away without his ſon's knowledge, who was now quite eaſy.

The hæmorrhage returned no more after the extirpation of the tumour, and the young man ſoon regained his perfect health.

CHAP. XII.

Of the Cancer of the Penis.

CASE I.

William Bromitt was admitted into the General Infirmary at Leeds in 1774, for a cancer of the penis. He had from his infancy been ſubject to a natural *phymoſis*, ſo that he had never been able to draw back the prepuce. The diſeaſe began by a painful ſwelling of the extremity of the penis; on which account the prepuce had been divided in three places by a Frenchman, who then practiſed ſurgery at Wakefield.*

From the time that theſe inciſions were made, a large irregular fungus had ſprouted out from the extremity of the penis, which continued ſpreading, till it had occupied all that part of the penis which naturally projects beyond the ſcrotum. Neither the prepuce nor the glans penis could now be diſ-

* This account I received from the patient, who, not being able to denude the glans penis, might not know whether the diſeaſe originated in the prepuce or in the glans.

tinctly

tinctly perceived; but the whole projecting part of the penis formed a confuſed maſs of irregularly granulated fleſh, which diſcharged a very fetid matter. That part of the penis which was covered by the ſcrotum and perinæum appeared to be ſound, being free from any morbid hardneſs. I extirpated the penis cloſe to the upper part of the ſcrotum. One artery on the dorſum penis, and one in each corpus cavernoſum, bled freely; ſo that I was obliged to apply a ligature to each veſſel.

I apprehended that it might be of ſervice to my patient, in this caſe, if the extremity of the urethra was ſuffered to contract itſelf; as the urine would then be projected to a greater diſtance, and would not be ſo apt to run down the ſcrotum. I therefore omitted the introduction of a bougie, till he began to complain that he could not make water without ſome difficulty. I now found that I had too long deferred the introduction of a bougie, as the urethra would ſcarcely admit a very ſmall one. I directed that a ſmall bougie, about an inch in length, ſhould be retained in the urethra. But, about twelve hours after its introduction, the patient was ſeized with a ſhivering, ſucceeded

by

by feveriſhneſs. The bougie was then withdrawn, and a cooling laxative was adminiſtered. The complaint went off in a few days, though not without a ſmall diſcharge of purulent matter from the urethra. He made water with leſs difficulty afterwards.

He was diſcharged, cured, a month after the operation. The urine flowed in a ſmall ſtream when he made water; but it was projected to a conſiderable diſtance from the penis, when he drew up the integuments covering the pubes.

About a month after his diſcharge from the Infirmary he applied to me, requeſting that I would introduce the bougie, as the urethra had again become more contracted. The introduction did not give him pain, but brought on a feveriſhneſs, as it had done before.

I adviſed him to continue the occaſional introduction of a ſhort bougie.

I ſaw this patient ſome years afterwards; and he had then ſuffered no return of the cancerous complaint.

CASE II.

In the ſpring 1779, Mr. M. of N. W. conſulted me on account of a cancerous excreſcence, which occupied the whole of the glans penis, and a part of the corpora cavernoſa.

noſa. The diſorder had appeared about a year before, and had commenced by a diſcharge of purulent matter from the extremity of the prepuce. He had a natural *phymoſis*, ſo that the ſtate of the glans penis at that time could not be ſeen. His complaint was treated as venereal by the ſurgeon whom he firſt conſulted. Finding no relief, after a trial of ſome months, he conſulted another ſurgeon, who divided the prepuce, and attempted to bring on a ſalivation. A conſiderable degree of inflammation was the conſequence of this treatment; and a third ſurgeon was conſulted: who, after removing the inflammation by emollient applications, tried to bring on a healing of the ſore by digeſtives and gentle eſcharotics. The complaint being rendered rather worſe by theſe applications, he deſiſted; and treated the diſorder as cancerous, by applying the cicuta externally, and giving it internally in large doſes joined with the bark. The patient received no benefit from theſe remedies. He had been much reduced, as he informed me, during the treatment with mercurials; but had regained his fleſh when he came to Leeds, and had a good countenance.

There was a part of the penis between the cancerous

cancerous excreſcence and the pubes, which appeared to be in a ſound ſtate. The reſt of the corpus cavernoſum and urethra was alſo free from induration.

So far the caſe ſeemed proper for amputation. But there was a hard tumour, about the ſize of a horſe-bean, in the integuments covering the oſſa pubis, which made me fear a return of the complaint. However, as there was not the leaſt hope of a recovery by any other means, and as the ſmall tumour admitted of extirpation, at the requeſt of my patient I performed the operation, and extirpated this tumour, as well as the diſeaſed part of the penis.

I rolled a piece of tape round the ſound part of the penis; which enabled me to extirpate with more preciſion juſt ſo much of the integuments, and body of the penis, as I wiſhed to remove. I cut off, not only the excreſcence, but alſo all that part of the penis which was covered with diſcoloured integuments. The hæmorrhage was conſiderable; the blood not only flowing from many conſpicuous arteries, but oozing largely from the divided corpora cavernoſa. I took up one artery in the dorſum penis, and one in each corpus cavernoſum. The bleeding, which

ſtill continued, ſeemed then to be a general oozing from the wound: on which account I applied the ſponge in the manner recommended by Mr. White.

About an hour after Mr. M. had been put to bed, the bleeding became conſiderable again; and I was obliged to remove the dreſſings, and to take up three other arteries. A fourth veſſel, which ſeemed to run in the ſeptum of the corpora cavernoſa cloſe to the urethra, bled a little; but, as I could not diſcover clearly its extremity, I contented myſelf with applying a piece of ſponge to the part whence the blood iſſued.

On the third day after the operation, a freſh hæmorrhage came on, which compelled me to remove the piece of ſponge that I had applied, and which now adhered cloſely to the wound.

The hæmorrhage aroſe from that artery in the ſeptum which I had before ſeen indiſtinctly, but which now bled freely.

The cure proceeded very well; except that the wound in the pubes, made by the extirpation of the ſmall hard tumour above mentioned, remained in a foul ſtate. The application of the *pulvis angelicus* brought the ſore

ſore into a clean ſtate; and it afterwards healed.

I made uſe of a bougie occaſionally, though the extremity of the divided urethra did not contract ſo much as in Bromitt's caſe.

Though the exciſion was made at ſuch a diſtance from the pubes, as to permit me to apply a piece of tape three quarters of an inch in breadth round the ſound part of the penis; yet immediately after the operation the penis became retracted within the ſcrotum; and a hollow, inſtead of a projection, remained after the cicatrization of the wound.

Mr. M. was under the neceſſity of uſing bougies occaſionally after his return home; but I never heard that he had any return of the cancerous diſorder.

CASE III.

In July 1781, T. M. Eſq; of A. conſulted me on account of an excreſcence within the prepuce, which he had diſcovered a few months before. It was hard, and had an uneven ſurface. It was attached both to the prepuce and glans penis. I could ſee a part of it, though he could not denude the glans, having had from his infancy a natural *phy-*

moſis. A large quantity of fetid ichor was diſcharged from the diſeaſed part.

I could not doubt that the complaint was of a cancerous nature, and therefore I adviſed extirpation as the only method of cure which was likely to prove effectual.

This gentleman was in the ſixty-third year of his age, and ſeemed to have a good conſtitution. He was ſubject to diſcharge ſmall ſand in his urine; and had ſometimes ſlight attacks of the gout.

I performed the operation in Auguſt. The arteries which ran in the centre of the corpora cavernoſa penis gave me no trouble. But I was obliged to take up four which ran upon the dorſum penis.

I made an attempt to heal the wound by the firſt intention; and, for that purpoſe, I brought the integuments over the divided corpora cavernoſa, ſecuring them, as well as I could, with court plaſter. That I might make the integuments lie upon the wounded extremity of the penis without puckering, I made a longitudinal diviſion of them at the inferior part of the penis; by which method I could cover the corpora cavernoſa without covering the urethra. I introduced a ſmall ſilver canula into the urethra; that the in-

teguments might not ſlide over the extremity of that canal, and that the leaſt poſſible diſturbance might be given to the parts in his efforts to make water.

Whenever my patient made any exertion, the blood guſhed out from the corpora cavernoſa; but there was no bleeding while he lay ſtill in bed. I directed an aſſiſtant to place his fingers upon the extremity of the corpora cavernoſa whenever Mr. M. had occaſion to make water, or to uſe any other exertion. This attention was neceſſary during two or three days after the operation; at the end of which time the oozing of blood ceaſed.

I was diſappointed in my deſign of healing by the firſt intention; for the integuments would not adhere to the extremity of the corpora cavernoſa. Theſe ſpungy bodies, when divided, do not readily throw out granulations; but have uſually for ſome time an ill-conditioned appearance.

I removed the canula, and dreſſed the wounded parts with digeſtive; covering the whole with a ſoft pledget of cerate, and introducing a ſhort bougie daily, as the urethra ſhewed a great tendency to contract itſelf.

The wound was cicatrized at the expiration of five weeks; and the remaining part of the penis did not retire within the ſcrotum.

This gentlemen had never any return of the ſame diſeaſe in the penis, nor elſewhere. He died ſome years afterwards from a ſtone in the bladder, and general debility.

Upon examination after death, I found the ſtone formed ſomewhat like an hour-glaſs, and retained in one poſition by the contraction of the bladder upon the middle part of it.

CASE IV.

Auſtin Wray, a middle-aged labouring man, was admitted a patient of the General Infirmary at Leeds in 1782, for a cancer of the penis. He had had the diſeaſe about a year and a half before his admiſſion. The parts were in a ſtate of great inflammation, from the application of ſome eſcharotics, which had been uſed by an ignorant quack whom he had lately conſulted. The glands in the right groin were likewiſe much tumefied.

Emollient poultices and cooling medicines were adminiſtered, to take off the inflammation.

mation. Theſe means produced their intended effect; but the induration of the inguinal glands remained.

A conſultation of the ſurgeons of the Infirmary was held upon the caſe of this poor man. As we had no hope of curing this ulcerated cancer by any remedies yet known; as the penis, betwixt the excreſcences and the pubes, appeared to be in a ſound ſtate; and as the inguinal glands had not become enlarged until the application of the eſcharotics; we judged it proper to propoſe the amputation of the diſeaſed part to our patient.

I performed the operation September 5th, and was obliged to take up ſix arteries between the integuments and the corpora cavernoſa. The artery, which runs in the centre of each corpus cavernoſum, did not require a ligature.

I was obliged to make frequent uſe of a ſhort and thick bougie during the cure. Whenever this was omitted the man found a difficulty in making water. The wound was cicatrized in the ſpace of five weeks.

I gave him the Extractum Cicutæ for ſome time after the wound was healed. The enlargement of the inguinal glands gradu-

ally leſſened for a time; but afterwards increaſed conſiderably. The man became weak and languiſhing, and died from a return of the complaint; though there was never any freſh ulceration.

CASE V.

In 1801, J. L. of Leeds, an elderly man, conſulted me on account of ſome excreſcences on the extremity of the penis. They were evidently of a cancerous nature, and appeared to be confined to the prepuce, the greater part of which was in a morbid ſtate. He did not remember ever to have been able to denude the glans penis. He readily ſubmitted to the operation which I judged neceſſary to effect the cure of his diſorder. My deſign was to have removed thoſe parts only of the prepuce which had a morbid appearance; but upon attempting this I found, that a part of the prepuce adhered to the corona glandis, and had brought it into a ſtate of ulceration. I thought it neceſſary therefore to extirpate the extremity of the penis as well as the prepuce, the internal membrane of which was in a much more rigid ſtate than is natural.

tural. I was obliged to take up ſeveral arteries. A bougie was frequently introduced into the urethra during the cicatrization of the wound.

CASE VI.

Mr. H. of Tanfield, near Maſham, conſulted me in July 1801, on account of ſome painful ulcerated excreſcences at the extremity of the penis, and gave me the following relation of the origin and progreſs of his complaint.

He had a natural *phymoſis*, having never been able to denude the glans penis. About two years and a half before he conſulted me, he began to find great difficulty in making water. At this time there was no appearance of diſeaſe in the penis; at leaſt, none had been diſcovered; but the dyſury was attributed to the gravel.

After ſome time, one of the medical gentlemen whom he conſulted, found, upon examining the penis, that the prepuce was in a diſeaſed ſtate, and made a diviſion of it on one ſide, which greatly relieved the dyſury. Some excreſcences were now diſcovered, ariſing from the interior ſurface of the prepuce,

prepuce, and theſe had continued to increaſe in ſize and ſoreneſs from the time of their diſcovery.

Theſe excreſcences appēared to me to be of a cancerous nature. They were in a ſordid ſtate, and occupied the inferior and lateral parts of the prepuce. The ſuperior part of the prepuce appeared free from diſeaſe, the extent of which could not, however, be clearly aſcertained, as the glans penis could not yet be completely denuded. I divided the prepuce in a part which was ſound, and at ſome diſtance from the former diviſion which was incomplete, that I might ſee whether the glans remained in a ſound ſtate. Upon drawing back the prepuce completely, I could perceive no diſeaſe in the glans; but the frænum was ulcerated.

I extirpated all the diſeaſed part of the prepuce, leaving only that ſound part which remained between the two diviſions. The frænum was also removed.

The wound put on a favourable aſpect, and healed ſpeedily, ſo that it was nearly cicatrized at the expiration of a fortnight after the exciſion.

March 23d, 1802. This patient lately informed

informed me, that he had continued perfectly well ſince his return home.

CASE VII.

A young man, by trade a ſhoemaker, conſulted me on account of a great difficulty in making water, which was attended with ſome pain at the extremity of the penis.

Upon examination I found the prepuce ſo much contracted, that it would ſcarcely ſuffer the urine to flow out. When I introduced a probe within the prepuce for the purpoſe of examining its ſtate, I found it to have an unnatural rigidity. The *phymoſis* I apprehended to be congenital, as the patient did not remember to have been able at any time to denude the glans penis. I urged the neceſſity of dividing the prepuce, and he conſented to the operation. Upon making a complete diviſion of the prepuce laterally, on each ſide, I found its interior membrane much more firm and rigid than it is in its natural ſtate, ſo that it greatly resembled a piece of fine parchment. Minute tubercles appeared here and there on its internal ſurface; but none of them ſeemed tending to ulceration. I did not remove any part of the prepuce; but left

left it in ſuch a ſtate that the glans penis might be denuded with eaſe.

This operation was performed ſeveral years ago, and I have heard nothing of the patient ſince his cure was completed.

REMARKS.

The preceding caſes of cancer in the penis afford a pretty good hiſtory of the origin and progreſs of the diſeaſe, when affecting this part of the body. Six of theſe ſeven patients had had a congenital phymoſis, which was certainly an extraordinary circumſtance if it had no relation to the origin of the diſeaſe. The diſeaſe had made ſuch progreſs in ſome of the patients, as to deſtroy entirely the natural appearance of the parts, before I had the opportunity of examining them: nor could I learn in theſe caſes, how the prepuce appeared before, or at the firſt attack of the complaint. Where I had an opportunity of ſeeing the diſeaſe in an early ſtage, the phymoſis evidently appeared to have been cauſed by a mal-conformation of the internal membrane of the prepuce; and the mal-conformation ſeemed alſo to have given rise to the cancerous affection.

In

In the 7th caſe we ſee the diſeaſe in its firſt ſtage. The whole lining of the prepuce was in an unnatural ſtate. But as this ſeemed to have been congenital, and as the tubercles were ſo minute, that they appeared like mere inequalities in the thickneſs of the membrane, I did not think it neceſſary to perform the operation of circumciſion. Whether the operation which I performed put a ſtop to the progreſs of the diſeaſe I cannot tell. The young man was a journeyman ſhoemaker, and lived in lodgings. I have lately tried to diſcover his reſidence; but have not been able to gain any information reſpecting him.

The 6th caſe ſhews the diſeaſe fully formed, but not much advanced in its progreſs. The whole of the prepuce was not affected, and the glans penis remained free from diſeaſe.

In the 5th caſe the diſorder had made a little farther advance, and had begun to affect the glans penis; but the morbid affection had pretty evidently commenced in the prepuce, and had ſpread from thence to the glans penis.

I believe I ſhould not have performed the operation in the 4th caſe, had not the ſwelling of the inguinal glands been ſo recent, and brought on, as we judged from the patient's

tient's account, rather by the injudicious application of eſcharotics, than by a ſimple extenſion of the diſeaſe.

The permanent cure effected in the three firſt caſes of the operation, ſhews that the amputation of the morbid part of the penis affords great hope of ſucceſs in this ſpecies of cancer.

In amputating the penis, I found great advantage from having wrapped ſome tape round the ſound part. I was hereby enabled to divide the integuments more eaſily, and correctly; and I was alſo furniſhed with an uſeful kind of tourniquet, which ſecured the divided veſſels from bleeding, till I was prepared to take them up with the tenaculum and ligature. It requires great care in this operation to ſecure the larger arteries, as they are apt to ſhrink, and conceal themſelves under the looſe integuments, to which they have no ſtrong attachment.

CHAP. XIII.

Convulsions after Strangulation.

May 18th, 1782. In the evening Mr. —— being greatly diſtreſſed on account of ſome diſagreeable circumſtances in buſineſs, raſhly hanged himſelf. He was diſcovered by his ſon ſoon after the commencement of his ſuſpenſion, and on being cut down ſhewed ſome ſigns of life.

A ſurgeon, who lived near him, was immediately ſent for; who, finding him lying inſenſible, and frothing at the mouth, and not being informed of the cauſe of theſe ſymptoms, took about a pound of blood from the arm. Soon after the evacuation Mr. —— was ſeized with convulſions. A bliſtering plaſter was then applied betwixt the ſhoulders; and ſome ſpirit of hartſhorn was ſent, with directions to give a little in water whenever it could be got down. When the convulſions had continued an hour without intermiſſion,

miſſion, I was deſired to viſit the patient, having attended the family in ordinary for ſome years.

I found him lying on a bed, which was placed on the chamber floor near an open window. He was inſenſible, and violently convulſed. His hands and feet were cold; the reſt of his body was hot, and in a profuſe perſpiration. He was held down by five or ſix ſtout men, to prevent any injury to himſelf from the violent and almoſt inceſſant agitations which he ſuffered.

I was of opinion that theſe convulſions were the effect of debility, brought on by the ſuſpenſion, and probably increaſed by the copious evacuation of blood. I determined therefore to give him ſome ſtimulating medicines as ſoon as he could ſwallow them; and that I might be ready to ſeize the firſt opportunity, I ſent for ſome Æther, Spt. Ammoniæ, and volatile Tincture of Valerian.

I requeſted a conſultation, and the late Dr. Hird was deſired to attend. In the mean time I directed the patient to be placed in warm blankets upon his own bed, and wrapped his feet in hot flannel. Just before his removal I made an attempt to give him ſome warm wine, and ſucceeded in getting down

a few

a few ounces, by putting a large ſpoon betwixt his teeth during a ſhort interval of quiet, and pouring the wine into the ſpoon while his teeth were kept aſunder by it. As ſoon as the wine was ſwallowed he belched, and ſeemed to be ſomewhat relieved.

When Dr. Hird arrived, I informed him of what I had done. He concurred with me in the mode of treatment which I had adopted, and we determined to give our patient the volatile Tincture of Valerian in warm wine, as ſpeedily as poſſible.

The aſſiſtants having placed him in a ſitting poſture in bed, I poured into his mouth, at two or three trials, about two drachms of the tincture, diluted with wine. No ſooner had he ſwallowed this mixture than the convulſions ceaſed inſtantaneouſly. He was laid down in bed, and we gave directions that a tea-ſpoonful of the tincture ſhould be given now and then, or as ſoon as ever the convulſions ſhould return.

I was called to viſit him again betwixt one and two o'clock in the night, and was informed, that he had lain quiet during two hours after Dr. Hird and I had left him at nine in the evening. The convulſions then returning, the Tincture of Valerian was given,

and the ſame pleaſing effect was produced, viz. an immediate ceſſation of the agitations. The convulſions, however, returned twice; and the laſt interval of eaſe having been but a quarter of an hour, I was requeſted to direct what might farther be done for his relief.

Mr. —— was now in ſo tranquil a ſtate, though inſenſible, that the uſe of the warm bath (which I had mentioned before) was no longer impracticable. He was placed in a ſemicupium as ſoon as it could be got ready, and a large bliſtering plaſter was applied to his head. Sinapiſms were alſo put to his feet.

19th. At nine in the morning we found him better. He had had no convulſions ſince the uſe of the warm ſemicupium. He had ſpoken a few words ſenſibly, and began to complain of the bliſters. He diſcharged part of his urine involuntarily. His pulſe was at ninety-ſix, with a moderate degree of ſtrength. As he had had no proper evacuation ſince the injury, the following bolus was ordered:

℞. Pulv. Rhei gr. xxv.
- - - Zinzib. gr. v. ſyr. ſimp. q. ſ.
f. Bolus ſtatim ſumend.

A ſaline

A ſaline julep was alſo preſcribed: thin broth, chocolate, and the like, were ordered for diet.

5. P. M. He had retched after taking the bolus, but had had a ſtool. He was now ſo ſenſible that he could give a proper reply to queſtions reſpecting his feelings; but he had a ſtaring and hollow countenance. The mark of the cord had not yet diſappeared. Though much recovered ſince the morning as to his underſtanding, yet he was now in a more languid ſtate. His fingers, from their extremity to the middle joint, were pale as if benumbed with cold; and his pulſe was ſo feeble that it could ſcarcely be diſtinguiſhed. In this ſtate it ſeemed abſolutely neceſſary to do ſomething to rouſe the *vis vitæ*. A cordial draught, containing Tinct. Valer. volat. ʒj, was ordered to be given every four hours; and a little wine was directed to be given to him frequently.

20th. The draughts had agreed very well. The pallid appearance of his fingers was gone; and his pulſe had conſiderably increaſed in ſtrength. His underſtanding was become quite clear. The draughts were continued every ſix hours.

From this time he recovered very well, except on account of a gangrenous ſlough,

which came upon the ſide of each foot. The ſinapiſms had been ſuffered to remain ſo long upon his feet, until they had cauſed a bliſter to riſe upon the ſide of each foot. Upon his beginning to walk about in his chamber, an inflammation came upon the bliſtered parts, and was ſucceeded by a ſuperficial gangrene. By keeping him in bed, applying mild cataplaſms, and giving him the Cortex Peruvianus, the ſores became clean. Flannel rollers were then uſed, with proper dreſſings, and he was permitted to walk about. The ſores healed ſlowly; but he regained his health.

REMARKS.

This caſe clearly points out the impropriety of large and indiſcriminate bleeding after ſtrangulation, while the powers of life remain almoſt ſuſpended. The extraction of a ſmall quantity of blood from the jugular vein, eſpecially in a plethoric habit, might do good, when accompanied with the internal uſe of volatile, and other ſtimulating medicines.

The great advantage of theſe remedies was evident, both in the firſt inſtantaneous removal of the convulſions, as ſoon as the medi-

cine

cine reached the ſtomach of the patient; and in the removal of that alarming debility which came on upon omitting for a time to give the volatile tincture and wine, on the day after the accident.

The ſinapiſms ought not to have remained upon the feet ſo long as to veſicate the parts. Ulcers produced by bliſtering the feet are often ſlow in healing, in perſons of a languid habit.

This caſe throws ſome light upon the proper mode of treatment after ſuffocation, and concuſſions of the brain. In both theſe inſtances I think copious bleeding to be injurious, during the diminiſhed ſtate of the *vis vitæ*, which immediately ſucceeds the injury. In concuſſions of the brain I have ſeen great benefit ariſe from the warm ſemicupium, and bliſtering the head, after topical bleeding.

CHAP XIV.

Of a Tumour in the Neck.

September 28th, 1785, the late Rev. Mr. Fyre and his lady brought their youngeſt child, aged four months, from Barnborough, to conſult me about a tumour which had appeared on the left ſide of the neck, juſt above the clavicle. The maid firſt perceived this tumour four days before, as ſhe was waſhing the child's neck. The tumour was now about the ſize of a pigeon's egg, though much ſmaller when it was firſt diſcovered. It had a bluiſh appearance, ſomewhat like a vein; was quite ſoft, and free from pain. It gave no impediment to the motion of the head. It was moveable, but not detached from the ſubjacent parts. It ſeemed to be the moſt tenſe when the child cried. Nothing had happened to the child in any reſpect remarkable, except that about a fortnight before this tumour was perceived ſhe had cried, or rather ſcreamed out ſuddenly and violently. Upon undreſſing her imme-

diately, nothing was perceived that could have hurt her. It was ſuppoſed ſhe had been frightened, as ſhe continued to moan for a few hours, and then returned to her uſual cheerfulneſs.

From weighing all theſe circumſtances I was inclined to conſider the tumour as ariſing from a varicoſe diſtention of the veins of the neck, perhaps of the external jugular vein, as the tumour was ſituated upon the courſe of that vein. I was inclined alſo to attribute the origin of this diſeaſe to the violent fit of crying above mentioned, as the veins of the neck are much diſtended at ſuch times, and might be rendered varicoſe by the violence of the effort.

As I had ſeen two inſtances, not long before, of ſoft tumours in the ſame part of the neck, which I conſidered as varicoſe, one of which gradually ſubſided, and the other remained without injury to the patient; I adviſed nothing for the preſent, but waſhing the part frequently with cold water. I hoped that a little time would fully elucidate the nature of the complaint.

A week after this examination, I received a letter from Mr. Eyre, informing me, that the tumour had increaſed rapidly in their

return home, and was now ſo large as to alarm them much. At the expiration of the ſecond week they returned to Leeds with the child.

The tumour had increaſed to four times its former ſize, and the integuments ſeemed very thin at its moſt prominent part. It deſcended a little below the clavicle, and roſe as high as the angle of the lower jaw.

There was now reaſon to believe that the fluid in the tumour was extravaſated, I therefore propoſed to puncture the tumour with a ſmall couching needle, to aſcertain the nature of the fluid contained in it. If blood ſhould flow out, the diſcharge might eaſily be reſtrained, and we could afterwards act as circumſtances might direct. I deſired a conſultation, both on account of the obſcurity of the caſe, and that I might have proper aſſiſtance if it ſhould be found needful to open the tumour more largely, for the purpoſe of taking up any ruptured blood-veſſel.

The late Mr. Billam was conſulted, and Mr. Walker, then an apothecary, in St. James's-ſtreet, London, being at my houſe, ſaw the child along with us. Mr. Billam concurring with me in opinion, I punctured the tumour with

with a round couching needle. Dark-coloured blood iſſued out in a ſmall ſtream, till the cup had received about a quarter of an ounce; the blood then continued to ooze out for about two hours. The puncture was healed in the courſe of the day.

The next day (Friday) I punctured the tumour again with a broad couching needle. A ſmaller quantity of blood iſſued out, which was not quite ſo dark coloured. This coagulated ſoon, whereas the former had remained fluid.

Saturday. We found the tumour not increaſed in ſize ſince the operation yeſterday; we therefore deferred making another puncture.

Monday. The tumour had not increaſed. I punctured with a lancet the middle part, which was ſofter than the reſt. A ſmall quantity of blood was diſcharged. The remaining part of the tumour, which was now reduced to a ſmall ſize, was ſolid, yet ſoft, as if formed by coagulated blood.

We now entertained great hopes that this formidable diſeaſe would give us no farther trouble; but that the remains of the tumour would gradually diſappear, or at leaſt remain in this diminiſhed ſtate. But our hopes were ſoon,

for

for a time, diſperſed by an increaſe of the tumour, which took place within a few hours after the laſt puncture. The tumour in the courſe of the day became larger than it had been after the ſecond operation. It continued to increaſe during the two following days, and then became ſtationary. We waited about a week, and then made another puncture. The blood which now flowed out was quite florid, like arterial blood, and coagulated immediately.

After this puncture the tumour had no farther increaſe. On the contrary, it gradually leſſened, and became more moveable. However, I made another puncture with a couching needle; but although I puſhed the point of the inſtrument about a quarter of an inch into the tumour, a few drops only of blood were diſcharged.

Our little patient was now taken home; the ſmall remains of the tumour were gradually abſorbed, and every appearance of diſeaſe obliterated.

REMARKS.

The peruſal of this caſe will, I apprehend, leave no doubt in the mind of the intelligent reader,

reader, that ſome blood-veſſel in the neck had been ruptured. As the interior part of the tumour was not inſpected, the ſituation and other circumſtances of the rupture muſt be matter of conjecture. It gave me great pleaſure to ſee this alarming diſeaſe ſubdued by ſuch gentle means, as there was at one time great reaſon to fear, that I ſhould have been under the neceſſity of laying open the tumour, for the purpoſe of diſcovering and ſecuring the ruptured veſſel or veſſels.

I would take this opportunity of ſtrongly recommending the method here uſed of exploring the contents of tumours in doubtful caſes. I have uſed it upon ſeveral occaſions with great ſatisfaction and advantage. There are few doubtful caſes in which any harm could be done by the puncture of a couching needle. The contents of the tumour may be generally aſcertained by ſuch a puncture, the pain of which is trifling, and the wound is ſoon healed.

CHAP. XV.

Of the Empyema.

September 3d, 1788, I was deſired by the overſeers of the poor of the townſhip of Headingley, near Leeds, to viſit John Wilkinſon and his wife, who were then ill in the Influenza, which prevailed at that time. The man had been ill ten days. I found him labouring under a fever, attended with cough, difficulty of breathing, and pain in the left ſide of the thorax. He was bled once; had repeated bliſters applied to the thorax; took nitre and antimonials, with a ſmooth linctus to allay his cough. He was relieved repeatedly by theſe means, eſpecially by the application of the bliſters; but repeatedly relapſed. At laſt he became ſo ill, that he breathed with the utmoſt difficulty; and could not lie on the right ſide without danger of immediate ſuffocation. My eldeſt ſon, who was then my aſſiſtant in buſineſs, had chiefly viſited

viſited the family; but now deſired me to ſee the poor man, judging him to be in the moſt imminent danger.

I found him on the 17th of September, and the 27th day from the commencement of his diſorder, in the ſtate I have juſt now deſcribed. His face, and eſpecially the eyelid, were a little ſwollen on the left ſide. The left ſide of the thorax was larger than the right, and its integuments were edematoſe. Upon preſſing the intercoſtal muſcles, they felt diſtended; they yielded a little to a ſtrong preſſure, and rebounded again. The abdomen, eſpecially at it's upper part, appeared to be fuller than in its natural ſtate.

From theſe ſymptoms I was perſuaded, that the left ſide of the thorax contained pus or water; and, after explaining the nature of the diſeaſe to the man's wife, who was now perfectly recovered, and to his mother, I propoſed the operation for the empyema.

The next day I performed it; having placed him upon a table, covered with blankets, near a window. The pain which he had felt in his ſide had been the moſt acute betwixt the fifth and ſixth ribs, and there I made an opening into the cavity of the thorax. My firſt inciſion was about two inches

in

in length. I cut through the ſerratus magnus and intercoſtal muſcles cloſe to the upper edge of the ſixth rib, and made an opening into the cheſt capable of admitting the tip of my finger. Purulent matter immediately guſhed out to a conſiderable diſtance, and the quantity evacuated meaſured five ale-pints. The poor man was much relieved, yet he did not breathe well during the two firſt days after the operation. His cough and difficulty of breathing then abated very faſt; and his pulſe, which, before the operation, had beat one hundred and ten ſtrokes in a minute, ſoon came down to ninety, and at the expiration of a week did not exceed eighty-four. A leaden canula was introduced into the wound on the ſecond day after the operation, and was retained in its place by a flannel bandage.

Much coagulated matter iſſued out during the firſt two or three days, and then the matter became thinner.

My patient continued in a favourable ſtate until the beginning of winter, and then his ſymptoms became unfavourable. The matter diſcharged was more copious, and was fetid; his cough was more troubleſome, and his pulſe became much quicker.

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When the cough began again to be troubleſome, I preſcribed for him an electuary with ſpermaceti and nitre; but, upon the diſcharge becoming more copious, thin, and fetid, I ordered a decoction of the bark to be given to him. This was exchanged for a decoction of myrrh, in the proportion of half an ounce to a pint of water. This medicine he took throughout the month of January, together with half a grain, or a grain, of ſolid opium every night at bed-time. I requeſted the overſeers to allow him as much new milk as he choſe to take, and adviſed him to make this, with bread and rice, the principal article of diet. Theſe means agreed very well with him, and ſeemed to be of great benefit to him. In February he ceaſed taking medicines. As the weather became warmer his ſtrength increaſed, and by degrees he recovered his health perfectly. I did not permit him to leave off wearing the canula until the diſcharge from the thorax had ceaſed, and he had completely regained his ſtrength. He wore it fifteen months.

REMARKS.

When an inflammation of the membrane of the lungs, and of the pleura, produces a mutual

mutual adhesion of these parts, and a collection of matter forming a tumour on the thorax; the indication for performing an operation to discharge the matter admits of no doubt. But when the cavity on one side of the chest is filled with any fluid, without a wound or circumscribed tumour exterior to the ribs, more circumspection is required to determine the propriety of an operation.

I have inserted this case as a guide to the young practitioner, and hope that, in this view, it may be of use. Dr. Cullen, in his *Nosologia Methodica*, does not mention the œdema of one half of the body as a symptom of *Empyema*, or *Hydrothorax*. I think it of great consequence to retain a canula in the wound until all probability of a relapse is removed. This precaution, I apprehend, will not hinder the patient from recovering his strength, even when the use of the instrument is not absolutely necessary.

A young man, aged sixteen years, received the whole charge of a fowling-piece into his side, the muzzle of the gun being very near him when it was fired. The greater part of the charge lay under the latissimus dorsi, whence I cut it out. A small part of the charge penetrated the lungs, obliquely, between

tween the ſixth and ſeventh ribs. The edges of both the ribs were broken. I covered part of the wound with the integuments, uniting them by ſuture. The integuments, by this method, formed a proper ſupport for a canula; which was introduced obliquely betwixt the ſixth and ſeventh ribs. The pipe of the canula made ſuch an angle with its rim, that the ſhape of the inſtrument correſponded exactly with that of the wound.

As pellets of lead and ſmall fragments of bone were diſcharged, now and then, both through the trachæa and the canula, for a long time after the wound was made, I did not remove the canula till the expiration of twelve months after the accident. The canula, during the cure, was taken out every day and waſhed, that no acrid matter might, by means of it, be detained in the thorax. This patient is now a healthy man; but violent exerciſe is apt to bring on a ſpitting of blood. He coughed up ſeveral pellets ſoon after the canula was removed; and there is yet, at times, a ſlight oozing of ſerous fluid from the cicatrix.

CHAP. XVI.

Of an Enlargement of the Mammæ.

MANY circumſtances ſhew, that the *Uterus* and *Mammæ* ſympathize with each other, not only in child-bearing women; but various morbid affections of the breaſts alſo indicate a kind of permanent ſympathy. I have repeatedly ſeen the mammæ become enlarged, where there appeared to be no other cauſe than a deficiency in the menſtrual evacuation. The following caſe of an enlargement of the mammæ, which ſeemed to ariſe from an obſtruction of the menſtrua, is ſo remarkable, that it may deſerve to be recorded.

Mary Bradford, aged fourteen years, was admitted June 8th, 1787, a patient of the General Infirmary at Leeds, on account of a very great enlargement of both the mammæ. From her infancy they had been ſomewhat larger than the natural ſize. She was of a delicate habit; but was not unhealthy before the

the attack of this diſeaſe. She began to menſtruate when ſhe was twelve years and a half old; and being ignorant of this habit of her ſex, and aſhamed to mention her ſituation, ſhe waſhed that part of her linen which was ſtained, and continued to wear it while wet. The evacuation ceaſed ſuddenly, and had not returned when ſhe became a patient of the General Infirmary.

Many means were uſed to bring on a regular menſtruation, from a ſuppoſition that the enlargement of the mammæ was owing to this obſtruction. The obſtruction, however, was not removed, and the breaſts continued to grow larger.

Her ſituation was now truly deplorable. The ſize of the breaſts was ſo enormous, that ſhe could not walk upright. The conſtant bending forwards had brought on a permanent curvature in the ſpine. The dragging ſenſation, ariſing from the weight of her breaſts, was ſo troubleſome, that ſhe was never eaſy unleſs when lying in bed, or ſitting with the breaſts reſting upon her knees. There ſeemed to be no method of relief remaining but that of amputation. Upon a conſultation it was determined to remove the

left breaſt, which was the larger, and to wait the event of this operation.

There appeared to be no diſeaſe in the breaſts except that of ſimple enlargement; and their weight had ſeparated them ſo far from the ſubjacent pectoral muſcles, that I could puſh my finger, along with the integuments, ſome way behind each mamma, which felt like a bundle of enlarged glands connected together. This detached ſtate of the breaſts rendered the operation neither difficult, nor tedious. I left a conſiderable portion of the integuments to cover the part from whence the breaſt was removed; and my patient recovered without any bad ſymptoms. The breaſt, after amputation, weighed eleven pounds four ounces avoirdupois.

The operation was attended with a ſucceſs that exceeded my expectation. Menſtruation ſoon returned, and became regular. A diminution of ſize in the right mamma was in a ſhort time apparent; and during an attack of fever, which ſhe had about ſix months after her diſcharge from the Infirmary, the diminution became conſiderable.

She is now a healthy young woman, and at the time of writing this, twenty-three years of age. The right breaſt is ſtill larger than

is

is natural; but it is not half ſo large as it was before the amputation of the left breaſt. The integuments covering the right breaſt are in a looſe flabby ſtate, and the breaſt itſelf does not feel like one compact gland, but, as was mentioned before, like a number of glands connected. A curvature in the ſpine ſtill continues; but ſhe is become ſtraighter than ſhe was before the operation.

CHAP. XVII.

Of Collections of Pus in the Vagina.

CASE I.

IN April, 1780, Mrs. D. of S. about twenty miles from Leeds, conſulted me on account of a very troubleſome *fluor albus*, as ſhe judged it to be. She informed me, that the diſorder had come upon her about five years before, during pregnancy, and had hitherto reſiſted the effect of every remedy given for her relief. In anſwer to my inquiries ſhe gave me the following account of her complaint.

The colour of the diſcharge was white, inclining to yellow. It flowed in an irregular manner, unconnected with any circumſtance which ſhe could recollect. Sometimes the diſcharge ceaſed entirely. Sometimes it began to flow ſuddenly in large quantity, and continued diminiſhing until it ceaſed. The

parts

parts were often rendered ſore by the evacuation.

From theſe circumſtances I ſuſpected, that the nature of the complaint had been miſtaken; and was apprehenſive that a collection of purulent matter might have been formed in the vagina. I gave her the reaſons of my ſuſpicion; and told her, that, in my opinion, the true ſtate of her caſe could not be aſcertained without an examination of the part affected.

Upon examination my ſuſpicions were verified. I found a quantity of purulent matter collected on the left ſide, where the labium pudendi joins the vagina. I thruſt the blunt end of a probe into the cyſt, where it appeared to be very thin, and the matter flowed out copiouſly. I informed her, that a ſurgical operation would be neceſſary for her cure; but ſhe declined ſubmitting to it, and returned home.

I heard no more of my patient till May 1781, when ſhe returned to Leeds, determined to put herſelf under my care. The diſorder had remained in the ſame ſtate. The cyſt was ſometimes healed; and then, burſting open, continued for a time to diſcharge the purulent matter, as before.

Upon dividing the cyſt, I found that the cavity in which the matter lodged, was about an inch and half in diameter. The whole interior ſurface of the cyſt was ſmooth and ſhining; and on that account I judged it improbable that a ſimple diviſion of the cyſt would effect a cure. I thought it neceſſary, therefore, to remove the greater part of that portion of the cyſt which was formed by the internal lining or cuticle of the labium pudendi. The hæmorrhage was inconſiderable, and ſoon ceaſed. The wound healed kindly, and my patient obtained a perfect cure.

CASE II.

In 1786, Anne Miller came under my care as an out-patient of the General Infirmary at Leeds, for a node upon the tibia, which I ſuſpected to have had a venereal origin. When ſhe was about to be diſcharged cured, ſhe informed me, that ſhe had been troubled for fifteen or ſixteen years with ſudden and irregular diſcharges of purulent matter from the vagina. Theſe diſcharges, ſhe ſaid, were frequent, and ſometimes conſiderable; yet ſhe never perceived any matter to be mixed with her urine.

Upon examination I found a roundiſh tumour at the os externum, appearing to be formed by an enlargement of the bulbous part of the urethra. When the tumour was compreſſed, pure pus iſſued from the urethra; yet her urine, when drawn off with a catheter, did not contain the leaſt mixture of purulent matter. Upon introducing a bent probe into the urethra, I could eaſily puſh it to the moſt depending part of the tumour; and could feel the probe diſtinctly by a finger introduced within the vagina.

I divided the tumour longitudinally, at a time when it was diſtended with matter. That part of the vagina which I cut through was not thinned by the diſtention, but was rather tough. The cavity of the cyſt was ſmooth. As the opening which I had made was depending, and as the removal of any part of the cyſt would have been attended with difficulty, I only filled the cavity with lint. A ſmall artery was opened by dividing the cyſt, but the hæmorrhage did not continue long. This patient recovered ſpeedily, and got quite free from the complaint.

CHAP. XVIII.

On Alvine Concretions.

SO many hiſtories have been publiſhed of Alvine Concretions, which had acquired a form ſomewhat globular, generally containing a nucleus of ſome hard and indigeſtible ſubſtance, as the ſtones of fruits, &c. that it may ſeem unneceſſary to relate more inſtances of this diſeaſe.

Yet, as this work may fall into the hands of ſome perſons, who have not read the hiſtories to which I allude; and as the public can ſcarcely be too often reminded of the impropriety of ſwallowing the ſtones of plums or cherries, which young people eſpecially are apt to do in eating thoſe fruits; I ſhall give one inſtance of the dangerous, and another of the fatal effect of theſe concretions.

CASE I.

I was deſired ſome years ago to viſit a young woman, who complained of great pain in

in the hypogaſtrium, and at the anus, attended with difficulty of diſcharging her fæces. The preſſure which ſhe felt occaſionally at the anus was ſo great, that I judged it neceſſary to examine that part, and found a hard ſubſtance preſſing againſt the ſphincter ani, which ſhe could not expel by the natural efforts.

I extracted this ſubſtance by means of a pair of forceps uſed in lithotomy, and found it to be a ball of light friable matter, containing a rough plum-ſtone in its centre. After this was removed, two other concretions of the ſame nature preſented themſelves, and were extracted in ſucceſſion by the ſame inſtrument. They had each of them a plum-ſtone for a nucleus.

Upon inquiry into the origin of this young woman's complaint, there ſeemed no reaſon to doubt, that theſe ſtones had remained ſix years in the alimentary canal. The young woman recollected having paid a viſit to an uncle, who was a grocer at Wakefield, and who had permitted her to eat freely of prunes in his ſhop. She remembered alſo having frequently ſwallowed the ſtones of the prunes which ſhe then ate. But ſix years had now elapſed ſince this viſit; and ſhe was poſitive,

that

that ſhe had not eaten a prune ſince that time.

Theſe concretions may grow to ſuch a bulk, that they cannot paſs into the rectum, and of conſequence muſt prove fatal to the patient, as in the following caſe.

CASE II.

I was permitted to examine the body of a boy, whoſe parents lived at Holbeck, near Leeds, and who had died in an emaciated ſtate, having had long continued pain in the abdomen, attended with frequent attacks of the ileus.

I found a concretion, of the kind above mentioned, lying in the tranſverſe arch of the colon, which was become of ſo great bulk, that it could paſs no farther along the courſe of the inteſtine. This ſeemed to have been the ſole cauſe of the boy's death.

Mr. White, of Mancheſter, has publiſhed ſome uſeful caſes of this diſeaſe, and has alſo given references to other authors, who have treated on the ſame ſubject.*

An inſtructive paper, written by the late

* See Caſes in Surgery, by Charles White, F. R. S. p. 17.

Dr.

Dr. Fothergill, was publiſhed by the *Medical Society*, in the 3d vol. of Medical Obſervations and Inquiries, p. 123, on the collection of indurated fæces in the rectum, which I would recommend to the peruſal of the young practitioner, as the diſeaſe does not very frequently occur, and as it appears under a form ſo fallacious, that a perſon, who is not attentive to every ſymptom, may readily be miſled.

My principal deſign in taking notice of this diſeaſe was, to relate a caſe, which, whether we regard the hiſtory of the ſymptoms, or the method of cure, will not, I hope, be thought uninſtructive.

CASE III.

Mrs. S. was delivered of her third child, January 31ſt, 1799. She had not complained of any unuſual coſtiveneſs; nor, indeed, had ſhe made any complaints to me during the laſt month of her pregnancy.

She had natural evacuations during the firſt week of her confinement, and took no medicine except one anodyne draught. At the expiration of the firſt week, ſhe began to complain of a painful motion to make water.

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This complaint was relieved by giving her (Feb. 9th.) a ſolution of the bitter purging ſalt, and an oily emulſion. She took no medicines from this time till the 21ſt, three weeks after her delivery, when ſhe took a purging draught, and ſome more of the emulſion. She was not now confined to her room, nor even to the houſe; but ſometimes walked out into the garden.

In the laſt week of February the complaint became more troubleſome and conſtant. She had frequent pains, exactly reſembling thoſe of labour, attended with a conſiderable degree of preſſure downwards. Purging draughts, laxative clyſters, together with the oily emulſion, and occaſionally an anodyne at bed-time, afforded her ſome relief. Her pulſe, however, became more frequent, and a degree of fever remained conſtantly upon her.

During the month of March ſhe was chiefly confined to her chamber, as walking ſeemed to increaſe the preſſure downwards. She took the ſimple ſaline draughts, and ſometimes an opening draught; but the evacuation of the fæces was principally aſſiſted by the injection of mild clyſters. In the laſt week of this month, the nurſe found the clyſters did

not

not paſs into the inteſtines as uſual, but returned immediately. A ſolution of the bitter purging ſalt was, therefore, given more freely, but it did not anſwer as uſual; and before the termination of the week, a complete obſtruction in the alimentary canal took place. She now began to reject by vomiting what was taken into the ſtomach; and there was an evident fulneſs in the abdomen, particularly in the hypogaſtrium, which had not before been perceived.

As the nurſe had failed in her attempts to inject the clyſters as uſual, and as purgatives taken by the mouth were now rejected, it became neceſſary to make the ſtricteſt enquiry into the cauſe of this obſtruction. I attempted to give my patient a clyſter, but found the ſame difficulty of which the nurſe had complained. The pipe paſſed readily into the rectum, and was not blocked up by fæces; yet the clyſter returned immediately, without paſſing into the colon, whatever force was uſed in the injection.

Upon introducing my finger into the rectum, I found it empty; but its higheſt part was cloſed, being preſſed againſt the os sacrum by a hard ſubſtance, which occupied the ſuperior part of the pelvis. This ſubſtance felt

felt like an enlarged uterus; enlarged, I mean, when conſidered in its unimpregnated ſtate. I made an examination alſo per vaginam, and was ſtill led to think, that the uterus was preſſed againſt the os ſacrum.

At this period of the diſeaſe Dr. Daviſon was conſulted, who continued to attend with me during the remainder of our patient's indiſpoſition. We gave various purgatives, as ol. ricini, jalap alone, or with the addition of calomel, in the form of pills, magneſia, with lemon juice taken immediately after it. Theſe medicines ſometimes remained for a few hours upon the ſtomach, but were always ſooner or later rejected. A warm ſemicupium was uſed, which afforded ſome relief from pain, but did not procure an evacuation of the fæces.

Our patient was now reduced to a ſtate of extreme danger. Purging medicines afforded no relief, and clyſters injected into the rectum could not be made to paſs the ſtricture at the brim of the pelvis. In this dilemma it occurred to me, that if I could make a long flexible catheter paſs beyond the compreſſed part of the rectum, I ſhould be enabled to inject a clyſter through it into the ſigmoid flexure of the colon, and thereby probably

probably bring down the obſtructed fæces. To effect this purpoſe, I introduced the fore-finger of my right hand as high in the rectum as poſſible, and with this finger directed the catheter to that part where there ſeemed to be the leaſt reſiſtance. I then puſhed on the catheter with my left hand, and with my finger which was in the rectum. By this method, though not without difficulty, I made the inſtrument paſs into the ſigmoid flexure of the colon, into which I now injected a large clyſter. When the catheter was withdrawn, its extremity appeared to have paſſed into ſome indurated fæces; which circumſtance not only threw light upon the nature of the diſeaſe, but alſo afforded us ſtrong hopes of being able to ſubdue it. An evacuation of fæces was procured, and the vomiting ceaſed.

The clyſters were repeated, by the method above mentioned, morning and evening, ſo long as they appeared to be neceſſary. They were generally made with a pint of water-gruel, and an equal quantity of olive-oil, mixed by means of the yolk of an egg. The fæces were ſometimes diſcharged in hard lumps, but they had generally the appearance of

bran, as if they had become dry by their long reſidence in the inteſtine, and had afterwards become mixed with the more liquid excretion of the inteſtines, or with the clyſter. This kind of excrement continued to come away during the courſe of a fortnight.

In the ſecond week of April a ſpontaneous diarrhæa took place, and our patient became very feeble. She had now and then a retching, which ſeemed to ariſe from mere debility of the ſtomach. Anodynes, with tonic and cordial medicines, were now given. Wine, or a little brandy, was put into her gruels, which were made with ſago, tapioca, ſalop, and the like.

Mrs. S. had at this time a cough, which was troubleſome. The matter expectorated was mucous, and we hoped that it aroſe merely from too copious a ſecretion of that fluid, without any ſerious affection of the lungs.

Though the original diſorder had been completely removed, the ſecondary complaints which ſupervened, attended with general debility, brought our patient again into imminent danger. Though the diarrhœa was in a conſiderable degree reſtrained, yet ſhe became more and more emaciated, and that to a very high

high degree. The quantity of food which ſhe took was ſmall, and her digeſtion ſeemed languid.

In this ſtate, April 28th, Dr. Daviſon propoſed the application of a bliſter to her ſtomach, with the view of rouſing the action of that important organ, and affording a general ſtimulus to the habit. This ſeemed to have a good effect. We found her not quite ſo low the next day. From that time ſhe continued to recover, though ſlowly, and at laſt regained perfect health.

CHAP. XIX.

On the Atheroma

THE Atheroma is an encyſted tumour, containing a ſubſtance reſembling ſoft curds*. It is ſituated immediately under the cutis; and the attachment of its cyſt to the circumjacent adipoſe membrane is generally ſlight. It frequently attacks the face in children, forming tumours about the ſize of a pea, which are ſmooth, and appear rather whiter than the reſt of the ſkin. Theſe after ſome time become inflamed, and burſt. Their contents are then diſcharged, and the part heals without any inconvenience. From this ſpontaneous termination of the complaint, theſe tumours are uſually left to take their courſe, and are conſidered as of little conſe-

* Αθερωμα eſt tumor concolor, doloris expers, in quo aliquid pulticulæ, quæ αθηρα vocatur, ſimile, tunicâ quâdam membranoſâ concluditur.

Gorræi Definitiones Medicæ, p. 8.

quence.

quence. When, however, they are ſituated on the eyelids, (which they often attack) and particularly near the eye-laſhes, they ſometimes, during their inflamed ſtate, produce a troubleſome ophthalmy, which I have ſeen terminate in an opacity of the cornea. It is of conſequence, therefore, to know the proper treatment of this complaint, and the following deſcription of an eaſy method of cure may not be unacceptable to the young practitioner.

If the eyelid is the part affected, I make an inciſion acroſs the tumour in the courſe of the fibres of the orbicular muſcle; and, after preſſing out the contents, I pull out the cyſt with a pair of diſſecting forceps. It is often difficult to diſtinguiſh the cyſt from the cutis, when the tumours are ſmall; but by preſſing the points of the forceps againſt the ſides of the cavity, whence the curdy matter iſſues, one may ſoon lay hold of ſome part of the cyſt. Its attachment to the ſurrounding cutis and membrana adipoſa is ſo ſlight, that it is drawn out without difficulty. It is ſometimes broken in the extraction; but one may readily diſcern whether any part of it remains unremoved by the following crite-

rion. So long as any fragment is left, the appearance of tumour continues; whereas when the whole is extracted, the tumefaction vaniſhes entirely. No other dreſſing is neceſſary in this caſe than a little emplaſtrum lithargyri.

If this operation is delayed till the cyſt has burſt, and the tumour, being large, has remained in a ſtate of inflammation for a week or two, a fungus will ſometimes be found within the tumour, which may require the application of the lunar (or ſome other) cauſtic.

Atheromatous tumours are often found upon the head of adults. I have ſeen the ſcalp almoſt covered with them. The cyſt, in this ſituation of the tumours, becomes firm, reſembling a bladder in texture and thickneſs. If the tumour is not large, the cyſt may be removed whole, by laying hold of it with a hook, after making a crucial inciſion through the ſkin, and ſeparating it from the upper part of the cyſt.

When theſe tumours are ſituated on the eyelids, they ought to be removed before they become inflamed, if an opportunity of doing this is afforded; but a ſtate of inflammation ſhould not be conſidered as an impediment

pediment to the operation, eſpecially if the conjunctiva partakes of that ſtate. I have ſeen a dangerous ophthalmy ſubſide immediately, upon the removal of the cyſt of an inflamed atheroma, ſituated upon the edge of the eyelid.

CHAP. XX.

On deep-seated Abscesses in the Mamma.

THE abſceſs, which I mean to deſcribe, does not frequently occur, yet it is not confined to women in the puerperal ſtate, nor to thoſe who give ſuck. I have ſeen it repeatedly in unmarried women. It does not differ in its original formation from a common abſceſs; but its ſituation renders all ſuperficial applications ineffectual, and requires a more ſevere method of cure, than that which is uſually ſufficient in the common milk abſceſs. The inflammatory ſtage is tedious; and, when the purulent matter has burſt through the integuments, the diſcharge continues without any apparent tendency to healing. Sometimes the matter burſts out at different places, and the intermediate parts of the breaſt feel hard, as if affected with ſchirrus. Sometimes the matter lodges behind the mamma, as well as in the ſubſtance of that gland. The cavities formed by the matter are often numerous, running in a variety

variety of directions, and, when opened, are found to be in part filled with a ſoft fungus of a purple colour.

This diſeaſe will ſometimes continue for many months with little variation in its appearance. A degree of hectic fever, however, is kept up by the abſorption of the confined matter; and the breaſt uſually becomes more indurated in proportion to the continuance of the complaint. I have not hitherto met with any caſe, which has not been cured without extirpation of the breaſt. The following treatment has always proved ſucceſsful, and has ſometimes effected a cure in leſs time than the extent of the wounds led me to expect.

Having examined the courſe of that ſinus, out of which the matter iſſues, I divide it throughout, however deep its ſituation in the breaſt may be. I then examine carefully with my finger the whole extent of the wound, that I may diſcover the orifices of any other ſinuſes connected with it. Theſe, it is neceſſary to obſerve, cannot always be diſcerned with the eye, as they are ſometimes filled up with the ſoft fungus above mentioned, and preſent no viſible cavity. By preſſing the finger upon any part that feels ſofter than the reſt of the wound, one may

may eaſily break down the fungus, and thereby diſcover the orifice of any collateral ſinus. All the ſinuſes muſt be opened through their whole extent, however numerous, or tortuous in their courſe. Unleſs this be done, the operation proves fruitleſs. If, in doing this, I find any two ſinuſes running in ſuch directions, that, when fully opened, they leave a ſmall part of the mamma in a pendulous ſtate, I remove that part entirely. I have been under the neceſſity in this operation of making ſo many inciſions through the breaſt, that it has been divided into ſeveral pieces, yet the wounds have healed favourably, and the breaſt has ultimately preſerved its natural figure. This operation has ſucceeded in habits which would be judged unfavourable to the healing of any wound, as in the following

CASE.

Martha Wilſon, of Pontefract, was admitted an in-patient of the General Infirmary, on account of ſcrofulous ulcers. I ſcarcely ever ſaw them ſo numerous in any one perſon. The anterior part of the thorax, the clavicle, the ſhoulder, and axilla on the left ſide, were almoſt covered with them. After having obtained conſiderable relief by the uſe of the

the lotion mentioned below*, by which moſt of the ſuperficial ulcers were healed, (the incruſtations, which covered them at her admiſſion, being removed by a digeſtive ointment) ſhe was made an out-patient. While ſhe remained at home, a deep-ſeated abſceſs was formed in, and behind, the mamma. After this had continued ſome months ſhe was again taken into the houſe. The matter had burſt through the integuments juſt above the mamma. A probe, introduced at this orifice, paſſed down behind the breaſt, till it might be felt through the integuments below. I made a complete diviſion of the breaſt, and alſo opened three lateral ſinuſes, which communicated with the longitudinal one, but were not of great extent. Notwithſtanding the habit of this patient, the wounds healed ſo ſpeedily, that an union of the divided parts was formed in the courſe of a fortnight, and the wounds were cicatrized in a ſhort time afterwards. The proper form of the mamma was preſerved.

* ℞. Aquæ puræ, ℥xxx:
Spt. Roriſmarin. ℥ij.
- - - Lavendul. comp. ʒij.
Zinci vitriolati, ʒj.
miſce fiat. lotio.

The ulcers were kept continually moiſtened with this lotion, by the application of folded linen cloths previouſly ſoaked in it.

CHAP. XXI.

On Amputation.

DISEASES which require the amputation of a limb, or ſome part of the extremities, ſo frequently occur, that every improvement of this operation muſt be conſidered as important in the practice of ſurgery. The method of amputating ſo as to heal the wound by the firſt intention, as it is called, I conſider as a capital improvement; and am ſorry that it is not yet univerſally adopted. If I were not aware of the force of prejudice, I ſhould be ready to conclude, that a ſurgeon was defective either in knowledge or humanity, who did not prefer this method, whenever it was in his power to make uſe of it.

A cure is performed by it in one-fourth part of the time which is required when the ordinary mode of dreſſing is uſed. The pain ſubſequent to the operation, which is great and long continued when the interior

parts

parts of the wound are dreſſed, is hereby avoided in a great meaſure; and the cicatrix, which muſt remain in ſome degree after the wound is healed, being reduced to a very ſmall breadth, is not ſo liable to break open again from accidental injuries. This method of operating, when rightly underſtood, is not peculiarly difficult; but the comparative relief which the patient receives from it is great indeed.

1. *Amputation in the Thigh or Arm.*

When a flap is not made, which is uſually unneceſſary when amputation is performed in the thigh or arm, nothing more is neceſſary than to amputate with a triple inciſion, and to preſerve ſuch a quantity of muſcular fleſh and integuments, as are proportionate to the diameter of the limb. By a *triple* inciſion I mean, firſt, an inciſion through the integuments alone; ſecondly, an inciſion through all the muſcles made ſomewhat higher than that through the integuments; and thirdly, another inciſion through that part of the muſcular fleſh which adheres to the bone, made round that part of the bone where the ſaw is to be applied. When theſe inciſions

are

are made in their proper places, the integuments and muſcles on the oppoſite ſides of the ſtump will meet each other conveniently, and may be preſerved in contact ſo as to produce a ſpeedy healing of the wound, and a convenient covering for the extremity of the bone.

The proper diſtances of theſe inciſions from each other muſt be determined by the thickneſs of the limb, upon which the operation is to be performed, making allowance for the retraction of the integuments, and of thoſe muſcles which are not attached to the bone.

I will ſuppoſe the operation to be performed upon the thigh, and the circumference of the limb to be twelve inches, at that part where the diviſion of the bone is intended to be made. The diameter of the limb, in this caſe, being four inches, if no retraction of the integuments were to take place, a ſufficient covering of the ſtump would be afforded by making the firſt inciſion at the diſtance of two inches from the place where the bone is to be ſawn, that is, at the diſtance of the ſemi-diameter of the limb on each ſide. But as the integuments, when in a ſound ſtate, always recede after they are divided, it is uſeful to make ſome allowance for this receſſion;

receſſion; and to make the firſt inciſion half an inch below the ſemidiameter of the limb.

Suppoſing the thickneſs of the integuments to be half an inch, the diameter of the limb after the firſt inciſion would be reduced to three inches; the ſecond inciſion might, therefore, be made at the diſtance of an inch and half below the place where the bone is to be divided: but it is uſeful to make ſome allowance for the retraction of the muſcles, particularly the poſterior muſcles of the thigh, which takes place in them to a conſiderable degree in the proceſs of healing. Theſe ſhould be divided ſomewhat lower than the reſt of the muſcles, if it is wiſhed that the muſcular fleſh ſhould retract equally on all ſides of the ſtump. The diviſion of the poſterior muſcles may be begun at half an inch, and that of the anterior at three quarters, above the place where the integuments were divided. The integuments will retract a little both above and below the place where they were divided; but the diſtance from that place muſt be computed from the mark left upon the ſurface of the muſcles in dividing the integuments. The edge of the knife

ſhould

ſhould be directed ſomewhat obliquely upwards in dividing the muſcles, and the diviſion ſhould be made through the poſterior muſcles at one ſtroke, and through the anterior at another.

In order to make the third inciſion, the divided integuments and muſcles muſt be drawn upwards by an aſſiſtant, who will generally do this the moſt conveniently with the aid of a retractor, and who ſhould be cautious to avoid pulling the perioſteum from the bone, when the muſcles which adhere to it are divided.

The moſt perfect union of the ſoft parts would be produced by making an inciſion through them all in a conical direction; the apex of the cone being that part of the bone where the ſaw is to be applied. But ſuch an inciſion is impracticable in the ordinary mode of operating; nor is it neceſſary for the formation of a good ſtump.*

As

* It is evident, that a conical inciſion through the muſcles of the thigh cannot be made with a continued ſtroke, in the uſual mode of amputating. For ſuppoſing the edge of the knife to have once penetrated obliquely through the muſcles, ſo as to be an inch higher, when arrived at the bone, than when it penetrated the

As it is desirable that the ligatures, by which the bleeding vessels are secured, should be cast off in the course of ten or twelve days, it is the best method to draw out the extremity of each vessel with a tenaculum, for the purpose of applying a ligature. But the situation of an artery is often such, that it becomes necessary to make use of a needle. In this case, the needle should be made to pass as near the vessel as possible. I have been accustomed to tie the femoral artery twice, leaving a small space between the ligatures; and this method has been constantly used in the Leeds Infirmary since its establishment. Having seen a few instances of bleeding from the femoral vein, I generally include the vein in the ligature along with the artery.

I have seen a few instances of the integuments becoming so contracted after the operation, as to compress the veins just above the extremity of the stump, and bring on after some hours a copious hæmorrhage. When it has appeared clear to me that the hæmor-

surface; if the incision be continued with a flowing stroke, the knife must then cut the surface of the undivided muscles an inch higher than at the commencement of the incision.

rhage was venous, I have made a diviſion of the integuments on one ſide of the thigh, ſufficient to remove the ſtricture, and this method has immediately ſuppreſſed the hæmorrhage. Should the integuments, after amputation, ſhew ſuch a diſpoſition to contract, as to threaten a ſtrangulation of the ſtump, (a caſe which I have ſeen) it is then prudent to make a longitudinal diviſion on one ſide of the ſtump before the dreſſings are applied, and to continue it ſo high as to remove all appearance of undue contraction.

Sometimes the integuments of the thigh are in a morbid ſtate on one ſide of the limb, while they are ſound on the other. In this caſe, a longer portion of integuments and muſcular fleſh muſt be left on the ſound ſide, which will not prevent the formation of a good ſtump. The morbid ſtate of the anterior or poſterior ſide of the thigh ſometimes extends ſo far above the knee, that it is adviſable to amputate with a flap. I have ſeveral times, indeed, made a flap on the anterior part of the thigh by choice, though I do not uſually operate in this way, as it unneceſſarily ſhortens the remaining part of the limb. I have never, but from neceſſity, made a flap on the poſterior ſide of the thigh,

yet this may be done in certain caſes with great advantage.

A brother of the ingenious Mr. Mann, of Bradford, near Leeds, the inventor of the new artificial wooden leg, had an enlargement of the inferior and anterior part of the thigh-bone, which required the amputation of the limb. The poſterior part of the thigh being in a perfectly ſound ſtate, I made a flap of thē integuments and muſcles on that ſide, and by this method was enabled to ſaw off the bone immediately above the tumour, which in this caſe was a great advantage. The tumour, upon diſſection, was found to be principally cartilaginous, though the proceſs of oſſification had begun in it, and ſeemed to be advancing from the thigh-bone towards its exterior parts. The neceſſities of a near relation urged both the father and brother of this patient to contrive an excellent ſuccedaneum. The contrivance of the brother being judged to have ſuperior excellence, a patent was obtained for the invention, which has added much comfort to the lives of many who have had the misfortune to require amputation above or below the knee.

In ſcrofulous white-ſwellings of the knee, the *ſacculus mucoſus*, which lies behind the tendon of the rectus femoris, is ſometimes in a morbid ſtate, diſtended with a glairy purulent fluid, and extending ſo high above the knee, that it would be inconvenient to make the inciſion through the muſcles above the tumour. In this caſe, a ſurgeon is not under the neceſſity of amputating with a flap made on the poſterior part of the thigh, if he diſlikes this mode of operating: but he ſhould diſſect out that part of the morbid ſac which remains above the place where the muſcles are divided. This operation is practicable; and I have always judged it to be prudent, leſt the remains of ſo morbid a part ſhould give riſe to ſome freſh diſeaſe in the ſtump.

When the limb is amputated, the integuments and muſcles may be brought into contact by preſſing either the anterior and poſterior parts, or the ſides of the thigh, together. The former method, by the gradual retraction of the poſterior muſcles, cauſes the integuments of the anterior part of the ſtump to cover more completely the extremity of the bone. The latter method cauſes the integuments and muſcles to meet each other the more

more readily, and therefore is to be preferred when the quantity of ſoft parts preſerved is ſomewhat deficient.

The integuments are moſt conveniently held in contact by ſutures, for the making of which, ſtraight needles ſhould always be uſed. But an union of the parts may be produced without ſutures, by keeping them in exact contact with the aſſiſtance of plaſters. Both theſe methods of dreſſing have their advantages and diſadvantages, and my opinion has fluctuated reſpecting their ſuperiority. Plaſters give leſs pain in their application, and are more eaſily removed and renewed when a ſubſequent hæmorrhage requires the ſtump to be opened: but they confine the purulent matter more within the wound, and thereby delay the cure; and ſometimes cauſe pain from the confinement of the matter. Sutures give more pain in the application, and that ſometimes in a conſiderable degree; but then, if the amputation has been properly conducted, no tight preſſure of plaſter, nor ſtrict bandage, is required to keep the integuments in contact; a long pledget of cerate, with a flannel roller, being all the dreſſing required, till the ligatures of the integuments

are removed. The purulent matter eſcapes more readily through the apertures in which the ligatures of the veſſels lie, and the cure is generally more ſpeedily accompliſhed. Either method may be uſed after amputation made upon the thigh, with the triple inciſion; but when a flap is made in the leg, ſutures are preferable, for a reaſon which I ſhall mention.

When ſutures are uſed, the ſtraight needles ſhould be puſhed obliquely through the integuments, for the purpoſe of bringing them more exactly into contact.

After the firſt two days, the pledget and bandage may be renewed every day; and as ſoon as the ligatures which united the integuments become looſe, they ſhould be cut out, and the parts ſhould be ſupported by plaſters.

It is no ſufficient objection to the method of healing a ſtump by bringing the divided parts into contact, without the intervention of any other extraneous ſubſtance, except the ligatures which have been applied to the arteries, that a hæmorrhage may take place ſeveral days after the operation, and even when the integuments are united. This is a rare occurrence, though I have known it to happen.

happen. However, I know that the ſeparation of the integuments by a ſcalpel, in this caſe, gives very little pain to the patient; and the poſſibility of ſuch an occurrence is not to be ſet in competition with the advantages of this method of conducting amputation.

When we are under the neceſſity of amputating a limb that has ſuffered great contuſion, though the operation is performed upon a part apparently ſound, the wound ſometimes becomes ſloughy, and ill-conditioned. No good granulations ariſe to cover the extremities of the arteries; but the ligatures cut through theſe veſſels, or becoming looſe, ceaſe to make a ſufficient preſſure upon them, and hence repeated hæmorrhages enſue. This is a dangerous ſtate for a patient; for if the veſſels are taken up afreſh with the needle, the hæmorrhage will now and then return in the courſe of two or three days. In ſuch caſes the application of dry ſpunge, cut tranſverſely, as directed by Mr. White*, has been found ſingularly uſeful, and has ſaved the life of the patient. But a conſtant preſſure muſt be kept upon the

* See Caſes in Surgery, by Charles White, F. R. S.

pieces of ſpunge, by the fingers of a ſucceſſion of aſſiſtants, till granulations begin to ariſe upon the ſtump, and the proſpect of future hæmorrhage diſappear. This method is of the greateſt importance after amputation on the thigh or leg, where the great veſſels are deeply ſeated. In the arm, above the elbow, where the veſſels are more ſuperficial, the great artery may be taken up, with a portion of muſcular fleſh, above the ſurface of the ſtump, by making firſt an inciſion through the integuments. My colleague Mr. Logan has done this twice within the laſt year, with complete ſucceſs, when repeated ligatures, applied in the uſual way, had failed.

In the morbid ſloughy ſtate of the ſtump above mentioned, the application of lint ſoaked in a liquid, compoſed of equal quantities of lemon juice and rectified ſpirit of wine, has been found very advantageous, and has cauſed the ſtump to put on ſoon a healthy aſpect.

2. *Amputation below the Knee.*

Amputation below the knee, when a flap is preſerved, has been uſually performed at as ſmall a diſtance above the ancle as is neceſſary

ceſſary for the formation of a flap; but I am ſatisfied from much experience, that this is not the moſt proper place for amputation.

Soon after Mr. White had publiſhed his account of amputating with a flap, as recommended by Mr. O'Halloran, of Limerick, I went over to Mancheſter to ſee the effect of this operation. It appeared to me to be a conſiderable improvement in ſurgery; though, from the manner in which Mr. White then made the flap, this did not completely cover the extremity of the ſtump. I determined, however, to introduce this method of amputating into the Infirmary at Leeds; but before an opportunity offered, I was informed of an improvement which Mr. Bromfeild had made upon Mr. White's operation*. Mr. Bromfeild's manner of making the flap ſeemed ſuperior to that of Mr. White; but I approved of the double inciſion which Mr. White had uſed in ſome of his caſes. I reſolved therefore to combine the improvements of theſe two eminent ſurgeons, by making the flap in the manner recommended by Mr. B. at the ſame time preſerving, by the double inciſion, a portion of integuments,

* Mr. Bromfeild afterwards publiſhed this method.

on the anterior part of the leg, ſufficient to cover completely the edge of the tibia.

I operated for the firſt time after this manner March 1ſt, 1772; and, as Mr. Lucas has obſerved, who ſent an account of this and ſome other caſes to the Medical Society in London, "no opportunity has been "omitted in giving the preference to this "mode of amputating ſince it was firſt "done*." After Mr. Alanſon, and the other ſurgeons at the Liverpool Hoſpital, had made a farther improvement of this operation, by applying the flap immediately after amputation, we adopted their method in preference to that, recommended by Mr. White, of dreſſing the flap and ſtump ſeparately till the ligatures had fallen off.

In 1774, I operated upon James Pilkington†, in whoſe caſe I was under the neceſſity of amputating at the lower part of the belly of the gaſtrocnemius muſcle. I applied the flap by degrees, and made a good covering for the ſtump. I continued, however, to amputate in general a little above the ancle for many years. But ſome caſes occurring, in which, from a ſcrofulous habit, the wound

* Medical Obſervations and Inquiries, vol. 5. p. 327.
† *Ibid.*

would

would not heal completely, or remain healed, ſo that the patient could neither bear the preſſure of a ſocket, nor conveniently uſe a common wooden leg (as the length of the limb projecting backwards expoſed the ſtump to frequent injuries); I determined to try whether amputation in a more muſcular part of the leg would not ſecure a complete healing, and give the patient an opportunity of reſting his knee on the common wooden leg, or uſing a ſocket, as he might find moſt convenient. I now prefer this method, and have reduced it to certain meaſures, the recital of which will beſt convey my ideas, and aſſiſt thoſe who wiſh to adopt this mode of amputation.

It had been the general practice at the Leeds Infirmary, to make the length of the flap equal to one-third of the circumference of the leg, at that part where the amputation was made. But we uſed no meaſure for the breadth of the flap. This was determined by the eye of the operator, who uſually puſhed the catlin through the leg, near the poſterior part of the fibula. Finding that I did not always make the flap of the moſt convenient breadth, I began to aſcertain this alſo by meaſure, and now always operate in the following manner.

To

To aſcertain with preciſion the place where the bones of the leg are to be divided with the ſaw, together with the length and breadth of the flap, I draw upon the limb five lines, three of them circular, and two longitudinal. The ſituation of theſe lines is determined in the following manner. I firſt meaſure the length of the leg from the knee to the ancle; that is, from the higheſt part of the tibia to the middle of the inferior protuberance of the fibula. At the midway between theſe two joints I make the firſt, or higheſt, circular mark upon the leg*. This mark is to point out the place where the bones are to be ſawn through. At this mark alſo I meaſure the circumference of the leg, and thence determine the length and breadth of the flap, each of which is to be equal to one-third of the circumference. In meaſuring the circumference of the limb, I make uſe of a piece of marked tape or ribbon†, and place the extremity of this meaſure upon the anterior edge of the tibia. I will ſuppoſe the circumference to be twelve inches, in which caſe I

* Plate ix. fig. 1. a a.

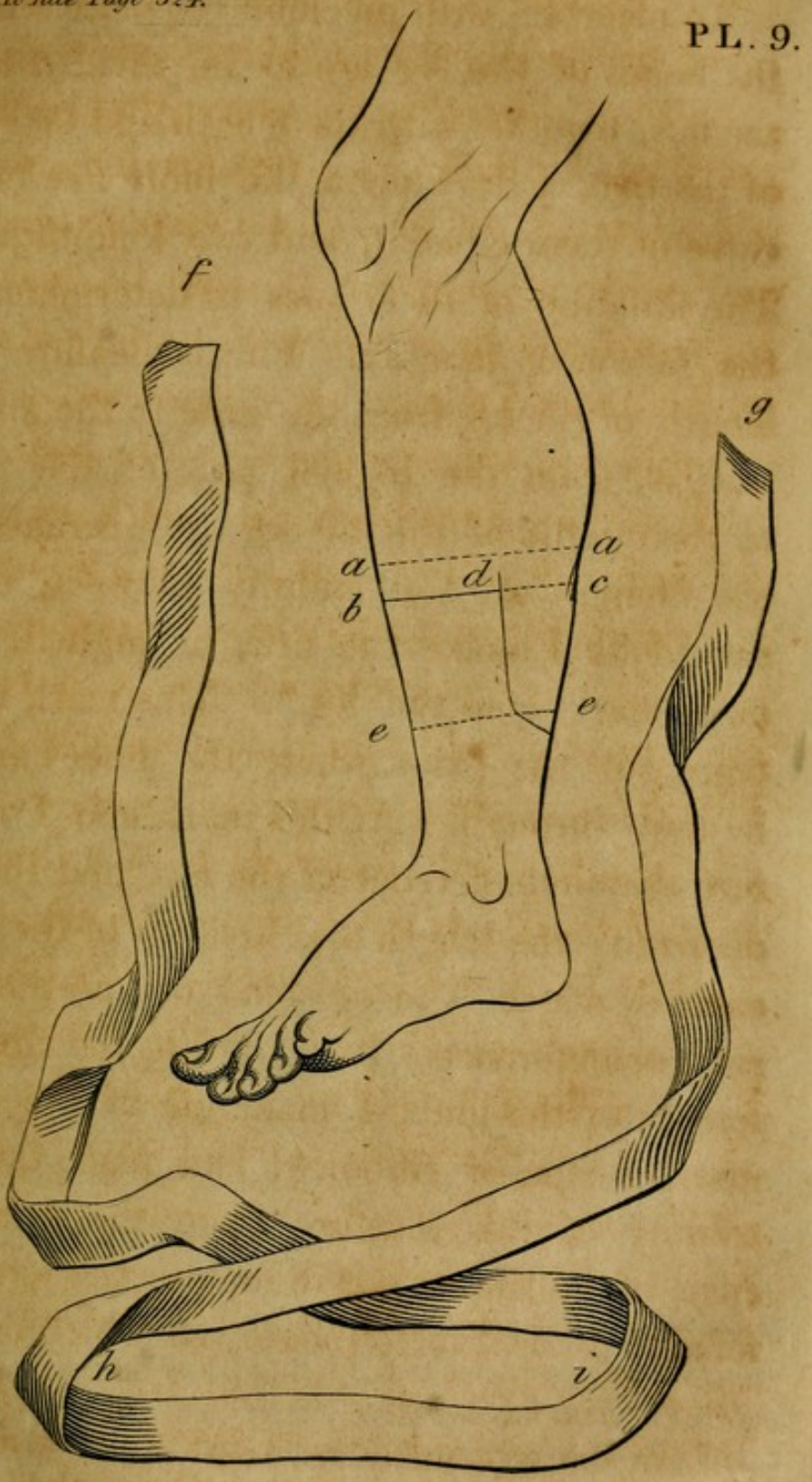
N. B. The *continued* lines in this figure mark the place and extent of the inciſions. At the place of the *dotted* lines there is no external inciſion.

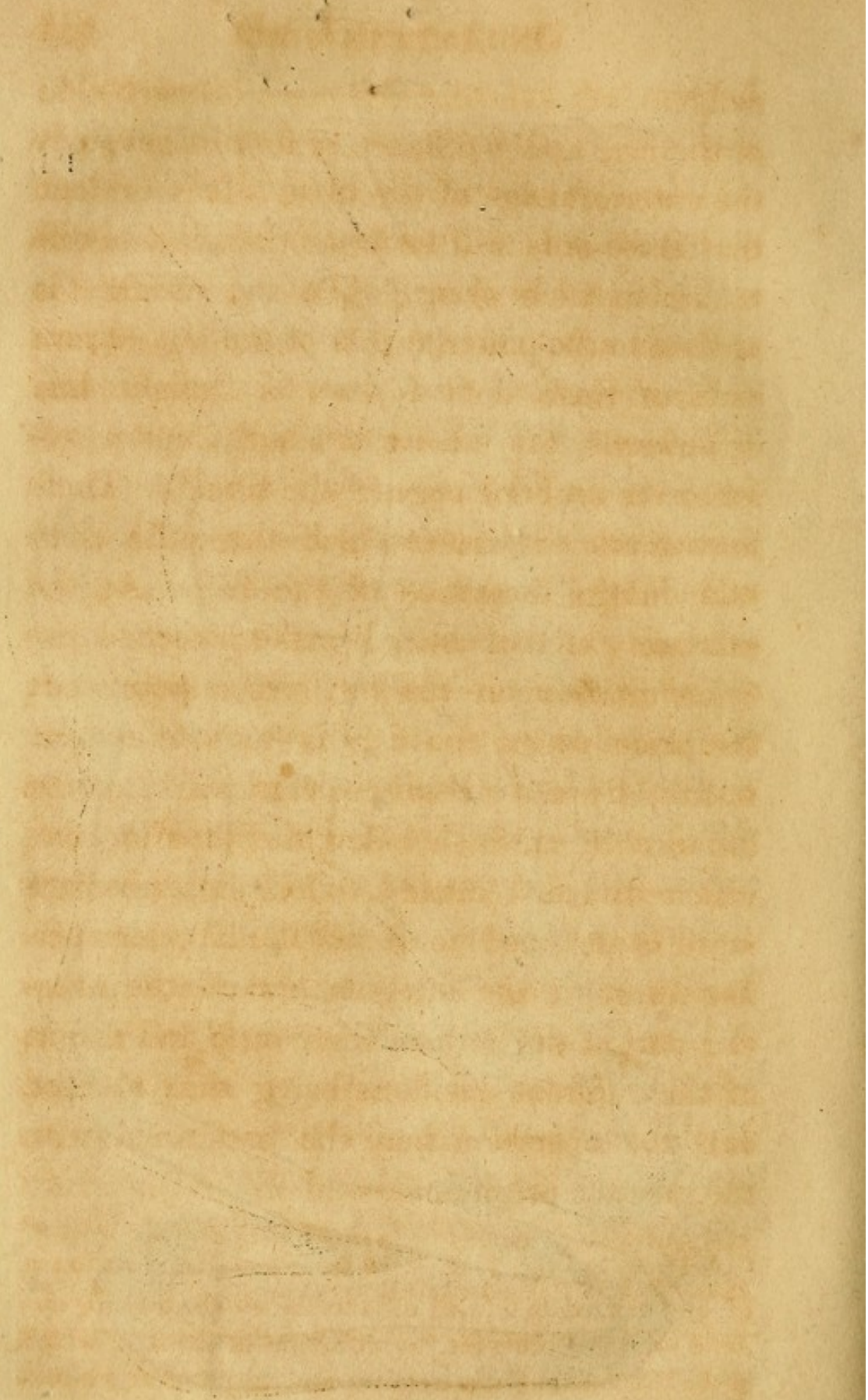
† Such as are ſold in the ſhops in ſmall ivory caſes.

make

To face Page 324.

PL. 9.





make a dot in the circular mark on each ſide of the leg, at the diſtance of four inches from the anterior edge of the tibia. It is evident that theſe dots will be found four inches diſtant from each other, when the meaſure is applied to the poſterior part of the leg. From each of theſe dots I draw a ſtraight line downwards, four inches in length, and parellel to the anterior edge of the tibia*. Theſe lines mark the courſe which the catlin is to take in the formation of the flap. At the extremity of theſe lines I make a ſecond circular mark upon the leg, which points out the place where the flap is to terminate†. Laſtly, I make a third circular mark, at the diſtance of an inch below the ſuperior one which was firſt made‡, which intermediate mark is deſigned to direct the circular inciſion through the integuments on the anterior part of the limb. The courſe and extent of the different inciſions being thus marked out, the operation may be performed with the greateſt preciſion.

* Plate ix, fig. 1. d. † *Ib.* e e.—The inciſion is uſually carried to a ſmall diſtance below the inferior circular mark, to allow for the retraction of the ſkin, which is the greateſt at its extremity, and to preſerve a circular border in the flap; but the diſtance repreſented in the plate is too great.

‡ *Ib.* b c.

The

The catlin, which is uſed for the purpoſe of making the flap, ought to be longer than thoſe which are commonly made for a caſe of amputating inſtruments. That which we uſe at the Leeds Infirmary is ſeven inches long in its blade. I prefer a catlin which is blunt at the back, as I wiſh to avoid making any longitudinal wound in the arteries at the extremity of the ſtump, for ſuch a wound makes it more difficult to ſecure them with a ligature. For the ſame reaſon, I puſh the catlin through the leg, a little below the place where the tranſverſe inciſion is to be made of thoſe muſcles which are not included in the flap. Having placed the limb in a poſition nearly horizontal, with the fibula upwards, and the knee bent, I puſh the catlin through the leg at d, and carry it downwards, along the courſe of the longitudinal marks, till it approaches the loweſt circular mark, which it joins in the courſe of the curved line, and the inciſion then terminates a little below the inferior circular line e c.

The flap being held back by an aſſiſtant, I divide the integuments on the anterior part of the limb along the courſe of the circular mark b d. There is always a conſiderable retraction of the ſkin after it is divided, if the integu-

integuments are in a ſound ſtate; and if a proper allowance were not made for this retraction, the extremity of the tibia would be left uncovered, and the flap could not be applied with ſo much eaſe to the patient, nor with a certainty of an union by the adheſive proceſs.

The muſcles, which are not included in the flap, are then divided tranſverſely a little below the place where the bones are to be ſawn through; but no great quantity of muſcular fleſh can be conveniently preſerved below the extremity of the divided bones (on account of the adheſion of the muſcles to the bones), nor is it neceſſary, as the flap, when made in the middle of the leg, contains a portion of the gaſtrocnemius and ſolæus muſcles, ſufficient to make a good cuſhion for the extremity of the bones.

When the bones are ſawn through, it is adviſable to cut off a little of the extremity of the conjoined flat tendon of the gaſtrocnemius and ſolæus muſcles, as it is apt to project beyond the ſkin when the flap is placed in its proper ſituation.

The large crural nerve is frequently found lying upon the inner ſurface of the flap. It ſhould then always be diſſected out, and,

when

when gently extended, ſhould be divided near the extremity of the ſtump. By this method it will retire ſo far as to ſuffer no compreſſion from the flap.

I have repeatedly ſupported the flap by plaſters, without making uſe of a needle. But although ſutures are undoubtedly a painful part of the operation, yet, upon the whole, I think they contribute to the eaſe of the patient, when amputation is performed below the knee with a flap; for the flap cannot be kept in exact contact with the ſurrounding integuments by means of plaſters only, without making a conſiderable preſſure upon the end of the bones. And as the ſurface of bone, againſt which the muſcular part of the flap muſt be preſſed, is here conſiderable; the flap is apt to become inflamed by the preſſure, and to give the patient more pain than when it is united to the integuments by ſutures, which keep the flap in ſuch exact contact with the divided muſcles and integuments, that there is no occaſion for ſtrong preſſure upon it. It is ſufficient to apply ſmall ſtrips of court plaſter between the ligatures, to prevent the integuments from receding at thoſe places, and to ſupport the flap with a long pledget of tow ſpread with cerate,

cerate, which is ſecured by the flannel roller applied to the limb.

The ligatures, which unite the flap to the ſurrounding integuments, may be cut out on the eighth or ninth day after the operation, and the flap muſt then be ſupported by plaſters.

I ſhewed Mr. Mann, of Bradford, a ſtump, made by amputating in the manner here directed, and he aſſured me, that it was exactly of the length moſt ſuitable for the application of his artificial leg. Indeed, the advantages of a ſtump made according to the above rules, muſt ſtrike every one, upon the firſt view, who is at all acquainted with the ſubject. Mr. Mann adviſes all perſons, who wiſh to avail themſelves of his invention, to keep a roller conſtantly applied to the leg or thigh after amputation, as without this previous preſſure the limb is apt to ſhrink, and become ſomewhat looſe in the ſocket of his wooden legs*.

* I lately ſaw with pleaſure a curious arm, the invention of this ingenious mechanic, perfectly reſembling a natural arm, and ſo contrived, that by a gentle preſſure of it againſt the ſide of the patient, the fingers are made to contract, and lay hold of any ſubſtance, which the perſon may wiſh to graſp.

3. *Exciſion of the Metatarſal Bones.*

The metatarſal bones are ſometimes affected with caries, while every other part of the leg remains ſound. In this caſe, the removal of the diſeaſed parts may be effected without amputation of the whole foot. The remainder of the foot, with the aſſiſtance of the ancle-joint, proves of great uſe to the patient in walking. When the caries has been confined to the metatarſal bone of the great toe, it has been uſual, I believe, after making a longitudinal and tranſverſe inciſion, to ſaw off that part of the bone which has been found carious. This, however, cannot well be effected without removing a part of the integuments and muſcles which cover the metatarſal bone. I have found it to be a more convenient and advantageous method of operating, to diſſect out the whole of the metatarſal bone, at its junction with the cuneiform bone. A tranſverſe inciſion is not required in this method; and as it is not neceſſary to remove any part of the integuments, the wound is more ſpeedily healed, and the cicatrix is greatly diminiſhed.

The

The operation is more difficult when the metatarſal bones in the middle of the foot are the ſeat of the diſeaſe. I have never yet attempted to take out a ſingle metatarſal bone from the middle of the foot; partly, from an apprehended difficulty of taking up the bleeding veſſels, in a wound ſo ſtraitened by the contiguous bones of the metatarſus; but chiefly, from an uncertainty reſpecting the extent of the diſeaſe. When the ſmaller metatarſal bones have been the ſeat of the diſeaſe, I have found the integuments on the upper part of the foot in ſo morbid a ſtate, that I could not determine, with ſatisfaction to myſelf, whether one or more of theſe bones had been rendered carious. Where only one ſinus has been formed upon the foot, and that leading to a certain bone; yet the diſeaſe has affected the integuments to ſuch an extent, that it has ſeemed to me imprudent to leave ſo much morbid integuments, as would have been left if one bone only had been diſſected out. Urged by theſe conſiderations I have judged it to be the ſafer method (and in this opinion and practice my colleagues at the Leeds Infirmary have joined me) to take away all the diſeaſed integuments, by a tranſverſe and longitudi-

nal inciſion, made at right angles to each other, and then to ſaw off the metatarſal bones as far as the morbid integuments extended. After an operation of this kind, the extent of the ſore is conſiderable; and as no ſound integuments remain projecting, ſo as to form a covering, the cure has always been very tedious, and the cicatrix extenſive. I was once obliged, in this mode of operating, to remove all the toes, except the leaſt, together with a large portion of their metatarſal bones. The wound was five months in healing, and broke out again in the courſe of a year after the patient was diſmiſſed from the Infirmary cured. She was a young woman, and in other reſpects healthy, yet a cicatrix was not completely formed, upon her return to the Infirmary, till ſeveral months were elapſed. This operation is greatly ſuperior to that of amputating the leg; for ſhe was able, when cured, to walk with very little limping. However, the tedioufneſs of the cure, and the tendency of ſo large a cicatrix, on the extreme part of the body, to degenerate into a freſh ſore, afford ſome objection to this method of operating.

In the year 1797, a caſe occurred that led me to a new mode of operating, which, upon repeated

repeated trial, has fully anſwered my expectations.

CASE I.

Mary Sedgwick, of Otley, aged eighteen years, was brought to the Leeds Infirmary, on account of an ulcer on the upper part of the foot, at the root of the firſt and ſecond toes. Upon examination I found the metatarſal bones carious. The integuments at the root of the third toe being hard and diſcoloured, I determined to remove the three firſt metatarſal bones, and ſo much of the ſmaller bones of the tarſus as were covered with diſeaſed integuments. My deſign was to have performed the operation in the manner above deſcribed; but upon ſawing the metatarſal bones, they were found to be ſo ſoft, that they might eaſily be cut with a knife. I did not think it prudent to leave any portion of bone that was in ſo diſeaſed a ſtate, and, in conſequence of this opinion, I was under the neceſſity of removing the greateſt part of the cuboid bone, which ſupports the two laſt toes, and to ſaw off alſo a ſmall portion of the aſtragalus. This extent of diſeaſe in the metatarſus and tarſus put me under the neceſſity of removing

all the toes, which were now rendered uſeleſs, and ſuggeſted a method of finiſhing the operation which proved highly advantageous to the patient. Having diſſected out the metatarſal bones, and removed the toes, by a tranſverſe inciſion made at their junction with the metatarſal bones; I elevated the integuments and muſcles forming the ſole of the foot, and applied their extreme edge (where I had cut off the toes) to the edge of the wound made through the integuments and muſcles on the upper part of the foot. The parts were retained in contact by ſutures. There was a conſiderable diſcharge from the wound during the firſt week; but a firm union afterwards took place, and a part of the foot, four inches and a half in length, remained completely covered by the natural integuments.

How far this mutilated foot was capable of performing the functions of a natural one, I cannot tell, as the poor girl was lame of that extremity from other cauſes.

CASE II.

In the year 1799, I had an opportunity of repeating this operation, and found it to anſwer perfectly my expectations.

Mary

Mary Stansfield, aged eighteen years, of Holme in Lancaſhire, was admitted an in-patient of the General Infirmary at Leeds, under my care, on account of a caries in the metatarſal bones of one foot, upon whom I operated in the following manner.

I made a mark acroſs the upper part of the foot, to point out as exactly as I could the place where the metatarſal bones were joined to thoſe of the tarſus. About half an inch from this mark, nearer the toes, I made a tranſverſe inciſion through the integuments and muſcles covering the metatarſal bones. From each extremity of this wound, I made an inciſion along the inner and outer ſide of the foot to the toes. I removed all the toes at their junction with the metatarſal bones, and then ſeparated the integuments and muſcles, forming the ſole of the foot, from the inferior part of the metatarſal bones, keeping the edge of my ſcalpel as near the bones as I could, that I might both expedite the operation, and preſerve as much muſcular fleſh in the flap as poſſible. I then ſeparated with the ſcalpel the four ſmaller metatarſal bones, at their junction with the tarſus; which was eaſily effected, as the joints lie in a ſtraight line acroſs the foot.

The projecting part of the firſt cuneiform bone, which ſupports the great toe, I was obliged to divide with a ſaw. The arteries which required a ligature being tied, I applied the flap, which had formed the ſole of the foot, to the integuments which remained on the upper part, and retained them in contact by ſutures. A ſpeedy union of the parts took place, and the wound was healed, except a very ſmall ſuperficial ſore, at the expiration of a fortnight. The foot was not ſo much ſhortened by this operation as might have been expected. For though the metatarſal bones, which had been removed, are uſually about three inches in length*, yet the mutilated foot was but one inch ſhorter than the ſound foot, meaſuring from the heel to the root of the little toe; the latter being eight inches, and the former ſeven in length.

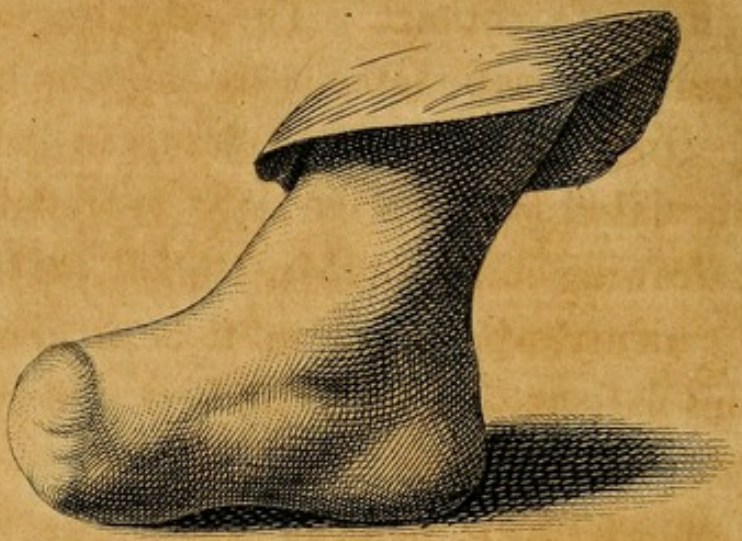
The patient could walk with firmneſs and eaſe. She was in no danger of hurting the cicatrix, by ſtriking the place where the toes had been againſt any hard ſubſtance; for this part was covered with the ſtrong integuments, which had before conſtituted

* I did not meaſure them in this caſe.

the

To face Page 537.

PL. 10.



the ſole of the foot. The cicatrix was ſituated upon the upper part of the foot, and had very little breadth, as the divided parts had been kept united, after being brought into cloſe contact. The advantages of this operation will ſufficiently appear upon inſpecting the annexed plate, in which the mutilated foot is accurately repreſented from a drawing made by Mr. Ruſſell, of the Royal Academy, who happened to be at Leeds before this patient was diſmiſſed from the Infirmary, and who favoured me with two views of the foot, elegantly painted in crayons.

THE END.

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