

Surgical observations : being a quarterly report of cases in surgery, treated in the Middlesex Hospital, in the cancer establishment, and in private practice : embracing an account of the anatomical and pathological researches in the School of Windmill Street / by Charles Bell.

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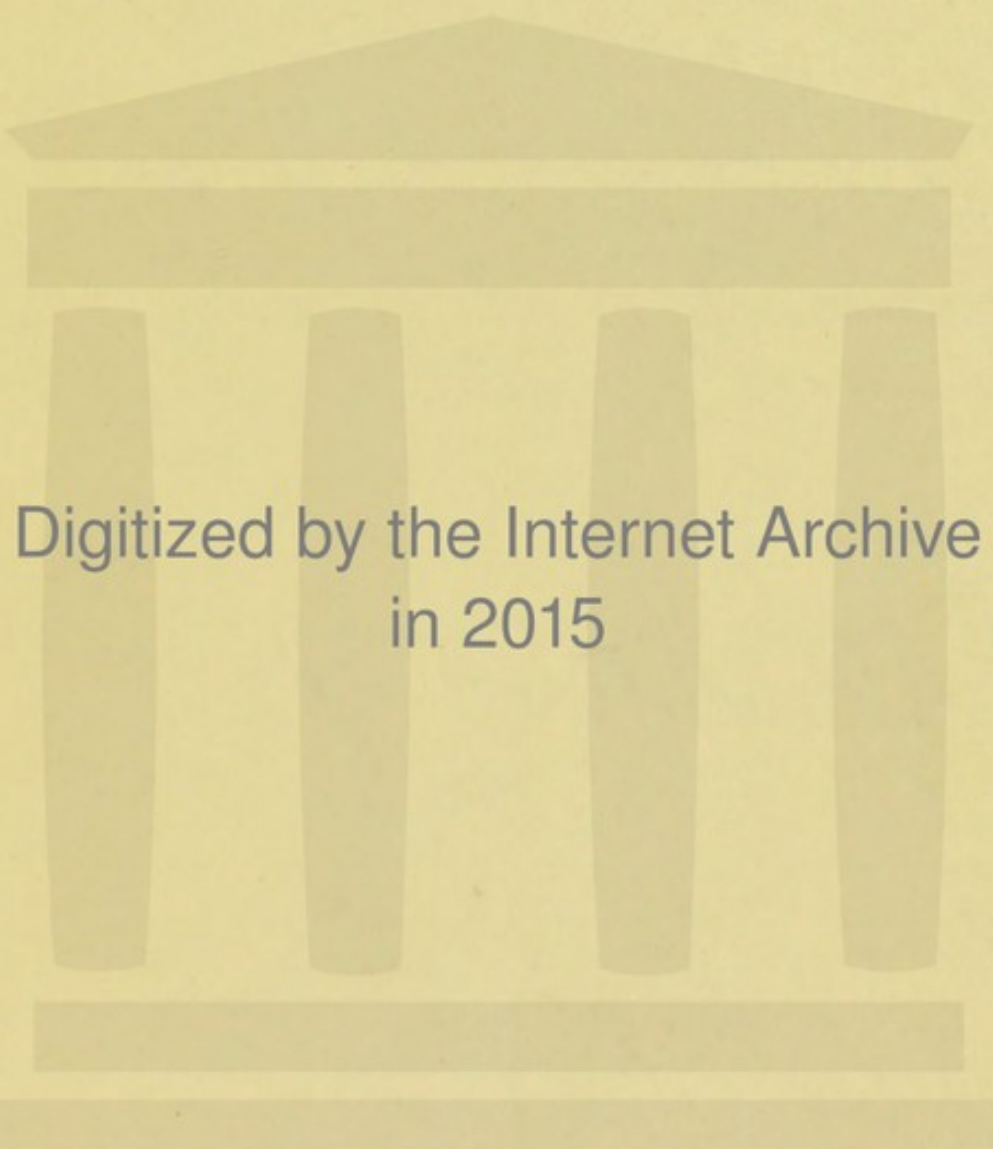
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PART I.
OF
SURGICAL
OBSERVATIONS,

BEING A
Quarterly Report
OF
CASES IN SURGERY.

BY
CHARLES BELL.

LONDON:

PRINTED FOR LONGMAN, HURST, REES, ORME, AND BROWN,
PATERNOSTER-ROW.

1816.

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Paternoster-Row,
August 31, 1816.

THE NATIONAL OBSERVATORY

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1815

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see 5110

TREATED

IN THE MIDDLESEX HOSPITAL,

IN THE CANCER ESTABLISHMENT,

AND

IN PRIVATE PRACTICE.

EMBRACING

AN ACCOUNT OF THE ANATOMICAL AND PATHOLOGICAL RESEARCHES

IN THE

SCHOOL OF WINDMILL STREET.


BY

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SURGICAL OBSERVATIONS

CHARLES J. BELL

CASES IN SURGERY

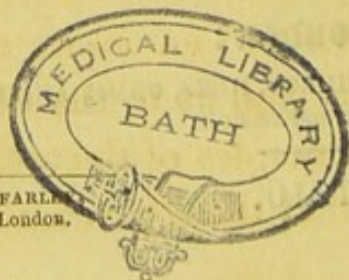
IN THE MIDDLESEX HOSPITAL

IN TWO VOLUMES

IN PRIVATE PRACTICE

SCHOOL OF PHYSICIAN

BY CHARLES BELL



BARNARD AND FARLEY
Skinner-street, London.

Preface.

THE object of this Work is to illustrate the Principles of Surgery by Observations made in a Public Hospital and in a School of Anatomy, where every thing is open to inspection, and where, consequently, the statements are made in the presence of many observers.

The Author does not intend to publish more than Three Volumes of Cases. These he hopes will embrace the whole Practice of Surgery, and supply a Book of Reference for the History of Surgical Diseases, and the minute Account of Symptoms.

This work was suggested by observing, that published Cases contain only what is new and monstrous, and but few examples which may serve to initiate the young Surgeon into the business of his profession. But although the Author began to take his Cases with the intention of illustrating the common matters of practice, he now hopes that they may sometimes have the interest of novelty also; since the close observation of what are called common Cases has led to new views and improvements of practice, as well as to the illustrations of the acknowledged principles of the art. Every one must be convinced that there is room for a Critical

Inquiry into the present state of Surgery, and it cannot be more safely undertaken than in the form of Observations made at the bed-side of the patients.

In published cases, a very common defect is too much consistency—matters proceed so smoothly, that when the young Surgeon enters on the actual duties of his profession, he is troubled with adverse occurrences, for which he is quite unprepared: and he wonders to find his experience so different from what he has been led to expect from the perusal of Cases. The utility of Cases arises from the confessions of the Surgeon which exercise the reader's mind, and enable him to anticipate the harassing difficulties of practice. Whoever proposes to publish useful Cases, must have a full dependence on the candour and liberality of his readers, and forget those who lie in wait for occasions of rancorous criticism. He has to draw two parallel histories—the history of symptoms, and the history of his own mind, with his doubts and anxieties during the course of the disease. Just so far as the observer's mind is active, and the communication of his thoughts free, will the Cases be useful.

The Author wishes to avoid that distortion which love of system produces in Cases which are given in illustration of particular doctrines. He hopes to combine the interest and usefulness which arise from the perusal of Cases, classed so as to enforce practical results, with the genuine and un-

coloured statement which belongs to the records of an hospital. With this view the details are noted in their progress, in the form of a journal, but the practical lessons are given in accompanying remarks; being selections from the Clinical Lectures delivered to the Students of the Middlesex Hospital—remarks made to those who have witnessed or assisted in recording the facts on which those lectures form a commentary.

Cases naturally connected are thrown together under the head of *Report*; but the subject of these Reports will be brought forward repeatedly in the course of the work, and it is to be hoped, therefore, that they will not be judged of as complete dissertations.

In a work which is to be published in parts, it is necessary to make this statement of the Author's views; and these explained, and the extent of his opportunities being known to be at least as great as the most industrious man can use to advantage, the Author dares venture no further in stating what is to be contained in these volumes. Those who feel interested to inquire, may find security for the fulfilment of this undertaking in a life hitherto given up to the improvement of the younger members of the profession—where the labour and the pastime have been only a variation in the manner, not in the object of pursuit,—namely, the improvement of Anatomy, and its application. The Author now enters on subjects of higher interest, and greater magnitude, as relating to questions of life

and death. In judging of his motive it will perhaps be recollected, that upwards of twenty years have been given to Anatomy, and to the teaching of the acknowledged Principles of Surgery, without aiming at improvements in practice; that before he has entered critically on matters of practice, he has waited until half a life, spent in the laborious duties of teaching, together with the possession of the fullest opportunities, may be supposed to have matured his judgment.

He is happy in thinking, that by this undertaking, he shall prolong the term of his connexion with his pupils, and continue to afford to them, though in the country or on service, the advantages of Hospital Practice and an extended experience, which at a distance from the capital are not easily obtained.

London, Soho-Square,

September 2, 1816.

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EXPLANATION

OF THE

PLATES.

PLATE I.

THIS Figure represents a Back View of the Pharynx and Œsophagus, disordered by a Scirrhus thickening and Ulceration.

- A. The Velum Pendulum Palati & Uvula.
- B. B. The Tonsils much enlarged and tuberculated.
- C. The Glottis and Epiglottis rough with Ulceration.
- D. The Pharynx tuberculated by the Disease of its glandular Structure.
- E. A Stricture formed in the inner Membrane of the Œsophagus.
- F. The Œsophagus below the Stricture.
- G. The Thyroid Gland much enlarged.

PLATE II.

This Figure is presented as an Example of a very common Appearance of those Parts.

FIG. 1. The Larynx and Pharynx. [*See Page 67.*]

- A. Pharynx.
- B. Os Hyoides.
- C. Epiglottis.

- D. Thyroid Cartilage.
- E. Thyroid Gland.
- F. Fibres of the Constrictor Pharyngis.
- G. A Preternatural Bag, formed by the inner Membrane of the Pharynx, being thrust betwixt the Muscular Fibres.
- H. Œsophagus.
- I. Trachea.

FIG. 2. The Œsophagus which has suffered Stricture in consequence of swallowing Soap Lees.

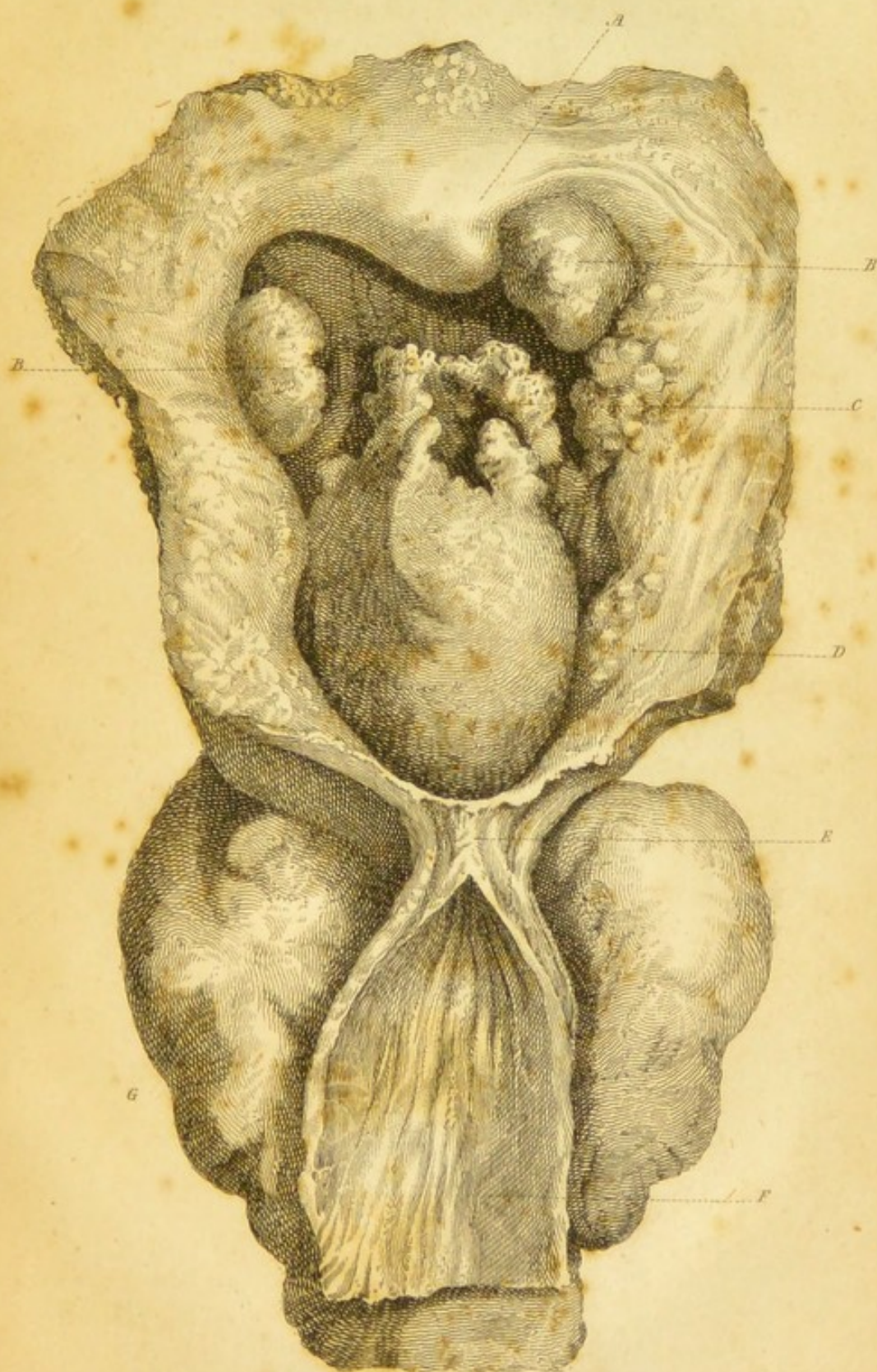
- A. Œsophagus above the Stricture.
- B. The Stricture.
- C. The Membrane of the Œsophagus drawn into Folds.
- D. The lower Part of the Stricture, which is distinctly formed by a Layer of coagulable Lymph.
- E. Œsophagus below the Stricture.

PLATE IV.

FIG. 1. A Stricture of the Œsophagus. See page 77.

- A. Epiglottis.
- B. B. False Glottis.
- C. C. The Pharynx in Outline.
- D. The Stricture into which a Hog's Bristle is introduced.
- E. The Bristle.
- F. The Œsophagus below the Stricture.
- G. The Trachea.

FIG. 2. Refers to a Paper of Mr. Shaw's not published: it shows the Beginning of the Disease of the Prostate treated of by Sir Everard Home.



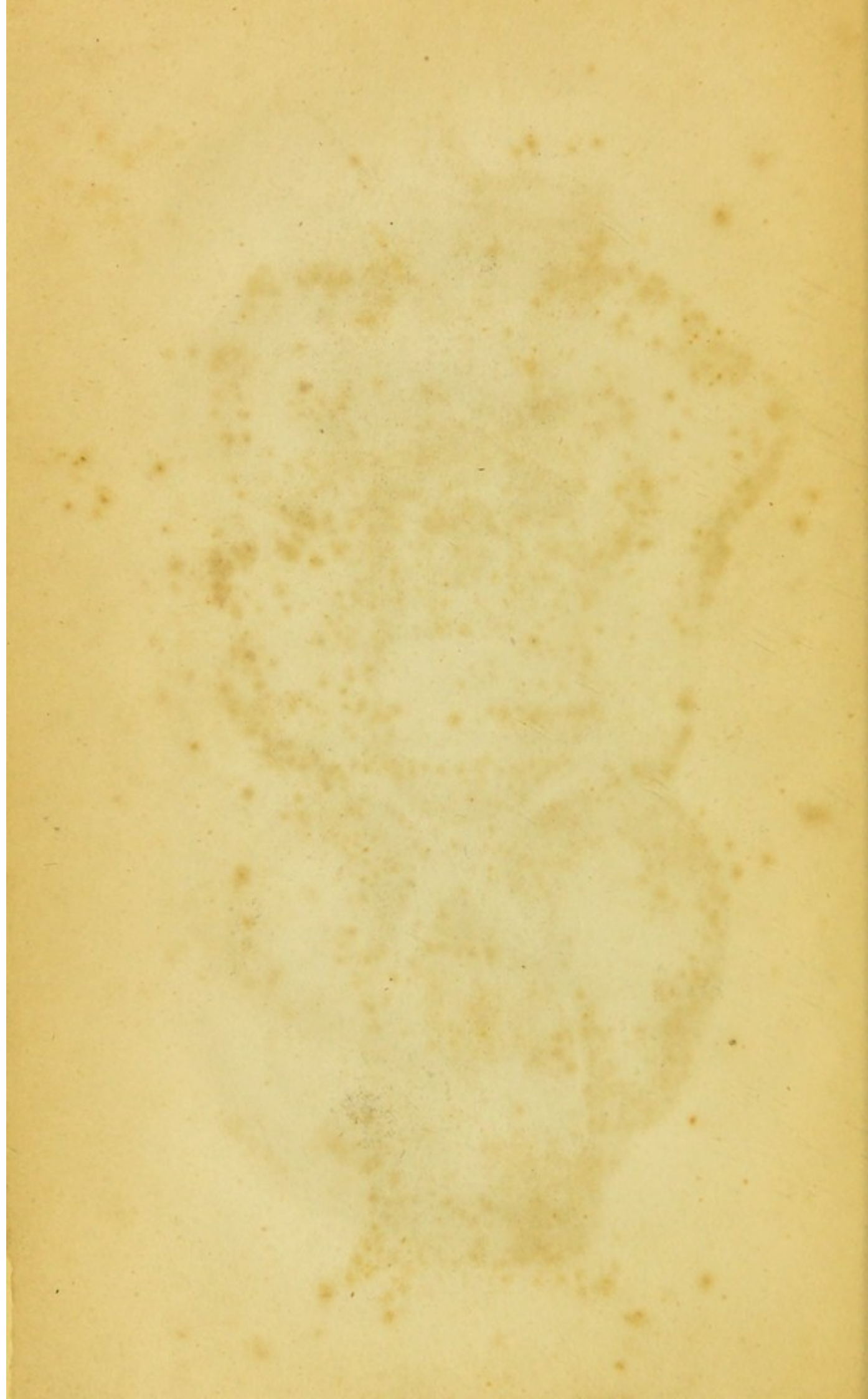


Fig. 1.

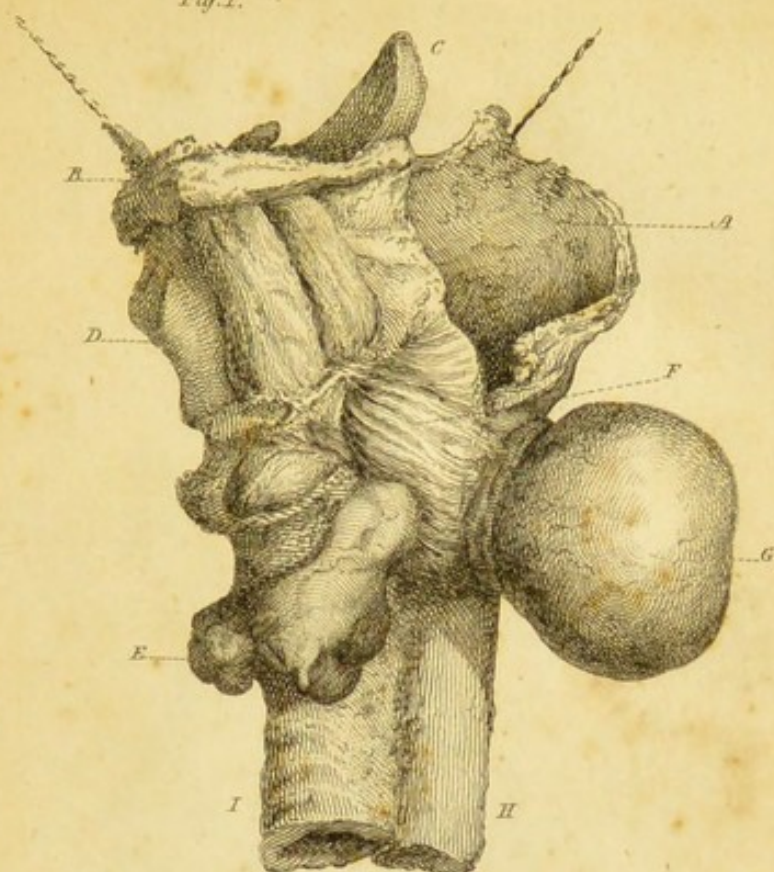
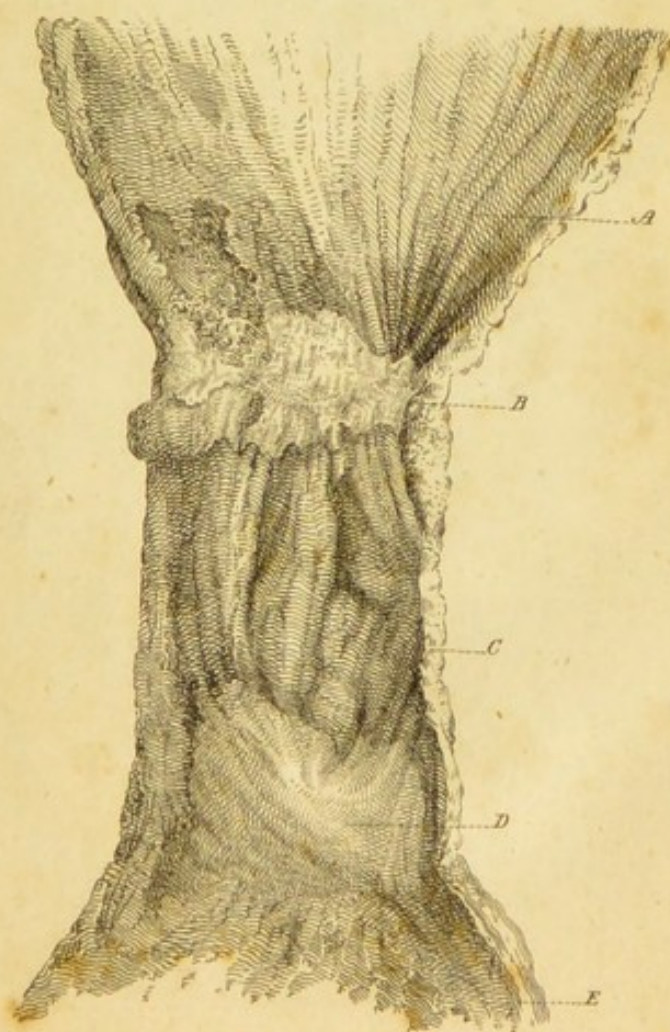


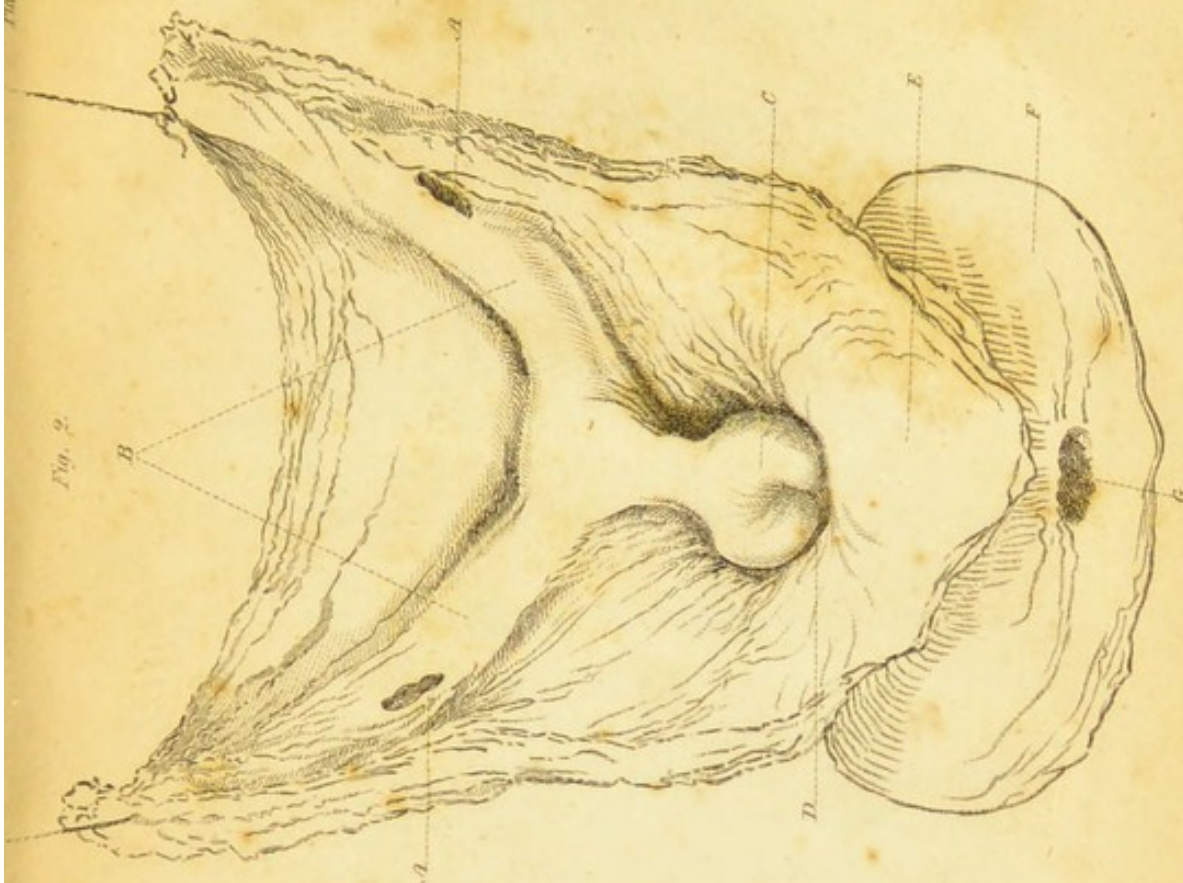
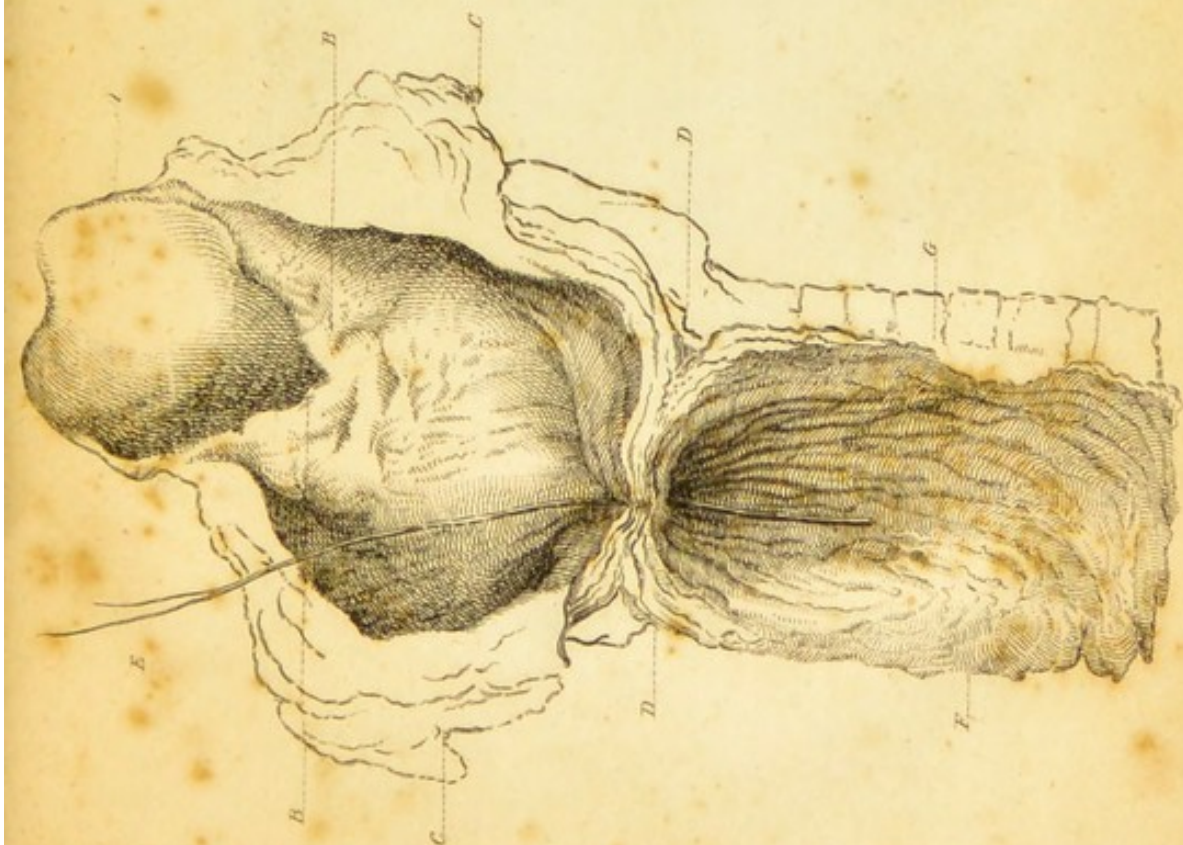
Fig. 2.













THEATRE OF ANATOMY,

Great Windmill Street.

TWO Courses of LECTURES are given during the Winter and Spring Seasons, by Mr. WILSON and Mr. BELL; one Course beginning on the 1st Day of *October*, and terminating on the 18th Day of *January*; the other Course beginning on the 19th Day of *January*, and terminating towards the middle of *May*.

A LECTURE is given Daily, from Two until near Four o'Clock.

A Room is opened for DISSECTIONS, from Nine in the Morning till Two in the Afternoon, from the 10th Day of *October* till the 20th Day of *April*, where regular and full Demonstrations of the Parts dissected are given; where the Application of Anatomy to Surgery is explained; the Methods of *operating* shown on the dead Body; and where also the various Arts of *Injecting* and *making Preparations* are taught.

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TWO Courses of SURGICAL LECTURES will be delivered by Mr. BELL, during the Season.

Once a Week, during the Course, a Review will be made of the Occurrences and Practice of the Hospital.

Particulars may be known by applying to Mr. SHAW, at the Museum, Great Windmill Street; or at Mr. BELL's, Soho Square, during the Morning; and at the Hospitals of the West End of the Town.

THEATRE ANATOMY

OF THE HUMAN BODY

THE COURSE OF ANATOMY is divided into two parts, the first of which is devoted to the study of the human body in the living state, and the second to the study of the human body in the dead state. The first part is divided into three sections, the first of which is devoted to the study of the human body in the living state, and the second to the study of the human body in the dead state.

A course of anatomy is divided into two parts, the first of which is devoted to the study of the human body in the living state, and the second to the study of the human body in the dead state. The first part is divided into three sections, the first of which is devoted to the study of the human body in the living state, and the second to the study of the human body in the dead state.

The first part of the course is devoted to the study of the human body in the living state, and the second part is devoted to the study of the human body in the dead state. The first part is divided into three sections, the first of which is devoted to the study of the human body in the living state, and the second to the study of the human body in the dead state.

The second part of the course is devoted to the study of the human body in the dead state, and the first part is devoted to the study of the human body in the living state. The second part is divided into three sections, the first of which is devoted to the study of the human body in the dead state, and the second to the study of the human body in the living state.

The third part of the course is devoted to the study of the human body in the living state, and the first part is devoted to the study of the human body in the dead state. The third part is divided into three sections, the first of which is devoted to the study of the human body in the living state, and the second to the study of the human body in the dead state.

Surgical Observations,

&c. &c.

FIRST REPORT.

ON CANCER.

A REPORT ON CANCER is offered in the Commencement of this work as a pledge for the fulfilment of one of the objects which I had in view in undertaking it, which was to give the history of this disease and of those which most resemble it. It is a field hitherto so little cultivated, or so barren of improvement, that it requires a pledge to prevent the relinquishment of so painful a subject. But were there no hope of improving our practice in this disease, it is still a duty, especially incumbent on a Surgeon of the Middlesex Hospital, to turn others from the errors which he may himself have committed, and to shew, by his experience, what is injurious or unprofitable.

For a long time the patients in the Cancer Establishment of the Middlesex Hospital were taught to return thanks to an unknown benefactor. The late John Howard brought a sum of money to the hospital from one who desired the benefaction to be concealed. This money was given for the purpose of supporting a certain number of women, victims of cancerous disease, and for affording an opportunity of investigation.

On the death of the late Mr. Whitbread's father, it was ascertained that he was the benevolent founder of this institution. The late Mr. Whitbread himself took a great interest in the establishment, and in every attempt to discover a cure for cancer.

I witnessed his unwearied attention to this subject, as he consulted me on some of the many schemes which were offered to him; and I am indebted for the great exertions which he made on the occasion of my election to the Middlesex Hospital, to his belief that I would endeavour to make this institution useful to the utmost of my power.

The humane attention of the governors who constitute the board of the Middlesex Hospital, to the objects of the charity, is well known; and on this particular subject of cancer they have shewn great zeal and liberality. Many proposals are annually received by them for the cure of cancer, and always with that consideration which the motives of those who offer them deserve. But while our governors have shewn themselves most

desirous of promoting inquiry on the subject of cancer, they have remained uncontaminated by that love of quackery which is so common among the gentry of England, and have referred these proposals to their medical officers.

Of the subjects brought into notice during the last year, two have principally engaged attention: the treatment of cancer by regimen, and what is said to be a successful mode of curing cancer, by compression.

The recommendation of the plan of compression by Mr. Whitbread, called the attention of the surgeons of the hospital to the subject. The following report gives the result of their practice. I have only to observe, that the essential part of this new plan of cure is the compression of the cancerous tumor, gently at first, and with a force gradually increased, till at last it is augmented to a very great degree: and that the means are these—if the cancer be open, the various holes and cavities are filled up from the bottom with chalk, finely levigated, and all the surface is thickly covered with hair powder; over this, long plaster straps are put, so as to cover the whole surface of the tumor, over this again are placed linen compresses, bound down with the turns of a roller, firmly applied, and of six yards in length; or over the first straps are laid a second set, bracing the parts more firmly than the first, over this a plate of lead, and lastly, the long roller is carried round the chest, compressing the whole.

REPORT

OF THE

Medical Committee of the Middlesex Hospital,

OF THE

22D JUNE, 1816,

ON THE

RESULT OF THEIR EXPERIENCE IN CASES OF
CANCER TREATED BY COMPRESSION.

THE Medical Committee having met, pursuant to the resolution of the Board, to take into consideration the result of their experience in the cases of cancer, treated by compression, report as follows:—

That eight cases of open cancer [as it is commonly called] and eight cases also of the scirrhus kind, have been submitted to the treatment by compression; some of them for several months, and others for a shorter period.

That in some of the cases of open cancer, combined with considerable œdema, the pressure was useful in lessening the volume of the tumor: but that it had not, even in a single instance, any salutary influence upon the specific nature of the disease. It frequently gave so much pain that the patients could not, after repeated trials, endure

it, under any modification whatever; and often it appeared to hasten the fatal event.

That in the scirrhus tumors, the disease advanced, rendering extirpation necessary in two instances: in six others the disease passed into ulceration, assuming the usual malignant appearances, and terminating in death. Two cases still remain under the care of the respective medical officers.

Your Committee have therefore to lament, that compression cannot be regarded as a remedy for cancer.

Your Committee, however, although they can not lay claim to the discovery of a specific, have still the consolation to believe that they have in many cases succeeded in obtaining great alleviation of suffering; such alleviation as might, perhaps, induce some speculative minds, less disciplined by experience, to conclude, that they had at length succeeded in discovering a cure for cancer.

Your Committee can only express their determination to continue the attention which they have always given to the object of your establishment.

ADDITIONAL OBSERVATIONS,

ON THE SUBJECT OF THE FOREGOING REPORT, DELIVERED TO THE
STUDENTS OF THE HOSPITAL.

IN the end of a season, when most of you are going into the country, you ought to be made acquainted with the effects of compression on **CANCER**, as exhibited in the practice of this hospital. And having heard the above report of our experience, I would now have you to examine the subject further, by reasoning and the comparison of what is proposed, with the principles of surgery, which it has been your business to learn.

And in the first place, permit me to say, that the question is not whether pressure be of service in cancer? but whether or not a very great degree of pressure is equal to the destruction and eradication of cancer?

It is known to every pupil within the walls of this hospital, that regulated pressure is one of the most powerful means that can be used for the alleviation or cure of a great many local diseases: and in this lies the source of error. Pressure is sometimes attended with visible advantages even in cancer, which has given rise to unreasonable expectation, and as these must be disappointed, what has taken place in other instances is in danger of happening here, where a remedy extravagantly extolled, is, on the appearance of failure,

altogether discarded. Let me therefore remind you,

1. *That rest and support are necessary to the cure of surgical diseases.*

Of this the venereal ward at this time furnishes you with two pertinent examples. Mercury is the specific for venereal ulcers; yet without compression and rest the sores in the groin, and the fistulous sores on the side of the chest and around the clavicle, in the case of Basset, would have propagated themselves, or remained a source of irritation upon the constitution. You have seen that simple dressing with the compress, like a ball placed in the groin, and the spica bandage, has very quickly amended the aspect of the buboes: and the sores upon the breast, though of long standing, have healed under pressure, and the binding down of the arm, so as to restrain its motion.

And here let me remind you of an observation, too little attended to, that when the mamma is fretted with an open ulcer, or when there is much disease of skin with sinuses, or disease in the axilla, it is necessary to bind both the chest and the arm. Some of you must remember the example that I have offered to your notice on another occasion. A gentleman had sores with sinuses on his chest, which resisted every means of cure, until the attendants concluded that they were habitual to the constitution, and irremedi-

able : at length, by a lucky accident, he broke his arm, and under the necessary bandaging and confinement of motion, his sinus quickly filled up.

Do not therefore be satisfied with pressure, though it be extolled as a sovereign remedy for ulcers : but give rest. Remember how the same ulcer differs on the ankle joint and on the leg : how an ulcer on the lip, or on the tongue, will, by the same cause, (namely, incessant motion) be irritated into the appearance of a malignant disease : how an inflammation or abscess about a joint or in the tract of muscles, will be aggravated by motion. Further, your lessons of anatomy teach you, that in order to give rest to a suppuration on the side of the head, the jaw must be kept still : if in the loins, the thigh must be kept still : if on the breast or back, the arm must be kept still.

In applying a bandage to an ulcer or sinus, two things are to be attended to, that the diseased parts be *supported*, and that they have *rest*. So far as the practice we are examining effects those two purposes, it is beneficial : when carried further, it is injurious. That it is carried by much too far, I have no hesitation in affirming.

In the work which has been recommended by the letter of Mr. Whitbread, the case in which the cure is most satisfactory (indeed, if I recollect, the only instance of cure) is of a cancerous lip. It is easy to prove that.

2. *They are anticipated in the method of curing what is called cancer of the lip.*

A short statement of the progress of my opinion on this subject, will be the best illustration of the principle. I had seen the excision of a part of a cancerous lip, [or rather, such as was supposed to be cancerous], where a part of the ulcer was necessarily left, it being impracticable to cut away the whole diseased portion; notwithstanding this, the operation succeeded; that is to say, the wound united, and the remaining ulcer healed. Reflecting on this occurrence, two things seemed evident—1. That the disease which appeared so malignant in its aspect, was in reality not cancer, but an ulcer, aggravated by the motion of the lip—2. It was made manifest that the pinning and strapping of the lip after the operation, to keep it still, and procure adhesion, had the further effect of removing the cause of irritation, and healing the remaining ulcer.

The practice obviously deducible from this reasoning was, that if by the straps, or what are called the dry suture, we could keep the lip perfectly still, and prevent it from moving in the act of speaking, laughing, swallowing, &c. we should infallibly cure malignant ulcers of the lip without excision. This I put in practice with success, twelve years ago, and have since uniformly recommended it.

3. *Specific action is not subdued by pressure,*

and therefore this method can not be a cure for cancer.

According to my experience, pressure does not subdue specific action. It will diminish the size of tumors: it will produce a wasting even of natural parts; but that specific action which is the essential character of cancer, and that which is the cause, or which precedes the morbid accretion and growth, will continue under pressure while there is life in the part. This we might expect from the revival of the cancerous action, in circumstances nearly resembling the means now proposed to destroy it. When it has been supposed that all the tumor of the cancerous mamma has been extirpated, the cut surfaces brought into contact, strapped and covered with lead to keep them smooth, with compress and bandage over all—at the time the natural action of healing prevails, and when the parts are kept at rest and compressed, the edges of the incision become tuberculated, and the cancerous action is propagated, and recommences its ravages in the cicatrix.

This is a fact familiar to the experience of most surgeons in their early practice, and was one reason among many, why I never could allow myself to hope for success from this *new mode* of compression. In point of fact, in no one instance has compression retarded the progress of the disease, nor subdued, even for a time, the specific action of cancer.

4. *Nor is it desirable that the absorption of the matter of cancer should take place.*

In true cancer there is a peculiar matter unlike the original structure of the body, produced by the specific action, and deposited in the texture of the tumor. Now, were it proved, that the compress and bandage did actually excite the lymphatics, to absorb the cancerous deposition, and carry it into the circulation, it does not appear to be a thing desirable. As this, however, is merely matter of opinion and speculation, I shall not dwell upon it further than to say, that in the cases in which the effect of pressure was manifested by the diminution of the tumor of the breast, it certainly did not retard the course of the disease, nor change the nature, nor diminish the severity of the last fatal symptoms.

5. *Pressure accelerates the coming on of the last fatal symptoms in scirrhus of the breast.*

Women labouring under cancerous mamma die of an affection of the chest, generally with great collections of serum in the cavities of the chest. In the case of Davidson, there was a circumstance which marks very strongly the oppression which those patients have to suffer: more than a gallon of fluid was in the cavities of the chest, which had so impeded the course of the blood from the right to the left side of the heart, that the blood had oozed from a small chink in the cava, and distended the pericardium.

It cannot therefore have been surprising to you, that this woman and many others, on whom the bandage has been firmly applied, have thrown their trappings off as an insufferable load.

6. *Pressure brings the diseased mamma earlier into contact with the muscles and ribs, and thereby accelerates the fatal affection of the chest.*

By a great degree of pressure upon the large scirrhus mamma, a very rapid change is produced upon the bulk of the tumor. But the absorption is principally of the interstitial fluids and surrounding fat, and a condensation of the cellular membrane takes place. By this wasting and compression of the subjacent cellular substance and fat, the mass of disease is brought nearer to the muscles and ribs, and adhesion of the tumor to the ribs is the consequence. It has been stated that compression loosens the tumor, but in one instance the application of the straps and bandage had the effect of fixing the tumor of the breast in the proportion of its diminution. Certainly in that case the disease is now incorporated with the ribs, and effusion into the cavity of the chest must soon take place.

The late Dr. Denman greatly improved his department of practice, and was justly esteemed in the first rank for independence and knowledge, as well as beloved for his many virtues. He fell into the belief that pressure would prove a remedy for cancer, and lent the influence of his name to re-

commend this practice. He, in a particular manner, expressed a hope that it would prove a means of suppressing the fungus hæmatodes. But you have seen two cases of that disease in which pressure aggravated the pain, and had no power in subduing the tumor.

7. The idea is not new.

And now it only remains for me to state, that the idea of destroying by pressure, dangerous tumors, which could not be extirpated with the knife, is familiar to me from my first entering upon the study of our profession. Mr. John Bell had an opinion, that it was possible to suffocate and subdue the action of vessels in tumors by the compress and bandage. This he was wont to illustrate by the effect of that bandaging of the limbs, by which mendicants reduce the substance of their limbs to a third part of their natural bulk; by the example of the feet of the women of China, and other ingenious analogies. He argued, that if the natural structure of the body could be moulded by pressure, why should not these formidable tumors?

When tumors have been of the nature of aneurism or varicose enlargement of vessels, I have seen advantage from the application of the roller and cold solution, but I have never seen any occurrence now or formerly, to encourage the hope of curing cancer by pressure.

SECOND REPORT.

CASES

OF

Diseases and Wounds of the Larynx,

AND OF THE

OPERATION OF LARYNGOTOMY.

THIS subject is introduced on the very first occasion, from a conviction of its importance, and from the persuasion that it has not met with the attention it deserves.

Very early in life I witnessed the death of a student, from suffocation. He had dined abroad, and being a careless, dissipated young man, he had reeled home through the streets in a severe winter night. The following day he was attacked with shivering and fever, and sore throat, and died, in three days, from suffocation. On dissection, no obstruction in the larynx was to be observed, but only an inflammation of the membrane of the larynx, and a spot like a small pox* pus-

* Without meaning to say that this was a small-pox pustule, yet it proves a fortiori, that the small-pox pustule forming in the

tule upon the margin of the glottis. Sudden death, from a cause seemingly so trifling, made a strong impression upon me, and from that time I have omitted no opportunity of searching into the diseases of the trachea. On this, and on many other occasions, it will be necessary to refer to the preparations in my collection, both as authorities on which to ground my reasoning, and in order to keep the reader's attention to the facts of morbid anatomy. We shall commence our observations on the most secure grounds, having before us the catalogue of what is most useful to be known of the appearances on dissections*.

XI. 1. M. 1, 2, 3, 4. In these four examples of disease of the larynx, we see the nature of the membrane of *CROUP*. It is formed by inflammation of the membrane lining the larynx and trachea, by which a proportion of coagulable lymph

larynx will cause suffocation. See an example in "Bulletin de la faculté de Medicine, 1814, par M. Chaussier."

* And here I may observe, that those practitioners, who only occasionally visit the capital, will ever find a ready admission to the Museum in Windmill-street, and a gentleman to direct them to the objects of inquiry, in reference to this work. To those members of the profession who reside in town, the Museum will be open, during the winter, from eleven till twelve in the forenoon, twice a week. By this arrangement I shall find myself more at liberty to refer to those things which are open to public inspection, without overloading the work with engravings.

[more or less, according to the violence of the inflammatory action] is added to the mucous secretion. Accordingly, it assumes in one instance, [N^o. 1], the appearance of concreted mucus; in another, [N^o. 4], the character of coagulable lymph.

In contemplating these preparations, it must be particularly gratifying to reflect, that by the important communication of Mr. Chevalier, we are authorized in recommending an operation which, in such cases, promises perfect relief. I have seen much of this disease, and have examined the parts in not less than fifteen cases; it has not appeared to me that it was the violence of the inflammation which destroyed the patient, nor the irritation directly from the inflamed membrane, but that the presence of this secreted membrane, acting like a foreign body, at the same time occasions spasms in the glottis, obstructs the passage and confines the mucus. But I am bound to state, in the strongest terms, that death is ultimately a consequence of effusion in the lungs, occasioned by the continued struggle and difficulty: for on opening the chest, I have uniformly found that the lungs did not collapse, and that the bronchi were full of mucus; this corresponds with the symptoms; for, before death, the violence of the cough and struggle has given place to coldness and insensibility, with a pale swelling of the face and neck;

and when the child has fallen into this state, giving freedom to the trachea will be of no avail.

XI. 1. M. 5. The next example is the larynx of a gentleman who died of CYNANCHE LARYNGEA, and on whom the operation of laryngotomy was performed, without giving relief. I did not attend the patient, but received the trachea whilst still fresh. The membrane lining the larynx was swoln and inflamed; the whole membrane, which is now pale and shrivelled, was tumid, so that the sides of the passage were in contact.

The friend who gave me the preparation, and who performed the operation, not aware of the rapid course of the disease, permitted it to run too far before he thought himself authorized to operate. The stage of redness of the face, and protuberance of the eyes, and of great struggle and difficulty of breathing, had been succeeded by a pale turgescence of the face; a certain degree of insensibility; and the head lay upon the shoulder. The operation was therefore too late; effusion had already taken place in the lungs, and perhaps it may appear in a latter part of this paper, that a different manner of operating from that employed here, viz. thrusting a tube into the larynx, might have had better success in relieving the windpipe.

XI. 1. M. 6, 7, 8. These preparations exhibit the effect of a more chronic inflammation of the epiglottis and inner surface of the larynx, in

the adult. The membrane is thickened, and the the surface covered with an irregular crust of coagulable lymph.

Thus we already distinguish distinct diseases under the common term of *CYNANCHE LARYNGEA*. 1. The croup of children, N^o. 1, 2, 3. The same disease in the adult, N^o. 4. The acute inflammation of the larynx in the adult, N^o. 5, and the chronic or less acute inflammation of the same parts, N^o. 6, 7, 8, 9*, 11, 12.

XI. 1. M. 13, 14, 15. These three preparations exhibit the chronic inflammation and ulcer of the larynx and trachea, in the disease which deserves the name of *Phthysis Laryngea*.

XI. I. M. 16. An ulcer within the *Sacculus Laryngis*. This preparation is very interesting, as it explains several others of the series. In passing through the physician's ward my attention was arrested by the manner of breathing of one of the patients, and I took the following note :

FIRST NOTE. — *Weymouth*, a woman 55 years of age, has been ill of what she terms an

* We must take care to distinguish facts from opinions. I believe, however, that these are examples of the inflammation of the epiglottis, described by Sir Everard Home. Also, by Dr. Robt. Watt, of Glasgow.

asthma and hoarseness, for three months. Having been a patient of a dispensary, she had her throat at one time blistered; on another occasion she had her throat and neck covered with pustules by the use of an ointment. She has at present a short cough, which occasions her to spit to the amount of half a pint during the night. Her difficulty of breathing is continual; but at intervals she has a more violent paroxysm, and then she struggles to get at the window gasping for air. She speaks in a whisper, the sound being husky or reedy, and very feeble. There is pain in the throat, and in describing its seat she puts her finger on the thyroid cartilage—the pain is increased when this cartilage is pressed, and she swallows with difficulty.

SECOND NOTE. This woman died last night; I saw her an hour before she died: she did not seem in more distress than I had witnessed many times before in passing to the patient presently to be described, who was in the agonies of suffocation. She was very pale, was anxious, but lay reclined upon her pillow with nothing of the stir or struggle, or gasping of her neighbour. I was surprised to find in the morning that she had died, and without any struggle to occasion particular remark, from the nurses or patients in the ward.

DISSECTION. The larynx around the *chordæ vocales* was ulcerated, and strings of coagulable

lymph passed across the part; a bony portion of the thyroid cartilage was necrosed, and hung loose in the remains of what had been the sacculus laryngis, and such accretion of coagulable lymph had taken place, that the passage of the larynx was nearly closed. Marks of chronic inflammation were upon the inside of the trachea; the lungs did not collapse when the chest was open: when their substance was cut into, much frothy mucus escaped, and the fluid continued a long time to flow from the bronchi. Some tubercles were distinguishable in the lungs, and the pericardium contained water.

XI. 1. M. 17. This preparation exhibits an ulcer in the sacculus laryngis, very much resembling the former. The patient was worn out by a purulent cough.

XI. 1. M. 18. An ulcer of the sacculus laryngis, which has eat deep with a sharp defined edge. It is like a venereal ulcer.

XI. 1. M. 19. An ulcer of the glottis, supposed to be venereal. The circumstances of the case are very interesting. See p. 32.

XI. 1. M. 10. Ulcer in the glottis, and abscesses around the thyroid cartilage. Laryngotomy was performed betwixt the thyroid and cricoid cartilages. •

From these preparations it may be inferred, that ulceration of the glottis is a frequent complaint, and by the circumstances of cases presently to be detailed, it will be made evident that this is a fatal disease, if not remedied. Further, it appears that there are two kinds of ulcer, affecting this part: 1. A slow chronic ulcer, probably scrofulous. 2. And another venereal.

These preparations exhibit the ravages of a disease which is much more frequent than practitioners seem to be aware of, a disease which deserves the name of *Phthisis Laryngea*, for it has all the consequences of true phthisis. The glandular structure of the trachea and larynx is the seat of this disease, the glands become enlarged, then ulcerate, and throw out purulent secretion. When the trachea only is affected, the disease is protracted; when it affects the larynx, it more rapidly exhausts the patient. This disease makes its attack gradually; there is a wheezing and troublesome cough; a purulent, and sometimes a bloody sputum, succeeds, with painful spasm in the throat, frequent spasmodic cough, breathlessness, and loss of voice. These primary symptoms are succeeded by pain in the chest, from the labour of respiration, and finally, the lungs are oppressed by effusion*.

* There is a preparation [*belonging to another series, XIII. 2. M. 3.*] which exhibits a singular example of a bone in the

It is most worthy of remark, that these patients die from disease of trachea or larynx, in truth, from suffocation, without the nature of their disease being adverted to. It is considered as mere debility. The cause of this mistake is, that there is not the usual character of suffocation. A cold leucophlegmatic state, with paleness, insensibility, and langour, ushers in death; instead of the violence and struggles which usually characterize suffocation. This however is not always the manner of death of such patients, of which the following is an example.

SUFFOCATION

FROM

DISEASE OF THE LARYNX,

IN WHICH THE

Operation of Laryngotomy was performed.

August 3d, 1815.—I was called up to the Hospital last night, to a patient of Dr. Latham's, who

throat, which proves to be the *Os Hyoides*, dead and projecting through the pharynx.

This woman was 35 years of age; she had been troubled with sore throat and cough for sixteen weeks. For six weeks before her death she had an incessant cough, and expectorated a very

was suffocating. I found a woman sitting up in bed, breathing with great difficulty, and with a noise which was heard over all that side of the house. She could speak in a whisper. I asked her the seat of her distress and difficulty of breathing; she put her fingers on each side of her throat, high up;—had she pain any where? she put the tips of her fingers to the pit of her stomach, bending forward in a manner sufficiently expressive. I observed that there was great labour of the muscles of the chest; that her breath came whistling as through a reed, and that, when agitated, her breathing had a harsh sawing sound. She had been received into the Hospital in the morning, her neck was sore with blisters. Leeches had been applied, and the blood was still flowing. Of the history I could obtain nothing, but only that the difficulty of breathing had been increasing for three weeks; that it was progressively worse, with no intermission. I was impressed with the necessity of giving this woman immediate relief. She was exhausted and pale with suffering, anxiety, and watching; and the respiratory machine was in such violent and incessant operation, that effusion into the lungs must soon

great quantity of offensive matter. In this latter period she could not swallow solids, not even a bit of bread, but lived entirely on fluids; she died three days after delivery of a child at the seventh month. She breathed easily, and was supposed to die from excessive weakness and inanition

have taken place ; my fear was, that this had happened already.

Having prepared what variety of apparatus the time admitted of, I made an incision two inches in length, on the fore part of the throat ; she was sitting up, for she could not lie down, and the blood fell upon her breast, leaving the wound clear. I stopt and encouraged her ; not without hopes that this effectual bleeding would be of service : and she did breathe with somewhat more ease. I now dissected on the fore part of the trachea, cutting very deep, and much blood flowed.

At this time an appearance presented itself, which should be taken notice of, and if authors had written only after actual experience of operation, it would have been pointedly observed. The sterno-hyoidei and sterno-thyroidei muscles were powerfully in action during each inspiration ; and they raised themselves into an appearance of two round columns, and by their starting forwards gave an unusual depth to the trachea. Every touch of the knife on the front of the trachea, brought a flow of blood, and I saw that it would be most inconvenient, if not dangerous, to open the trachea.

Although I had cleared the trachea on the fore part, just below the isthmus of the thyroid gland, I did not choose to perforate here ; the breathing was rapid, and at each inspiration the muscles of the throat started out, and the trachea was drawn backward and downward, so that the variation in

depth of the trachea was not less than an inch in inspiration and expiration. This motion I foresaw would baffle my endeavours to adapt tubes or other instruments to the perforation of the windpipe. I therefore enlarged the wound a very little upward, laid down the isthmus of the thyroid gland, and exposed the space betwixt the cricoid and thyroid cartilages. I then pushed a sharp bistoury into the membrane, which closes the interstice betwixt these cartilages. As soon as this was done, the air in expiration came forcibly and audibly out, spurting the secretion from the hole; nothing could more forcibly shew the necessity of the incision. I turned the bistoury upwards and downwards, enlarging the slit as far as possible without cutting the cartilages. I next introduced a spatula, and turning it round, opened the slit; immediately the harsh sawing sound of the air in the contracted glottis ceased, and the air played easily with a siffling sound through the wound. Very soon the woman relaxed all her exertions, and her eye-lids closed. I thought she had fainted or was dying; but the poor exhausted creature had dropt into a sleep where she sat, relieved from the necessity of exertion and from the sense of suffocation, even the novelty of her situation did not prevent her from falling asleep.

Having remained a very considerable time holding the instrument in the opening of the larynx, I proceeded to execute my final purpose. I made a transverse slit in the membrane, and introduced

the tube, being such as is commonly found in the shops, but the breathing was instantly stopt, a struggle commenced, and the tube was thrust out like a cork from a bottle. I saw this would not do, and I was forced to bend a catheter wire, so that the middle part of it lay in the wound, and kept the parts open, while the ends of the wire were bent round her neck, and tied by a ligature behind.

I left her at two in the morning, the house surgeon and apothecary remaining in attendance. She slept calmly, supported by pillows: this support being more required, from the precarious nature of the apparatus, than from the state of her suffering.

4th August. She breathes well, though not so softly; much bloody mucus is expectorated through the wound. Further attempts to adopt a more secure apparatus were now made. I had the tube perforated with large holes to let the air pass freely through it in all directions; but on introducing it, it was still unsuitable, it did not give freedom to the respiration; she forced me to desist, thrusting every thing from her: to let her breathe freely, I introduced the dressing forceps, and extending them, the lips of the opening were kept asunder, and she breathed again with composure.

The wire was again adjusted and introduced, and it had this advantage, that in introducing it,

the air was not interrupted; while every attempt with the tube gave obstruction to the breathing, and confined the mucus.

5th August. She has passed a good night; her pulse has fallen considerably; her breathing is with less effort and less hurried.

7th August. The wire has hitherto done its business very well; but now it is too sharp upon the side of the wound, and I have adopted a proper instrument. This instrument consists of two flat pieces of steel, connected at one end by a hinge, and by means of a screw passing through them near the hinge, the further extremities are separated; the extremities of the branches are averted a little, so that when introduced into the opening of the larynx they are not apt to fall out; and being expanded by a turn of the screw, they open the wound to a due degree, and by the same means the instrument is fixed; it is very light, and requires no bandage round the neck: with this introduced she breathes very freely.

10th August. Yesterday she was breathing with difficulty: on going to her she held up her hands imploringly. I leant with my ear close to her lips, and could hear her say—wind, wind! On looking into the wound I saw that the granulations had shot across, so as to diminish the aperture, I took out the instrument, and with a

fine hook and scissors snipt off the granulations, which restored the free passage for the air, and again she breathed inaudibly. This morning she is better than I have seen her at any time. She sleeps with her head upon the pillow; she eats raw eggs, milk, and tea; her face is pale but natural; she breathes freely; there is not the slightest amendment in the original disease in the larynx, although the purulent and bloody expectoration has ceased: now she brings up a pure mucus.

11th August. She continues easy. She is thin and pale, which is the natural character of her visage, but she is very contented. When I saw her to day, my dresser had withdrawn the instrument, notwithstanding which she breathes without noise. I made him put his thumb upon the wound, and found that she could speak better than formerly.

12th August. I withdrew the instrument to-day, and cut off two projecting granulations; they projected so as to play in the wind, and make a noise as she breathed.

13th August. This morning I took out the instrument, and said that in future she should do without it. On this I saw her in a great agitation, lifting her eyes and wringing her hands. I thought she was grateful for the relief; but, by the

nurses' interpretation, I discovered that it was horror at the suffering she anticipated from the want of it. In the evening I found that the instrument had not been taken out a few minutes before, she became restless and anxious to have it replaced. Just now, on coming to her, she makes me understand that she is breathing with great difficulty. I took out the instrument, and found adhering to it a mass of firm concreted mucus, which nearly closed the trachea.

18th August. After an absence of three days, on returning to town, I find my patient much better; the instrument is still in the wound; she walks about the ward, holds her tea kettle on the fire, makes her tea, and is attentive to all her little comforts, which is in strong contrast with her former wildness of manner.

I closed the passage to-day, and made her try to breathe through her mouth: she forced the air through her mouth, but with such exertion, that she would have suffocated in five minutes, had she not had the artificial passage.

21st August. This woman's original complaint is not essentially better, and all our endeavours will be useless. This afternoon she was nearly suffocated, but she is again breathing easily: these occasional obstructions are owing to the quantity of mucous secretion which plugs up the trachea; the air drawn through the natural pas-



sages of the nostrils and the mouth comes softened into the windpipe : but here it is drawn into the opening so directly and so dry, that it inspissates and hardens the mucus.

24th August. She looks still better ; her face natural ; putting my finger on the wound, I bade her blow out a candle, which, after a trial or two, she did with much delight. The granulations being troublesome, a new instrument is introduced, through which she breathes softly : it is a curious exhibition to observe a patient let fall a few drops of water into the windpipe, in order to breathe more freely ! but this confirms my remark that the dryness of the air distresses her. She wraps a little lint about the probe, dips it into water, and then plays it in the wound, thrusting it into the windpipe, that the water may drop into the tube, and facilitate the expectoration of mucus.

28th August. Finding no amendment in the disease, and aware that this state could not continue, I passed a bougie from the wound upwards into the glottis ; she could not bear it an instant, and it produced a violent fit of coughing. I thought of introducing an elastic tube from the mouth into the trachea, but as I suspected, the bougie could not be borne for an instant. Her danger is still from an accumulated load of mucus. A funnel having been placed inverted over the

wound, I have made her breathe through an inhaler, which has given much relief.

This poor woman is dead, after living seven weeks breathing through the artificial opening; for the last two or three days there has been more irritability of constitution and temper exhibited. She has complained much of want of breath, and shown unusual impatience. Last night she was seized with great difficulty of breathing, ran frantic about the ward, lay or fell down upon the floor, and with much violence tore the instrument from her throat, and was suffocated.

Her usual careful attendants, Mr. Dehane and Mr. Heath, were called from their beds, and attempted to restore her by the apparatus of the Humane Society, but she was dead.

The larynx of this woman is preserved, and already enumerated. XI. 1. M. 10.

A loose spongy granulation sprung from the sacculus laryngis of the left side, and lay completely closing the chink of the glottis; beneath this there was a deep ulcer; and within the thyroid cartilage were several ulcers; on both lateral faces of the thyroid cartilage there were abscesses, these abscesses communicated with the ulcers within, the centre part of the cartilage on both sides, being destroyed by absorption. The lungs were free from disease, but having been blown into in the attempt to recover the woman, I could not form a just estimate of their condition.

SECOND CASE OF SUFFOCATION,

FROM

Ulcer of the Glottis.

Mary Ann Mellon. Mr. Heath, our apothecary, the same intelligent gentleman who so kindly attended the last patient, heard this unfortunate girl in the street, calling to her companion, or rather attempting to do so. He was familiar with the peculiar husky sound, and by that, knowing her condition, he spoke to her, and desired her to come to the Hospital. Some days afterwards she took his advice.

On the 6th of March she came to the Hospital, and was seen by Dr. Southey. On the 12th of the same month she returned, and was taken into the house. The day before this she was walking in the streets, at her usual pace. She walked to the Hospital, carrying her bundle; in going up stairs she stopt to recover breath; she was full of anxious inquiries, and said that she must surely die.

Half an hour after coming into the Hospital, and sitting on her bed, she fell suddenly back, and died without a struggle.

The apothecary and house-surgeon were immediately called. They perforated the larynx, and introduced the pipe of the apparatus of the Humane Society, but their efforts were unavailing.

It was remarked, that when the incision was made into the larynx, the air rushed out with great violence from the hole.

On *Dissection* it was found, that the epiglottis was destroyed by ulceration, and there was a deep foul ulcer within the false glottis. [XI. 1. B. 37.]

On inquiring into this girl's condition, her friends said that her sore throat began about fifteen months ago, like a quinsy; that it was not treated as a venereal sore throat; that before this she could sing, but never afterwards. She had a hacking cough, and expectorated a great deal. Further, it appeared that she had been in the Lock Hospital six months, six years ago; a year after this she had been in St. Bartholomew's Hospital; and eighteen months ago she was in the Middlesex Hospital; and lastly, she was under the physicians in St. George's Hospital, about six months before her death.

If I had had an opportunity of performing laryngotomy in this case, I would have done it, and then have proceeded as in the following instance.

THIRD CASE

OF

DISEASE OF THE LARYNX.

Threatened Suffocation averted.

Fanny Murray, æt. 25, Regent's Ward. A few days ago Dr. Southey sent this girl, then an out-patient, to be examined, and as a case deserving to be watched. I immediately recognised the symptoms in the case of Mellon. She spoke in a whisper scarcely audible, and with great effort; when desiring to be heard, she made an effort like a cough; I put my finger into the glottis, and felt it rough.

April 18th. I was requested by Dr. Southey to visit his patient. She has been brought into the Hospital very unwillingly, and is in imminent danger of suffocation. Her sense of danger has led her to the Hospital.

Since Christmas she has been ill; she was at that time attacked with cold and sore-throat, and from the beginning she could speak only in a whisper. Her voice has never returned, and at present her whispers are scarcely audible. She coughs in a very singular manner; she says it is an inward cough; it is the exertion of coughing without the sound. This I imagine to be produced by

the want of action in the slit of the glottis, by which the air should be somewhat impeded, and thereby more forcibly sent through the glottis. She has pain at the pit of her stomach and in the loins, which I attribute to the exertion and fatigue of coughing. For this three nights she has not been able to lie down in bed. She expectorates a great deal: it is mucus and pus. Pulse 63, br. 42 in the minute. Her breathing has a harsh sawing sound.

Evening of the 18th. The Hospital attendants becoming alarmed at the condition of this woman, I was sent for at 11 o'clock. She was sitting up in bed, breathing with much difficulty; but her countenance was of a red colour, the violence of the fit had subsided, and the blueness had been succeeded by redness and fullness. Dr. Southey came in. We wished to see her swallow: she tried a little broth; much of it went into the wind-pipe, and she had a great struggle in recovering. We concluded that the epiglottis was eaten away by ulceration.

I proposed mercurial fumigation, but my colleague did not expect benefit from it, as the patient had been three weeks under salivation without the slightest advantage. Having ascertained, by putting my finger over the root of the tongue into the glottis, that it was rough and irregular with ulceration, I proposed to touch the surface with

the argentum nitratum. It was considered hazardous, but something was necessary, and I was confident that the application would allay irritation.

I made a small pad of lint, and attached it to the ring of a catheter wire, and bent the wire so as to pass over the root of the tongue and epiglottis; I dipped the lint in a solution of twenty grains of the caustic to half an ounce of water, and touched the glottis with it in this manner. With the fingers of my left hand I pressed down the tongue, and stretched the forefinger over the epiglottis, then directing the wire along my finger, I removed the point of the finger from the glottis, and introduced the pad of lint into the opening, and pressed it with my finger.

On withdrawing the lint, instead of coughing she began to speak more audibly than usual, and had neither cough nor spasm from this rough operation. I repeated the application four times, and her breathing was sensibly better when I left her.

19th. This morning, at the visit, I found her considerably better. I touched the chink of the glottis again with the same solutions. I recommended issues to be made on the sides of the throat.

20th. The issues not made. Last night it was

reported to me that she was not so well, but this morning I find her remarkably better. I again touched the glottis with the solution of caustic, notwithstanding she complains of soreness of the mouth from the former applications; it had the same good effect, improving her breathing as formerly. A pill of belladonna is ordered, and she is to smoke the stramonium: she is to put her feet and legs in the nitro-muriatic bath twice a day.

22d. She has had the acid bath to her feet several times, and has been twice in the slipper bath, with the acid more diluted, and the fluid reaching to her loins. She speaks with more force, coughs less. Still she does not swallow better.

26th. At Dr. Southey's request I again touched the glottis with the caustic solution. I applied it as strong as it could be made. The girl is frightened, but better.

29th. This girl is remarkably better; she has taken the bath twice a day; her gums are sore, swollen, and of a dark red colour. Her countenance is much amended; she breathes without noise, and can swallow better than she did.

May 4th. She can swallow better; she breathes easily: but she is full of complaints and uneasiness. Her mouth and throat are much inflamed, the gums dark, coloured, and spongy.

She is to take the nitro-muriatic bath every second night.

5th. The bath to be altogether omitted. Dr. Scott visited this patient; he never saw the mouth so sore from the operation of this remedy.

30th. I examined this girl yesterday, and find her almost well. She says that she has not been so well for years as she now finds herself. Her countenance is indeed that of health. In swallowing, she takes five or six draughts in rapid succession; but when she swallows leisurely a single mouthful, as I made her do to-day, she does it without coughing.

Some weeks after this Report, Fanny Murray placed herself in the way of the surgeon's round, and gave me her thanks in a very eloquent manner, to the amusement of the pupils; and next day she took an unceremonious leave of the Hospital*.

* Although her physician had watched her with the most humane attention, my desire of witnessing the effects of the new remedy had won upon the girl's gratitude.

AN
ULCER OF THE THROAT,

WHICH OPENED THE

Internal Carotid Artery.

THE last preparation of the series of ulcers of the glottis may be noticed as emphatically closing this account, and sufficiently exposing the danger of disease here. I received this specimen from Mr. Golden of Maidenhead. In the winter, 1805, a woman, thirty-five years of age, was admitted into the Hospital; she was spitting blood, and coughing in a manner that left no doubt of the case being *hemoptoe*. She died three hours after being admitted. In dissecting, to display the anatomy of the neck, Mr. Golden discovered that the internal carotid artery communicated with an ulcer of the throat. The preparation exhibits a very deep and ragged ulcer, making an irregular cavity, which communicates with the throat by an opening at the root of the epiglottis, and with the internal carotid artery, at the place it bends in to hide itself by the side of the throat.

These facts drawn from morbid anatomy, and these cases, will perhaps lead my reader to conclude with me, that venereal ulceration of the larynx is a more frequent and alarming symptom

than is generally believed. Further examples of sudden death, from the same cause, in those of a higher rank might be given, but I do not feel myself at liberty to make the statement. My reader will have guessed upon what analogy I proceeded in applying the caustic to the sore within the chink of the glottis.—1. The relief from the solution in common sores: 2. the relief in ulcers of the cornea: 3. the relief from the application of caustic to irritable spots of the urethra.

Of the use of the nitro-muriatic bath I shall hereafter have occasion to speak; the fact is here forcibly enough announced, that it is a powerful agent; and of the other means to be employed in disease of the larynx, see the case of *Nichols*.

SYMPTOMS
OF
ULCER IN THE GLOTTIS,
IMITATED IN
Hysteria.

WHEN I delivered my clinical lecture on the ulcer of the glottis, I took occasion to draw the attention of the students to the following case, in the way of precaution, and in order to lead them to make accurate distinctions of diseases. It may be useful to my younger readers.

22d March. "Last night one of the gentlemen of the Hospital came to me with great urgency, requesting me to come up quickly to the Hospital, as there was a young woman suffocating. As we had lost a young woman by suffocation only the week before, I partook of the gentlemen's anxiety.

"I found a young woman, about one-and-twenty, lying in a state of torpor, with her mouth open, and breathing with a crowing sound as in croup, and appearing indeed as if she would suffer instant suffocation.

"The difficulty was in drawing the breath, and it exactly resembled the breathing in inflammatory croup; and the glottis appeared strictured in some way, for the air was evidently impeded in a restricted orifice. For a moment I thought an operation would be required. But when I more attentively observed the manner in which the girl lay, reclined on her back, with the countenance of a natural colour, and the vermilion in her lips; when I found that she was not quite sensible, and that there was no catch or struggle of the muscles of the chest, I saw that it was a hysterical affection, and on making the pupils refer to the physicians' books, we found that she had been treated as for a spasmodic disease.

"Next morning I visited her more from curiosity than the idea that she wanted my assistance. Her difficulty of breathing had quite left her, but

she could not pass a drop of urine. The spasmodic affection of the muscles of the glottis had shifted to the neck of the bladder.

“ This, gentlemen, may remind you of what Sydenham has said, that there is no character of disease which hysteria will not occasionally assume. And let it be to you an example of the necessity of guarding your judgment from the bias of two recent impressions. You have been so impressed with the late occurrences, that you have made a case of imminent danger out of the casual symptom of an hysterical girl *.”

Here I should have added a case of aneurism pressing upon the bifurcation of the trachea, because the symptoms resembled those of the *cy-nanche trachealis chronica*; but upon the whole, the facts fall to be arranged under another report. I owe the valuable preparation and the case to my colleague, Dr. Latham, XIII. M. 21.

Before entering critically on the consideration of the operation of laryngotomy, I shall present some short observations, although in an insulated manner, on the wounds of the trachea and larynx.

XI. 1. B. 40. The larynx of a suicide. This

* This young woman was also under my colleague, Dr. Southey, and presented altogether an interesting case. She was dismissed cured.

young man made six cuts on the fore part of the larynx: so many notches are seen upon the cartilages. The arteries have been injected, and all the branches are entire; notwithstanding that none even of the considerable branches of the thyroid artery are cut, yet he bled in secret for three hours and died of hæmorrhage.

There are two things in this case worthy of notice. 1. It ought to be recollected that in all operations of the fore part of the neck, the thyroid gland ought to be avoided; for such is the activity of its vessels, that when touched with the knife it bleeds with surprising activity. 2. In the next place, surgeons, and I believe many anatomists also, are ignorant of the SUPERIOR LOBE OF THE THYROID GLAND. This lobe certainly is not always to be met with, but it exists so frequently as to make it an object in operation. This lobe is attached to the anterior and lateral part of the gland, and stretches upwards on the side and fore part of the cyrcoid cartilage. It was this part of the thyroid gland which was cut and notched in this instance, and from it this great quantity of blood flowed.

Since I have been drawn to mention this lobe of the thyroid gland, I may take notice that there is a muscle (which I believe is not described) to be met with here. It descends from the os hyoides, and expands upon the great lobe of the thyroid gland.

I have a preparation before me, which by the

kindness of my colleague, Mr. Cartwright, I have an opportunity of placing in this series. A young woman in phrensy plunged a penknife into her throat. The point of the knife pierced the upper part of the thyroid cartilage, so that it entered at the union of the *chordæ vocales*. Yet it is worthy of notice that she died not in consequence of the inflammation and irritation from the wound. She was suffocated at the distance of some months by the granulations which arose from the edge of the wound, and which filled up the passage of the glottis. This is a circumstance of great interest, and in the case of laryngotomy which I have detailed, it will be seen how much the granulations endangered the patient's life. In the present example we have a simple wound of the larynx where there was no disease, finally causing suffocation after the patient was enabled to go about her usual occupations, and at the distance of some months from the infliction of the wound. This instance of death by suffocation in the suicide, reminds me of the necessity of performing the operation of laryngotomy or bronchotomy on those who have cut their throats, as well as in some cases where they have perpetrated the act by firing a pistol into the mouth.

Within these few months a man was brought into the Middlesex Hospital who had cut his throat. There were times when he suffered violently from difficulty of breathing, and then a flapping of something in the throat could be heard.

He died; and it was discovered that the knife had gone so critically that it divided one of the arytenoid cartilages, and the portion hung by the membrane so as to vibrate in the chink of the glottis like a pea in a cat-call: and acting as a foreign body caught in the rima glottidis, it occasioned suffocation; nor is this a singular occurrence.

Another instance of death from a wound of the trachea occurred in the Middlesex Hospital, which is very interesting, as it shews the consequences of dividing the cartilages of the trachea. A young woman resolving to destroy herself pushed a pen-knife into the fore part of her throat, and drew it downwards, cutting through five of the rings of the trachea. She survived the first effects of this wound—but was suffocated by the retraction of the cut edges of the cartilages, and the swelling of the inner membrane, which thereby diminished the capacity of the tube. This patient was also under Mr. Cartwright's care, and by his kindness the preparation is before me.

REMARKS

ON THE

Operation of Laryngotomy.

WE may perceive that the occasions for opening the larynx or trachea are very frequent; and that

the time of affording relief is lost by the surgeon entertaining too formidable a notion of the operation. I therefore conceive it to be of the first consequence to make this operation simple, and to divest it of its terrors, in order that it may be had recourse to in good time to be of use.

For the most part it requires only a small scalpel to cut into the membranous space betwixt the thyroid and cyrcoid cartilages. And having slit up the membrane, substituting the handle for the point of the knife, and turning it round so as to open the slit, immediately the patient breathes freely. There is here nothing to alarm the most timid operator. No great turgid veins are opened; he is above the thyroid gland, and above the anastomosing branch of the thyroid arteries. The part is strongly marked by the prominence of the thyroid cartilage above, and the ring of the cyrcoid cartilage below.

If the occasion be temporary a simple slit of the membrane will be found sufficient. If necessary a transverse cut will afford any degree of opening. If a round hole be desired the four corners left by the incisions may be snipt off, and then there is sufficient gap! or such an instrument as I have used may be introduced.

I see it observed in the last volume of the Transactions of the Medico-chirurgical Society, that in my operation I was obliged to enlarge the opening. A further incision was made after the woman had breathed through the opening for six

weeks; and what is more it was insufficient when done: for as experience proved, the enlargement of the opening did not relieve her distress; the difficulty proceeded from another cause, the progress of the disease itself.

Objections are also made by Mr. Lawrence to the instruments which I employed. But my patient was often by accident reduced to the state of Hannah May, p. 228, vol. 6, of the same Transactions; and would have died, but she was immediately relieved by the introduction of the instrument, and was most grateful for the relief.

That the operation ought to be performed betwixt the cartilages in cases of threatened suffocation from husk of fruit, cherry stones, and the like, drawn into the glottis, is obvious both because it gives immediate freedom to the respiration, and because it permits us to extract the body, or to push it up into the mouth.

Whatever other part of the throat we cut upon much blood must flow. If we cut through the cyrcoid cartilage, we come upon a branch of the thyroid artery, and perhaps the superior lobe of the thyroid gland; a very little lower we cut upon the isthmus of the thyroid gland, which pours out blood like an artery, but cannot be secured by a ligature like an artery.

If we cut on the fore part of the trachea further down than the thyroid gland, we are confined in a narrow space. The trachea is deep, and the thyroid veins as they descend are found so turgid,

owing to the difficult respiration, that they bleed very freely. The bleeding makes the operation bustling instead of being done quietly ; and there is considerable danger in opening the trachea while the bleeding continues, lest it fall into the trachea, and with the accumulated mucus suffocate the patient.

I have objections to cutting out a portion of the cartilage, because it commits more injury to the parts than appears to me necessary, and because it makes a hole which it requires a process of granulation to fill up, and especially, because it affords a greater facility for the granulations to project into the larynx, and to obstruct the canal.

Anatomy and experiment give us very distinctly the great principle to be attended to in these diseases of the larynx. All obstructions have a spasmodic character ; coming in paroxysms, whether the cause be irritation or mechanical pressure. An aneurism of the carotid, or a disease of the thyroid gland, or a foreign body sticking in the pharynx or larynx, is attended with a difficulty of breathing, which returns after intervals of ease, betraying its source to be an excited muscular action, a contraction of the muscles of the arytenoid cartilages. These muscles, by their operation on the *chordæ vocales*, close the rima glottidis, and impede the issue of the air. By the operation of laryngotomy, or tracheotomy, the air gets free passage, but the mischief remains : the acute and

peculiar sensibility enjoyed by the glottis, not only governs the muscles of the glottis, but also combines into action the whole muscles of respiration, and affects the lungs. Thus, though we give freedom to the trachea, if the cause of irritation remains; though the patient be saved for the time there is an influence, which, by continuing to disturb the office of the lungs, will ultimately destroy the patient. All that can be expected from bronchotomy is a temporary relief: if the disease continues, I think the patient must ultimately fall a sacrifice, in whatever manner the opening may be made. It has a natural disposition to close, and the means of opposing that disposition must produce irritation. My incision through the integuments was very large; yet in six days it began to contract, and granulations sprung out from the sides, which it was necessary to cut off again and again. Besides, the cut edge of the cartilage itself will, if not soon consolidated, throw out granulations, which may prove still more destructive, by diminishing the passage of the trachea.

These Observations may be summed up in the following QUERIES.

1. Are there not diseases of the larynx which have, in these latter periods, all the characters of pure pulmonic affections ?

2. Are we enough aware of that progress of suffocation, in which the last train of symptoms, and the quiet manner of death, afford no indication of the nature of the disease, yet where spasmodic stricture of the glottis is the real, though the remote, cause of death?

3. Have surgeons always attended to the proper time for performing bronchotomy, and have they not thought of relieving the trachea, when already the lungs were irretrievably oppressed with mucus in the bronchi, and effusion in their cellular texture?

4. Has not the introduction of a tube into the larynx or trachea, sometimes defeated the object of the operation?

5. Are practitioners sufficiently aware, that the operation may be done with a lancet and the end of a tea-spoon, and in circumstances when the more complicated apparatus of a tube will cause suffocation?

6. In cutting out a portion of the larynx, or cutting the rings of the trachea, have we duly considered the danger of granulations projecting from the cut edge of the cartilage into the tube; or of the cartilages being curled or drawn in so as to diminish the calibre of the tube?

7. By one example it is proved, that a patient may breathe through an artificial passage for six weeks. But has not this wound, like all others, a disposition to heal? and will not the necessary counteraction of this tendency, by whatever means, produce irritation? Is not the operation therefore only a mode of giving temporary relief?

8. Since the exquisite sensibility of the glottis is bestowed, not only to excite the muscles of the arytenoid cartilages, and to close the glottis, but also to influence the lungs and to draw the respiratory muscles into action, may not a continual excitement of the glottis at last produce effusion in the lungs, although the windpipe be free for the transmission of air?

THIRD REPORT.

CASES

OF

Diseased Pharynx and Oesophagus,

WITH

OBSERVATIONS.

It would be a natural arrangement to class the diseases of the pharynx and oesophagus under the head of the alimentary canal; and perhaps this might conduce to the better illustration of the principles of pathology. But in my collection I have found it necessary to class together the natural and morbid anatomy of the neck; and when, as now, we consider the subject with a view to surgical practice, the pharynx and oesophagus stand closely related to the subject of the foregoing report on the diseases and wounds of the larynx. My reader may, perhaps, have the same difficulty in arranging the following case, that I myself, during the progress of the complaint, had in understanding to which division it should belong.

CASE
OF
SCIRRHOUS CONTRACTION

OF THE

Pharynx.

May 3d, 1816. Jane Nichols, aged 35. This woman was in the Hospital three weeks ago, and left it on some domestic occurrence. She is worse, and has returned in expectation of the same relief she formerly experienced. Her complaint was an obstruction to swallowing, attended with much pain during the effort, and a tumor of a bony firmness could be felt projecting from the larynx into the bag of the pharynx. Leeches were applied, and repeated blisters on the sides of her throat. She had a gentle vomit, and a course of the Plummer's pill. Under this course of treatment there was a very considerable amendment.

Neither formerly nor now can this woman give any intelligible account of the cause or beginning of this complaint. She thinks that she must have hurt her throat in swallowing; but there is no further evidence of this than the pain she has experienced in swallowing. She is married, has a family, and is decent in her appearance.

At present she complains of great difficulty of swallowing, and of something rising from her

throat towards the ear and back of the head. But she speaks very ignorantly, desiring to have something to bring down the substance to her throat, so as to give her ease.

I have made her attempt to swallow a little warm milk; she made great efforts to get over a little, pressing her hands against her ears expressive of great pain. This pain is obviously from the distention of the pharynx, and the consequent affection of the Eustachean tubes; for, she says, the pain flies to her ears. But as the left ear is most affected, and as the disease is felt most distinctly upon the left side of the pharynx, we may conclude that it is the pressure against the diseased part which communicates pain to the ear.

When I put my finger into her throat I can distinctly feel the epiglottis, and pushing the finger beyond this I can distinguish the left side of the false glottis to be irregular and tuberculated; but I think not ulcerated. Still further back I can feel a tumor projecting into the pharynx, having its root on the back part of the larynx.

Finding so much disease of the pharynx, and that the patient was weak from defect of nourishment, I thought of introducing a tube into the œsophagus, so that she might be fed without producing the irritation consequent on the frequent action of swallowing. But on attempting the introduction of the tube, I found that it was obstructed, and that it gave too much pain and irritation to answer my intentions.

Ordered that six leeches be immediately applied to the neck, and after them a blister to both sides of the throat alternately. To-morrow evening six or four leeches to be applied as may then seem best, and the blister to be repeated. She is to smoke the stramonium. Her bowels to be opened by the house mixture, and the Plummer's pill to be given at night.

May 10th. She is considerably worse. She swallows with more difficulty and pain. The fluid she tries to swallow comes back by the nose, and during the attempt the pain shoots violently into her ears. The stramonium increases the secretion from the mouth, but she thinks it also increased the pain of the throat. It has been omitted.

Calomel and white sugar have been rubbed into the sides of the pharynx. With the forefinger of the left hand I press down the tongue and pull it forward, and wetting the finger of the right hand, and touching a powder of equal parts of sugar and calomel, I push it back into the throat, and rub it into the rough diseased surface. This has made her spit, and she is so sensible of the benefit which she derives from this practice, that she will not permit me to pass through the ward without entreaties to renew the operation. Yet I am not sure that this application is doing more than taking off the morbid irritation from the part.

29th. The calomel having made her mouth sore,

without producing permanent amendment, it was omitted. On each side of the throat, near the upper horn of the thyroid cartilage, a small issue has been made by caustic. Four hours after the application, there was an alarming attack of spasm in the throat which threatened suffocation.

31st. By the application of the cold solution to her neck, and an opiate draught, she was relieved; but being in the Hospital to-night, she sent for me to urge her great distress, and the necessity of having relief. I find her breathing remarkably affected. She complains of pain in the scrobiculus cordis. She draws her breath with a stridulous sound. I should be inclined to say that the sound is more indicative of a spasmodic or muscular stricture than of tightness from swelling of the membrane. On examining with the finger in the throat, I think the tumor of the glottis is sensibly increased. Leeches to be applied to the neck. The head and neck to be kept cool. An expectorant mixture of squills and gum ammoniac is ordered, as there is a deficiency of secretion about the throat.

5th of June. She says her swallowing is worse since the application of the caustics. Her breathing is short. She cannot lie down. There are frequent returns of the spasms, with rattling of secretion in the throat.

7th. This woman is much better to-night. I find her walking about the ward. Her voice no longer a whisper, but with the natural strength and reverberation of the voice. She swallows with more ease ; and, on the whole, expresses herself very much relieved, and as enjoying an unusual comfortable feeling.

16th. Being asked to compare her present state with what she formerly suffered, declares herself much better. She breathes easily. When she attempts to swallow milk, I observe that she makes many gulps or efforts before she can succeed in forcing it into the œsophagus.

23d. The issues are dressed with the blistering ointment, and kept very active. She is sensible of the relief they have afforded her. She is much better in all respects, and has undoubtedly been greatly benefited by the issues.

12th of July. Although relieved, she now makes no improvement. The alterative course has been persevered in. The issues have been kept active, and the œsophagus bougie passed with great care twice a week. Although by this means the swallowing is improved, and she has been able to take more regular nourishment, yet the trachea seems more affected.

16th. After being so long relieved, she has fallen

into a much worse condition. When I introduce my finger, I feel the tumor larger, harder, and more irregular. Her distress is more in breathing than in swallowing. No effort of mine can save her long. The passage into the stomach I could, perhaps, keep open, but the disease is making progress towards the glottis, and this I have no means of counteracting. She cannot lie down. She breathes with difficulty ; and it has been well observed by one of the pupils, that she does not breathe with the sound of debility and increased secretion of the throat, as one near her end, but more as if the air was drawn through a restricted passage. True, there is no rattle of secretion, but a siffling sound of the breath. She has requested to have a blister put to the pit of her stomach. She thinks it will ease the pain there ; but that pain is from the labour of respiration, and cannot be so relieved.

Afternoon. The cough is frequent, and throws her into deliquium. Her countenance, long very thin, is now full of anxiety and great suffering. It indicates that she cannot long survive, but must sink from imperfect nourishment, and the labour of impeded respiration.

17th. Respiration 26. Pulse 120, very irregular, weak, and small.

18th. Died at six in the evening.

On *Dissection* it was found, that the disease had its seat in the membrane of the pharynx, and from thence had spread to the œsophagus, on one side, and the larynx on the other. Scirrhus tumors of great firmness and whiteness, so studded the pharynx and beginning of the œsophagus, as to occupy and nearly close that part of the tube; one or two smaller white masses further down, betrayed a general disposition of the membrane. Where the membrane was reflected over the glottis into the trachea, it was found much thickened, white, and dense. And on looking through the larynx from below, two white tumors were seen projecting from the sides of the tube: these left a triangular opening so small, that it was wonderful this poor woman could breathe so long. The lymphatic glands on the side of the throat had partaken of the disease, and an abscess, with firm scirrhus walls, had formed in one of the lobes of the thyroid gland. The parts are numbered XIII. 2. M. 13.

PREPARATIONS IN THE COLLECTION,

Illustrative of the same Subject.

In the Collection, XIII. 2. M. distinguishes the specimens of disease in the *pharynx* and *œsophagus*. The thirteenth number of the series belongs to the last case.

XIII. 2. M. 4. Is a preparation exhibiting on one side a morbid thickening of the pharynx, with a degree of stricture at the commencement of the œsophagus; on the other, a large ulcer of the trachea with lymph on the larynx.

XIII. 2. M. 5. A preparation similar to the œsophagus of the last, presented by my friend Mr. Brodie.

XI. 1. M. 13. Exhibits the membrane of the pharynx thickened, with a degree of stricture; the trachea and larynx are rough with ulceration.

XIII. 2. M. 9. An example of scirrhus ulceration of the œsophagus. The disease occurs in this instance opposite the division of the trachea.

XIII. 2. M. 12. The œsophagus having soft pendulous tumors, growing from its inner surface. This preparation is engraved. Plate III.

XIII. 2. M. 11. The œsophagus obstructed by a tumor which has formed within its coats.

XIII. 2. M. 3. Example of obstruction to swallowing, from a singular cause: an ulcer of the pharynx has laid bare the os hyoides, so that the horn of the bone projects into the pharynx.

XIII. 2. M. 2. Through the pharynx a hole is

made by ulceration, which gave exit to the matter of an abscess, connected with the vertebræ of the neck.*

XIII. 2. M. 10. The thyroid gland being scirrhus, and enlarged, has pressed upon the lower part of the pharynx, so as to obstruct the tube.

XIII. 2. M. 14. An abscess on the thyroid cartilage, which communicates with the pharynx.

Remarks on the foregoing Examples.

The whole extent of the alimentary canal is subject to such diseases as I have here described, but it is only in the pharynx or œsophagus, or in the rectum, that they become interesting to the surgeon. The case of Nichols will convince you of the dreadful sufferings of the patients under these diseases, and the catalogue I have made will inform you of their variety.

The disease of Nichols was an exact parallel with the scirrho-contracted rectum, when it is extended to the neck of the bladder [of which examples will be given hereafter]. Instead of the difficulty of excluding the fæces, you have here the difficulty of swallowing: and for the spasms and obstruction of the neck of the bladder, there is

* See further, under the head of Injuries of the Spine.

here the spasms of the glottis, and the impediment to respiration.

It is a disease to which the glandular structure of the tube exposes it, and, as the glandular structure prevails most at the extremities of the canal, and as both the pharynx and rectum are more subject to injury than the other portions of the tube, so this disease most frequently occurs in those parts.

The scirrhus thickening of the coats of the pharynx produces so great a change, that they become incapable either of contraction or of relaxation. Although there be no *stricture* of the tube, it becomes incapable of transmitting the food into the stomach. In such a case as that, XIII. 2. M. 9. where the scirrhus ulceration has made the œsophagus much more capacious than natural, yet the continuity of the muscular action, by which the food is transmitted to the stomach, is interrupted, and a disease very different from stricture resembles it in the most essential circumstance—the incapacity of swallowing.

The scirrhus thickening of the pharynx or œsophagus, may certainly be much relieved by the use of the bougie, and frequent application of leeches to the side of the throat. The issue in the sides of the throat, and the bougies, will effect a cure where there is a mere thickening by common inflammation or scrofulous action. But where the disease, as in Nichols, is of a cancerous disposition, the relief must be very transitory.

You will not have failed to remark, that although the issues gave much relief in the end, yet

in their first application, and on the rising of the inflammation, they occasioned violent spasms in the muscles of the glottis. In this we see another point of analogy betwixt the throat and neck of the bladder, for by the severe application of caustic to the urethra, we have with the rising inflammation, spasm in the bladder, and inability to make water. And, independently of the effect of the issues, or any other application, you must have observed that there was a singular alternation of the affection of the pharynx and of the trachea, for at one time the swallowing was relieved, and the breathing worse: and when deglutition was performed with most pain, the breathing was easier. These changes serve to shew you how much of spasm there is in the affection of these parts, even when the disease is of a permanent and unchangeable nature.

We are apt sometimes to increase the difficulty of breathing and of swallowing by the very means we take to allay it. I was requested to come down to a surgeon a few miles in the country. He had written a very few emphatic words, declaring himself suffocating, and desiring me to bring down the instruments for bronchotomy. I found him lying in bed with an inflammatory sore throat, with a blister on each side of the neck, and his head wrapt in flannel. He breathed with exceeding difficulty. His face was tinged, he was in a high fever, and exceedingly alarmed.

The rising of the blisters, his position, and the heat, had so driven the blood to the head, that I

really thought he might have suffocated. But by lifting him up, and throwing off the covering from his head and neck, and sponging his face and neck with vinegar and water, and assuring him there was no danger, his breathing immediately became easy, and there was no longer thoughts of opening the wind-pipe. I have repeatedly seen this increase of arterial action from the application of a blister to the throat; and we have just seen the same effect take place from the application of caustics in the case of Nichols.

There is another circumstance which deserves my reader's attention, that is, the state of pregnancy and labour: for the exertion during the labour pains, sends the blood with such force to the head, that if there be any cause of difficult respiration, it will be greatly aggravated at such a time.

A

PRETERNATURAL BAG,

Formed by the Membrane of the Pharynx,

WHICH

IMPEDED THE INTRODUCTION OF THE BOUGIE.

A considerable time ago a gentleman called to consult me about a disease in his throat, which gave him great uneasiness, and occasioned difficulty of swallowing. In the course of conversation I found his anxious hopes rested on my being

able to pass a bougie into his stomach, by which he said he was always relieved of his uneasy sensations, and I could learn from him, that some ineffectual attempts had been lately made.

He sat down before me rather with the confidence of a man who was to be gratified, than one who was about to suffer a painful and disagreeable operation. I made many ineffectual attempts to pass the bougie into the œsophagus. In carrying the point towards the back part of the pharynx, I found an obstruction so absolute, that I could not venture to press with force. In introducing the bougie much curved, so as to avoid the obstruction on the back part, I still found it interrupted. I at last succeeded, by giving the instrument a twist laterally, which brought the point to pass by the side of the throat, and move along the lateral part of the pharynx. I observed, with some interest, that when the bougie was introduced, it was not grasped, nor were there any impressions on the soft wax.

Having got the way of introducing the bougie into this patient, he often returned to me, at the distance of a fortnight, and was always relieved by the passing of the bougie.

It was not till a year after this, and not indeed till after his death, that I found he was a gentleman of large fortune, who had his medical attendants at home, and that in delicacy to them he came in some measure clandestinely to me. Before his death he had said that I had taken great

interest in his case, which induced the friends to request me to examine his body. His death was not to be ascribed to the complaint in his throat, yet there was something there deserving notice.

I found a bag projecting from the lower and back part of the pharynx, and pushed into a space betwixt the œsophagus and spine. The bag was not covered with muscular fibres, but may be described as a hernia or protrusion of the inner coat of the pharynx, betwixt the strong fibres of the muscular coat.

Reflecting on former experience, it was evident that this bag was the cause of obstruction by receiving the end of the bougie. For when the instrument was directed backwards, the point of it must have entered the bag; and when carried in an opposite direction it must have passed into the chink of the glottis. When the bougie was directed laterally it escaped both these holes, and went down into the proper canal.

While this gentleman visited me his principal complaint was flatulence of the bowels, accompanied with spasm, which seemed to affect the whole tract of the canal, but principally the œsophagus. So distressing was this flatulence, that it prevented him from going into company. The necessity of passing the bougie he ascribed to the gradual accumulation of mucus, which the passing of the instrument enabled him to discharge. In fact there was such a deposit found in the bag; it was of a

consistence as if chalk in fine powder were mixed with the natural secretion.

The parts are represented in plate II. The preparation is marked XIII. 2. M. 1.

In the 3d volume of the Medical Observations and Inquiries there is a case of obstructed deglutition from a preternatural bag formed in the pharynx. The case is given in a letter addressed to Dr. Hunter, who by his many important communications, but above all by the influence of his superior mind, made that collection creditable and useful above all others.

Mr. Ludlow, the author of the paper to which I now direct your attention, states the case with great judgment, and proposes his conjectures of the cause of this derangement with much ingenuity. It appears from his description that he believed the bag to be muscular; for he says, "When the bag
" was full it was immediately irritated probably by
" the weight of its contents; and as the bag was
" nothing more than a perfect continuation of the
" coats of the pharynx, this irritation would be
" instantly communicated upwards," &c. If the proof of its muscularity was the act of rejecting the morsel from the bag when an attempt was made to swallow, I would object to the statement; for I conceive that the muscles of the neck, and especially the platysma myoides and the muscles attached to the larynx would have the effect of pressing the larynx and pharynx against the spine, so as to squeeze and empty the bag. Indeed it is

not easy to conceive how a bag should form, being muscular, and therefore capable of resistance.— Although it be hazardous to form a conclusion from a single example, yet in saying that the bag is not muscular I am supported by very strong analogies.* I think that the bag is produced by a protrusion or hernia of the inner coat of the pharynx, through the fasciculi of the constrictor pharyngis.

Mr. Ludlow accounts for the formation of the bag by the accidental falling of a cherry-stone into the rugæ, or betwixt the loose folds of the pharynx. He supposes the cherry-stone to have been forced deeper by every successive morsel after its lodgment, and that by little and little, food also was forced into the bag, until at length it was enlarged so as to occupy a great space betwixt the œsophagus and spine. He proceeds more correctly to state, that when the food was carried backwards in the act of deglutition, the margin of the bag acting in the office of a valve, received the food ; and the bag being thereby distended, it compressed the œsophagus, and made the descent into the stomach still more difficult.

The question is not, as I conceive, one of mere curiosity, but of practical importance ; I shall therefore offer another explanation. This gentle-

* See examples in a future Report on the *sacculi* of the bladder.

man, whose case I have shortly related, was subject to a spasmodic difficulty of swallowing. In that state it often happens that the force of the voluntary muscles remains, while they are unable to overcome the spasm in the top of the œsophagus. There are then repeated ineffectual gulping or efforts to swallow, which distend the pharynx; and although by such excitement the muscular fibres acquire strength, yet their strength is like that of the bladder when stimulated by frequent nismus, the fibres form stronger and more distinct fasciculi, betwixt which, the inner membrane is permitted to be protruded.

When a patient is in the situation of this gentleman, the membrane may be protruded either by those ineffectual attempts which are followed by the regurgitation of the morsel; or by that action, which belongs to the complaint, the swallowing of air which is refused passage into the œsophagus, and which occasions a painful distention of the pharynx. During such efforts the distending fluid thrust the inner membrane of the pharynx betwixt the fibres or fasciculi of the muscular coat.

If a case were to occur in which I had ascertained the existence of such a bag before death, I should attempt the cure by syringing the sac with such astringent injection as would prove innoxious to the stomach if they happened to be swallowed, and by feeding the patient through a tube, so as to prevent the distention of the bag.

The Subject continued.

Since we have been led to consider the subject of sacs formed in connexion with the pharynx, it is my duty to remind you, that they may be formed in a very different manner from that explained above. We hear of abscesses bursting into the throat, and occasioning suffocation; but it is a mistake to suppose that it is the matter which suffocates; it is the irritation of the ulcer, by which the communication is formed with the larynx, that causes spasm, and consequent suffocation. When suppurations about the throat open into the pharynx, they also produce great inconvenience and distress. I have already noticed a preparation in my collection, which shows a communication betwixt an abscess around the spine and the pharynx. Other scrofulous suppurations, may open into the pharynx, and then there is increase of the suffering and danger. I remember to have seen a remarkable example of abscesses in communication with the pharynx, where I had afterwards an opportunity of examining the parts by dissection. The velum palati adhered to the back of the fauces, and at the same time a hole was opened in the palate by ulceration. From the pharynx two holes led into abscesses, which had become large sacs reaching by the side of the œsophagus and trachea, and betwixt the former and the vertebræ of the neck.

Here the mechanical operation of these sacs and their valvular openings into the pharynx, had even a more unfavourable effect than in the examples mentioned above; for whilst the food could not reach the stomach it fell into the sacs and increased the inflammation. In this case, the attempts to relieve were made too late, and the miserable patient died of irritation and inanition.

The cure in such cases might be conducted as hinted above, with the addition of opening the abscesses externally, so that no lodgment might be permitted in them. It must be admitted, however, that the difficulty and danger of the case is such as to make it very desirable to prevent abscesses from forming in communication with the throat, either by inflammation of the membrane producing them, or by suppurations bursting into the tube.

I cannot conclude this subject without leading the pupil to remark, that there is something in common to all the tubes of the body; in as far as irritation within them will produce abscess on their sides, and sometimes these abscesses will communicate with the tube affording an additional source of irritation and mischief. Thus from inflammation in the fauces we have abscess in the folds of the arches of the palate, and behind the amygdalæ; from inflammation of the pharynx we have abscess external to the bag. So have we abscesses around the larynx and in the thyroid gland, produced by irritation and inflammation in the

glottis. In inflammation of the urethra, produced by gonorrhœa, or the caustic, or the bougie, or injection, we have abscess also. So have we abscess from irritation in the rectum. Even external to the lacrymal passages we have abscesses, which, as in all the other instances, will turn to fistulæ, if attention be not paid to soothe the inflammation of the neighbouring canal. I shall enter more fully on this subject in treating of fistula in ano.

STRICTURE

OF THE

ŒSOPHAGUS,

Cured by the Application of Caustic.

William Hawkins, aged 40. This is a tall man, thin, but with a countenance which indicates health. He is a farmer: he says he has enjoyed uninterrupted good health until May last, when he was suddenly seized with a difficulty of swallowing. Before this he had not been subject to spasms, or eructation, or flatulence; nor does he acknowledge having had any of the usual symptoms of disordered stomach. He had not naturally a narrow swallow, nor had he before this time experienced any difficulty in swallowing his food.

Whilst sitting at supper eating his bread and cheese, the morsel stuck in his throat, a crust of bread was returned, and he could not take the rest of his meal. Next day he experienced the same difficulty of swallowing. He tried to take broth, but could get down only a very small quantity, and with much difficulty and exertion.

The obstruction in the throat has continued with very little variation until the present day, and he says, that he is now thin and weak from absolute want; for he has had no bad health nor trouble to reduce him. He does not suffer by sickness: he has no retchings so common in this complaint: he suffers no sense of suffocation nor distention of his stomach, nor borborygmus. The only complaint he makes, in addition to the difficulty of swallowing, is of slime or viscid matter, which collects in his throat, and which is discharged, when he returns the morsel which he cannot get down. He can swallow liquids, but any thing solid, as a crust of bread, comes back, working its way upwards without effort, that is, without volition or voluntary action of the muscles of the throat; but just before the morsel is returned, he feels a shivering through his frame. When the fingers are put around the throat while he swallows, there is neither bagging or distention of the pharynx to be felt, nor reiterated effort of the part. He thinks the obstruction is at the lower part of his neck.

He had, what he calls, sickening medicines

given him for this complaint before he came into the Hospital, but no instrument has been passed into his throat, although he has been getting worse, that is, experiencing more and more difficulty of swallowing since August last.

Thursday 3d. A bougie passed into the pharynx, and an obstruction met with behind the cricoid cartilage.

Evening. Since the bougie was passed he has found himself much relieved. He explains this by saying, that he eats with more comfort, and without any part of his food coming back.

Friday 4th. His difficulty of swallowing has returned.

Saturday 5th. The caustic bougie was employed; he suffered no pain; he says it produced a tingling sensation.

Evening. Immediately after the operation of the caustic, he thought he could swallow, but on making the trial the food returned. On after trials, however, and during the remaining part of the day he has been much better, and has not returned any of what he attempted to swallow.

Tuesday 8th. The food has not returned since

the application of the caustic. He says he never was better in his life.

Thursday 10th. The caustic again applied.

Sunday 13th. He has been quite well. He swallows his bread and tea with ease, and nothing is returned. He is very desirous of returning home, as he affirms that he is well, and his wife about to be confined.

While the patient feels no inconvenience, and is quite satisfied of his recovery, the bougie is still obstructed.—Dismissed.

This man remained well for a considerable time, and had no return of the stricture; but dying of some other disease, the surgeon in the country reported, that he could discover no marks of disease in the œsophagus.

I shall make no remarks upon this case, until I have put into your hands a pure specimen of the stricture of the œsophagus. By this I mean a case where the stricture was a consequence of inflammation, without the interference of the surgeon either to mar or to mend.

I am indebted for this specimen of disease to Mr. Goolden, of Maidenhead, a gentleman whose professional character bestows an additional value on what he communicates.

STRICTURE

OF THE

ŒSOPHAGUS FATAL.

Drusilla Champ, resident in the parish of Bray, Berks, ascribed the commencement of her complaint to a cold and sore throat, which attacked her twenty-four years ago. After this she had difficulty of swallowing, but it was not attended to till the inconvenience becoming more considerable, in the year 1792, four years after its first occurrence, she made application to a surgeon. But as a superficial examination afforded no evidence of disease, very little was directed for her. She had an acid gargle, and a volatile liniment to rub her neck. After this she did not apply for medical assistance. The disease gradually increased, she still experiencing more and more difficulty in swallowing solid food of any kind, at length liquids produced great distress.

For the last ten years of her life it required an effort of many hours to swallow a small teacupful of thin fluid. On the 29th of May last she died, evidently from starvation, occasioned by the impossibility of swallowing, even fluid nourishment, sufficient to support life.

Hearing of the case, Mr. Goolden requested the husband to allow him to examine the part; he

found [what you also have an opportunity of seeing], a stricture of the œsophagus, so narrow that it would admit no more than a horse-hair or bristle to pass; the stricture is situated at the lower part of the pharynx, and opposite to the cricoid cartilage. We cannot now be surprised that when Mr. Goolden put his finger into the pharynx, he could no where find a passage; it appeared a cul de sac. See plate IV. fig.1. The preparation is in the collection, XIII. 2. M. 8.

OBSTRUCTION TO SWALLOWING,

FROM

Fungous Tumors of the Oesophagus, Fatal.

THE following case refers to the preparation XIII. 2. M. 12. of my collection; I owe it to the kindness of Mr. Hamerton, apothecary of St. George's Hospital. Every one who visits Windmill Street must see how much I am indebted to the liberality of the surgeons of that Hospital. This case bears on the subject we are considering exactly in that degree, which makes it interesting, so like in symptoms to the cases of stricture, yet so different in reality.

John Terry, aged 70 years, was admitted into the hospital on the 22d of November, 1815. He

was unable to swallow either solids or fluids, and pointed to the cricoid cartilage as the part where the food stopped; and he complained of an uneasiness about his stomach, and suffered much from hunger. His tongue was foul, and his bowels constipated. He slept well, notwithstanding great weakness.

He said that he had been in health till within two months of his coming into the hospital. On a sudden, he found great difficulty in swallowing, and this without any previous pain or difficulty. This obstruction continued for three weeks, and only some days he could swallow thin gruel or beef tea. After this period he was enabled to take his food, and this power of swallowing returned as suddenly as the inability had come upon him. About ten days ago the difficulty of swallowing returned, and now he is again equally incapable of swallowing either solid or liquid food. He never felt pain in the throat. His suffering has been more from hunger than thirst; yet, of late, the craving has diminished.

At present what he attempts to swallow is returned by vomiting, after remaining in the throat a few seconds. He expectorates a white phlegm, which he complains is of a bitter taste. He has also within these few last days a pain and weight at the scrobiculus cordis.

An œsophagus bougie of a common size has been passed into the stomach, without any obstruction being felt.

About three weeks after his reception into the Hospital, he could swallow liquids without much difficulty; but he continued, notwithstanding, to sink until the 31st of January, when he died. Before his death, a large abscess had formed under the left arm, which contained a pint of pus.

Upon examining the body, the lungs were found generally adhering, but were otherwise sound. The heart was natural. Chalky matter was found within the coats of the aorta. The œsophagus was observed to be distended just where it entered the posterior mediastinum. It was of three times the natural size, and of a dark purplish hue. On opening it, a large irregular tumor presented, soft spongy and pendulous, from the inner coats of the tube.

The viscera of the abdomen were natural, with the exception of an appearance of inflammation on the peritoneum of the liver.

The preparation is engraved. Plate III.

REMARKS

UPON THE

Cases of difficult Deglutition.

IN forming an opinion on these complaints in the pharynx and œsophagus, it is much to be desired that we should proceed only on matters demonstrated, and not trust to the feelings and ex-

pressions of the patients. The example of true stricture in the œsophagus, corrects the notion we should otherwise form. We see that inflammation will produce stricture, that the stricture will be progressively worse, because obstruction produces pain, pain inflammation, and inflammation increase of the stricture. So that here as elsewhere, a stricture necessarily gets worse and worse, until the canal is almost totally closed.

We perceive that in the stricture of the œsophagus, the derangement is in the inner membrane of the tube, that there is no apparent disease of the tunica vaginalis gulæ, nor any degree of thickening of the glandular structure of the œsophagus.

We owe our knowledge of this complaint to Sir Everard Home. He has given an engraving and description of it, and has described its exact place to be immediately behind the cricoid cartilage. To see it delineated, he observes, appears in some measure necessary to force upon the mind a belief, that the area of the œsophagus can be so much diminished, while there is so little thickening of the surrounding parts, and so very small an extent of the tube occupied by the disease.

It will be further observed, that in the engraving, which I have given, the stricture is not formed by a membranous partition, but by a general and somewhat irregular puckering of the whole membrane of the œsophagus. In the next place, we find no ulceration near the stricture, as in some

examples recorded. So that even in the very worst stricture possible, and where it is the cause of death, it does not necessarily follow, that ulceration shall take place.

The state of parts exhibited in the instance of Drusilla Champ, and the progress of the disease when left to itself, will prove the necessity of interference. And I may venture to suggest, that the proper course is the use of the bougie. But in the stricture of the œsophagus, as in the stricture of the urethra, cases will occur, where the attempt to dilate will bring on spasm and obstructions, and where the caustic becomes necessary; so that I am very sensible of the great benefit which the profession has derived from the example of Sir Everard Home.

We may observe, that in the case of Hawkins, both the simple bougie and the caustic bougie gave relief, when introduced into the œsophagus, and here again the analogy betwixt the urethra and the œsophagus recurs. The very satisfactory effect produced by the caustic, in the case of Hawkins, might lead us to prefer this mode of treatment; yet I confess that the very circumstance of the obstruction yielding so quickly to the means employed, appears to me a reason why the caustic, though happy in its effects, was not in this case necessary. And in similar affections of the throat, I would advise the pupils to be contented with the introduction of the bougie; and reserve the use of caustic for more formidable

cases, where the stricture is obstinate, and the disease of longer continuance.

From the specimens before us, as well as from the recollections of the natural structure, we shall be convinced of the propriety of introducing the œsophagus bougie with a gentle hand:—it requires dexterity, not force. The true stricture, which belongs to the inner membrane of the œsophagus only, is weak, and must be easily overcome. The circumstance of the natural thinness of the coats, the possibility of the instrument being engaged in a bag, or obstructed by a tumor, and not a contraction, should teach us to press lightly. But there is another cause of difficulty in the introduction of the bougie, proceeding from the natural form and connexions of the pharynx and œsophagus. This subject I propose to treat at large on another occasion, but I may notice it here as an additional reason for operating with precaution in the introduction of the bougie into the throat.

I believe that common inflammatory sore throat will sometimes, be the foundation of stricture in the œsophagus, and certainly inflammations of the tube, from violence done to it, will have this effect; for example :—

XIII. 2. M. 6. Is a specimen of stricture so remarkable, that I have engraved it in a plate. Twenty years before this woman's death, she swallowed soap lees. This produced inflammation, which terminated in stricture. She died literally starved.

XIII. 2. M. 7. Exhibits another stricture of the œsophagus, from the same cause. The child, in her mother's absence, swallowed soap lees, which produced inflammation, and stricture, and death, from total obstruction of swallowing.

It is singular that such a cause of injury to the tube should have occurred so often. A young woman was brought into the Middlesex Hospital, who had swallowed soap-lees; she died of mortification of the gullet.

The Subject continued, in Reference to Spasmodic Stricture of the Œsophagus.

There is a mistake, into which the most diligent are apt to fall, that is, apprehending the worst on all occasions, and mistaking symptomatic derangement for more formidable organic disease.

In swallowing, many muscles are called into co-operation, which are occasionally employed in other functions, or belong also to other combinations. It is in this manner that the muscles of the tongue or pharynx may become deranged individually, because of their relation to remote parts.

In fact, the pharynx and œsophagus much more frequently suffer from disordered action, which is appropriately enough called nervous, than from organic injury; and it is quite obvious, that the source of such symptoms, however formidable their appearance, is in the disorder of the stomach and bowels. When we have the dissection of the

nerves of the tongue, pharynx, œsophagus, and stomach, before us, and when we see distinctly these numerous connexions of nerves reaching in a complicated net-work from the abdomen to the tongue, we then receive the true impression of the prevailing nature of these disorders.

The succession of actions necessary to deglutition are these: 1. The retraction of the tongue and the rising of the larynx. 2. The distention and contraction of the pharynx. 3. The successive contractions of the œsophagus. 4. The yielding of the passage of the diaphragm and simultaneous relaxation of the cardiac orifice of the stomach. Spasmodic difficulty of swallowing, for the most part, takes place at the termination of the lower constrictor pharyngis, or at the termination of the tube in the stomach. From which it would appear that the derangement consists in the one set of muscular fibres refusing to enter upon the succession of actions, which should be propagated from the other.

There are two diseased actions which may be mistaken for stricture or scirrhus ulcer of the passage, viz. spasms of the muscular coat and paralysis, for they equally prevent the passage of the morsel. These affections are transitory, and merely symptomatic. Their cause is in the stomach, or more remotely in the liver or uterine system. Thus in the youth of both sexes the disorder may be introduced with a spasmodic cough, attended with cold and weight in the pre-

cordia, darting pains, and convulsive fits. Or the patient has eruptions on the face, indicative of disorder in the stomach, with pain and weight there; or the catamenia are irregular, the pulse small, the feet cold with craving of the stomach, and constipation of the bowels.

Even in adult males we meet with spasmodic difficulty of deglutition, coming suddenly in the middle of a meal. The food is retained for some time with a painful distention of the tube, before it is permitted to pass into the stomach, or it is rejected by a kind of rumination.

When authors speak of a spasm continuing for days, or during months, they surely mistake the paralysis for the spasm of the tube. Thus the case of Mathews, in Dr. Monro's valuable work [on the Morbid Anatomy of the Gullet, Stomach, and Intestines] was a case of paralysis. I attended the process of her feeding, and saw the dissection; the tube had resumed its function previous to her death, and the appearances were quite natural.

The next consideration I shall offer is, that in obstruction of the *œsophagus*, from a cause permanent in its nature, there is always more or less attending spasm. Hence, in the case of Nichols, although the cause was permanent, the symptoms varied; so they did in the case of Terry. Therefore, in considering what is to prove beneficial in spasmodic difficulty of swallowing, we are preparing ourselves to alleviate the suffering, from causes in their nature incurable, or which are re-

moveable by operation only. The remedies are either such as tend to correct the visceral disorder, and give activity to the gastric and hepatic organs, or they are more directly anti-spasmodic, by having an influence on the muscular action of the tube.

1. Mercurial friction on the neck.
2. Mercurial pill to the extent of salivation.
3. Valerian in draughts, and volatile anti-spasmodic liniments.
4. Stimulating vapors, as of assafoetida inhaled.
5. Laudanum taken in small quantities, so as to rest in the œsophagus; anodyne clysters, &c. &c.

FOURTH REPORT.

CASES

OF

FISTULA IN PERINEO.

I HAVE divided these cases into three series:

I. Sudden bursting of the urethra, and extravasation of urine.

II. Urinary abscesses of the perineum.

III. Fistula in perineo, properly so called.

The first six cases prove the alarming nature of this sudden bursting of the urethra, and extravasation of the urine into the cellular membrane;

the necessity of giving the urine immediate issue and of preventing the recurrence of the evil; of soothing the local irritation, and supporting the system against the influence of the extensive mortification which ensues from the infiltration of the urine. In the detail of these cases some useful distinctions will be observed.

BURSTING OF THE URETHRA,

AND

Sloughing of the Scrotum.

THE PATIENT SAVED.

Robert Cole, twenty-eight years of age, *Sept. 6th*. Clayton's Ward. This patient has long been subject to stricture in the urethra. He says that he never had an instrument passed, except on one occasion, a bougie. The disease has made this progress without his attaching blame to any body. He has no idea that he has fallen into his present condition from obstruction to his urine, and attributes all his suffering to cold and ague.

About three weeks ago he was seized with this ague and fever, as he describes it. "He dropt down for dead, and when he recovered his senses, he was shivering violently;" for this his friends recommended warm brandy and bark, and he believes they induced him to drink a full pint. And he adds, "there was the mischief, for after the

shivering I was in a flaming fire." The hot fit lasted for about three hours, then for some hours he had an interval of ease, after which the shivering recommenced.

During all this time he could not pass a drop of urine, and the obstruction continued until he was on his way to town in the Ramsgate Hoy, and this was altogether for a period of six days. While in the boat he felt as if he could make water, but he saw none come away, and after this the parts became enormously swelled, so that his scrotum was as large as his head, and much inflamed. It was when on the river that the scrotum became black, after which the urine dribbled away continually. He got a hackney-coach, and came directly to the Hospital.

The scrotum is much distended, and from the flaccidity of the skin, it would appear that it must have been still more swelled, and has somewhat subsided. It is quite black, and must all slough away. At the lower part of the scrotum the black slough already shows a disposition to separate. On the point of the right hip there is an abscess, which gives him more pain than the scrotum; it is pointing. The urine comes in drops through the natural passage.

The countenance is haggard, and he looks much older than he says he is. There is an anxiety, with something of wildness in his countenance. Yet he is perfectly collected, and gives me the account of his sufferings rationally. His pulse is

frequent and weak, conveying a creeping wiry sensation to the finger.

A sharp bistoury has been introduced into the lower part of the scrotum, so as to cut the slough and cellular texture; urine issued. A fomentation cloth is applied after being dipped in decoction of poppies, and sprinkled with camphorated spirits. An enema with starch and laudanum has been given.

10th. The process of sloughing is going forward; a large portion of dead cellular membrane has been cut away to give free vent to the urine and matter. The abscess of the hip has been lanced; no urine escaped from that abscess. He is very low, and fears are entertained that his constitution will not stand the shock and the continued irritations.

R. Cinchon. Pulv. ʒ vi.

Rad. Serpent. Virg. 3 vi.

Coque in aq. fontis oct: i. ad ʒ xii.

Liquoris collati 3 x. Tinct. Cinchonæ comp. 3 ii. et adde Tincturæ Opii gutt. x. f: h: et repetatur ter in die.

15th. This man's countenance is better; his pulse is firmer, the oppressive feelings at his breast have left him. The right testicle is uncovered; a mass of slough still encumbers the left; the lower part of the penis is bare, and the integuments of the pubes are undermined. Much sloughy cellular membrane has been withdrawn from under them. The penis is inflamed and tumid.

25th. The scrotum has entirely sloughed away and left both testicles bare. They preserve their vaginal coats.

26th. The right testicle is more retired, and consequently more covered. A spongy tumor of the tunica vaginalis already shews itself, which is destined to form the regenerated scrotum. The patient bears up well, with the assistance of wine and his bark decoctions.

27th. He is not so well to-day ; he says, he feels faint and giddy ; the pulse is weaker ; the surface is cold, and his bowels are relaxed. Capiat haustum salinum et spiritus ætheris vitriolici comp. gutt. xxx. This derangement was owing to an accumulation in his bowels, and was removed.

After this the case book is defective. When the parts had put on a disposition to granulate and heal, and no irritability of parts or of constitution remained, the attention was more particularly directed to remove the obstruction of the urethra. The testicles granulated and covered themselves ; the wound contracted from day to day, and the patient was discharged well.

BURSTING OF THE URETHRA,

SLOUGHING OF THE SCROTUM,

EXTENSIVE SINUSES AROUND THE BELLY.

Patient saved.

Tuesday. A professional gentleman called upon me and expressed considerable uneasiness on ac-

count of an œdematous swelling of the fore skin and scrotum, which he had observed in one of his patients. On our way I inquired into the circumstances, and learned that the patient was fifty-five years of age, and had spent thirty years in India. On returning to London he had put himself under a surgeon of eminence, for the cure of strictures in the urethra, and afterwards submitted himself to this gentleman's care, who was at this time in course of dilating the stricture by the use of the bougie. On Sunday he had used a bougie of a middle size, and had passed it without violence into the bladder. No blood followed this introduction of the bougie, but during the night there occurred a very considerable hæmorrhage from the urethra. Next morning a swelling appeared, which was supposed to be extravasated blood, and the following day I was requested to attend. I found the patient lying on his sofa in a state of fever and tremor. He said he had shiverings in the night, and the fever now upon him had succeeded. I observed that the urine came away with difficulty, and required him to strain a great deal. It now only came in drops, although before the attack the stream had been free. The swelling which had occasioned apprehension was indeed very like œdema; but on the right side and upper part of the scrotum there was a tumor which pitted and evidently contained fluid. I had therefore no doubt that the appearances were owing to extravasated urine. A moderate sized gum catheter was

passed into the bladder. The parts were fomented, and after the bowels were opened he had an opiate. I requested to be sent for on the slightest change taking place.

Wednesday. I find a very serious change to have taken place. Having a sudden call to make urine, in his agitation and in drawing out the plug of the catheter, he withdrew the instrument itself and made water from the urethra. He expressed himself pleased with the large stream, but soon after he found the swelling of the scrotum materially increased. The scrotum has become generally and greatly distended. I immediately opened the scrotum with the abscess lancet very freely; there came full eight ounces of blood, and watery fluid drained away, so as to occasion a very great reduction of the swelling even while I remained with him. A catheter was introduced, and particular injunctions given. Dr. Babington being expected, I did not prescribe for him at that time.

Thursday. He is better; he has less heat, and the scrotum is diminished. A black spot is on the front of the scrotum. He has a draught with five drops of laudanum every two hours.

Friday. The scrotum is of a dark red colour, a blush of erysipelas extends to the bottom of the belly; the black spot is not larger, but a slough will take place there. The cellular membrane within the incision is white and dead; I have broken down the cellular membrane, to give free passage to the fluids. The pulse is calmer; there is

not the same degree of tremor, nor is the tongue so dry. He is ordered a draught of decoction of bark with a few drops of laudanum and diluted sulphuric acid. The fomentation to be extended to the belly.

Saturday. No moisture on the skin ; tongue dry ; pulse 90 ; more taciturn. Dr. Babington has approved of more support. A pint of port wine to be taken in small quantities in the course of the afternoon with soup and jellies.

Sunday. The slough is very extensive, and the testicles will be laid quite bare. I have dissected away a great quantity of the ragged cellular membrane with the forceps and scissars. The wound is dressed with pledgets of lint dipt in camphorated liniment, and the carrot poultice covering the scrotum. Fomentations are continued to the belly. His bowels are moved every morning by clysters.

January 3d, Wednesday. I have now no fear for my patient's life ; P. 80 ; skin more moist ; he has taken more nourishment, and the sloughs begin to separate from the edge of the suppurating skin. I fear the urethra may be included in the slough, and then the case will be lamentable.

5th. Friday. The putrid mass is very large. I dissected off a large portion to-day. The redness on the belly is gone ; but a hardness and caking of the skin above the pubes and groin remains. A milky fluid exudes from the integuments ; we have urged him to live better.

8th. Monday. The slough is separated and the

testicles entirely uncovered. Already granulations show themselves. The catheter has been twice withdrawn, and larger ones substituted. This has been an operation of some difficulty, from the length and fulness of the fore skin. But now that the slough can no longer confine the urine the catheter is withdrawn, and he makes urine through the urethra without moistening the dressings below; and the case being much simplified, I have taken my leave.

12th. Friday. The surgeon in attendance has again requested my opinion; a swelling has taken place round the lower part of the belly. Above each groin there is an abscess with surrounding hardness. As it is thought possible that the urine has again found its way into the cellular membrane, the catheter is introduced; the integuments of the penis are very much distended; the glans penis cannot be felt through them, and it is consequently difficult to introduce the catheter.—
P. 115, skin dry; urine high coloured; no appetite.

Friday 19th. Since my last note a considerable change has taken place. The inflammation extends around the lower part of the belly, forming a band two-hands breadth in diameter. It has been kept low by cold applications, but a band of hardened integuments incircles the belly, passing from the pubes round both groins and over the *alæ iliorum*.

From this date to the 29th there is no note.

The abscesses above the groin became soft and ulcerated, while the integuments around were caked and hard. The fluid discharged, sunk through all the bed clothes and mattrass. I enlarged the opening, took away some sloughy cellular membrane, and gave vent to eight ounces of pus, thin and without smell. This I did several times, for as the cellular substance was washed down to the opening by the flow of matter, it choked the passage and confined the matter.

After the sloughs were discharged, the sores were dressed simply, and the sinuses had compresses laid along them, and supported by a flannel roller. The whole surfaces affected were fomented morning and evening, and every attention paid to support the patient's strength.

February 1. Another depot of matter has formed on the right side. The quantity of thin inodorous matter now flowing from under the integuments of the abdomen, is very great. He stood to-day while I examined him, and the matter poured in streams from the ulcers. I have great fears for his life. His pulse is quick, his hands dry; he has a great expectoration, and is very much reduced in strength. What is favorable, is that he has a resolute mind to obey his physician, and is not too much alarmed at parting with life; and that he takes his wine and bark, submits to have the lower bowels emptied by enema, and takes light nourishment.

10th. Called to-day, and finding the sinuses

sluggish, advised an injection of sulphate of zinc. The experiment to be made cautiously on one of the sinuses.

March 28th. One of the openings still discharges, and I find him still confined. The remaining integuments have drawn themselves about the testicles so as greatly to conceal the ravages which have taken place. He must be sent out of town to regain force of constitution for the filling up of the sinuses; they are become habitual.

April 20th. Being again called here, I find the sinuses still open, and running all round the belly to the loins. The matter has dropt down upon the scrotum on the right side, where there is redness and tumor. I have passed a seton from the opening on the left side of the belly to that above the left groin. I have opened the abscess on the right side of the scrotum, and have given a depending orifice to all the sinuses and ulcers around the right haunch. The sinuses were injected with solution of zinc, and a more perfect apparatus of compression used: he takes the Islandic moss, and milk diet.

23d. All the sinuses of the right side amended. The seton on the left side has caused some inflammation, and a purulent discharge with fœtor. I have withdrawn it, and bound down compresses on the tract of the sinus.

From this time the patient made rapid amendment. The sinuses closed, and he regained his wonted health.

REMARKS

ON THE

PRECEDING CASE.

THE gentleman who attended this patient was naturally inquisitive to know how far all this mischief was to be attributed to the use of the bougie. The cause of this extravasation of blood and urine was not occasioned by the introduction of the bougie, but by erection in a certain state of stricture of the urethra. The occurrence is not singular. A young gentleman, who had a stricture torn after painful priapism, found the blood flowing from the urethra next morning; from the swelling of the parts he thought he must have an aneurism of the penis; it was the urine which, escaping from the urethra into the cellular texture, distended the integuments of the penis and scrotum.

I am now satisfied that there was no second occurrence of the extravasation of urine in this case, as suspected, (on the 5th of January). The urine on first escaping had produced an erisipelatous blush over the integuments of the lower part of the belly. This subsided: but the injurious effect of this urine upon the cellular membrane could not be remedied; it slowly inflamed and sloughed; and on the rising of this second inflammation the swelling assumed the appearance of further infiltration of urine.

HAVING mentioned this sudden bursting of the

urethra, it may occur to my readers to inquire how it is that the urine does not get into the cellular texture, when the urethra is torn by the use of the bougie. The difference is, that in the one case the membrane of the urethra is torn anterior to the stricture. The urine therefore comes upon it with a diminished stream, after passing through the stricture, and where it has a free passage forward. In the other case of rupture by erection the breach is behind the stricture (for there is ever the weakest part of the canal) and the urine flows direct into the breach of the membrane, while the stricture is impeding its progress forward.

There is still a more formidable rupture than this into the common cellular membrane, as the following example shows.

EXTRAVASATION OF URINE

INTO THE

CAVERNOUS BODY, FATAL.

THE body of a man, about fifty, was brought into the dissecting-room. The penis was enormously distended, and black with gangrene, but no breach of surface had taken place. On dissecting the parts a stricture was discovered in the urethra, and a breach in the canal which led into the cavernous substance of the penis. The urine, instead of infiltrating into the common cellular membrane,

had got a passage into the cells of the penis; erection from this cause had taken place and mortification. Parts preserved XIV. 1. M. The model of the appearance which first presented is in the opposite cabinet.

BURSTING OF THE URETHRA,

WITH

Extravasation of Urine,

WHERE THE

SLOUGHING OF THE SCROTUM WAS PREVENTED.

I WAS requested to visit a domestic of a family of distinction. I found a man of fifty years of age and corpulent, under great apprehension from an obstruction of urine. He was cook, and had prepared a great dinner; had been much exposed to the fire, and had exerted himself to the utmost.

In this state of heat and excitement he had gone to make water, but found himself unable; and as he exerted himself to force the urine he felt a burning sensation, but no urine came. He had been subject to obstruction of urine from an old stricture; but preceding this sudden difficulty, the stream of water was of a tolerable size.

On examining the back part of the scrotum, I found it filling with urine; but the tumor had not

advanced generally into the loose texture of the scrotum. I sounded the urethra with a soft bougie, and ascertained the extent of the stricture. I judged it possible to introduce a small silver catheter into the bladder. I succeeded in this, and drew off some ounces of urine, and let the catheter remain, and thought it sufficient to open his bowels by a dose of castor oil. Next day I had reason to regret, that I had not punctured the scrotum, it was necessary to open it largely towards the perineum, for the swelling was diffusing itself.

This patient did well at that time, and no sloughing took place; after the pressing danger was over I used a bougie to enlarge the stricture, and the wound of the perineum gradually closed. But having a similar attack, as I understood, some time after while in the country, he died.

BURSTING OF THE URETHRA,

AND

Extravasation of Urine—Fatal.

IN the early part of last winter I was requested to see a gentleman, who had unexpectedly observed his scrotum enormously distended, after an attack of strangury. I found an old acquaintance, who had been three years before under my care for stricture in the urethra, and who had left me abruptly. It was a very narrow and irritable stric-

ture, and I thought he had tired of my slow mode of proceeding, and gone to some more adventurous surgeon; but he had only got impatient to be married. I found him now a man upwards of fifty, corpulent, with a young wife and an infant.

He received me with a smiling face, and acknowledged how much he had disregarded my former advice. But his animation was artificial, he appeared like one struck with death. He was too active, and too hurried in his speech. The scrotum was distended to the utmost, the penis was sunk in it, and a tumor presented in the perineum. I did not attempt the introduction of an instrument, and only opened the back part of the scrotum with the sharp pointed bistoury, carrying the point towards the place of stricture, and dividing the fascia of the perineum. I ordered tepid anodyne fomentations to the perineum, the bowels to be opened with infusion of senna and salts, and an enema of starch and laudanum. I saw him two days after my first visit. The scrotum had not diminished in size, it was of a dark red colour, and the incision was sloughy. He was dozing, and had lost his recollection of me. The next day when Mr. Shaw saw him, the parts had sloughed extensively, and he was sinking.

After death there was found a stricture at the bulb of the urethra. Anterior to the stricture, the canal had many irregular bands. Posterior to the

stricture, the canal was dilated; and immediately behind the stricture there was found an ulcerated hole of an inch in diameter. What was remarkable, was an abscess, formed no doubt by irritation, in the cavernous body of the penis: and from the same cause an abscess had formed upon the outer covering of the prostate gland. See XIV. 1. M. 52.

BURSTING OF THE URETHRA,

Where repeated punctures were made,

BUT

INEFFECTUALLY, FROM BEING TOO SMALL AND SUPERFICIAL.

IN the following case I was occasionally consulted:—

H. H. aged 60. He acknowledges that in the early part of his life he was often infected with gonorrhœa, and that on one occasion it continued for nine months. In 1783, he first experienced difficulty of making water, and he had a strangury for eighteen hours; and at that time ineffectual attempts were made to introduce bougies into the bladder. Since that time he has been subject to have bloody urine; and when he has found the urine suddenly stop, he would, by squeezing the penis, force out a small calculus.

On Sunday last, the 24th, (three days ago), the difficulty of passing urine increased; it came drib-

bling away in small quantities with much straining.

On Monday and Tuesday, the difficulty continued; during the afternoon of Tuesday, while straining very much, he felt, as it were, a yielding to his effort, attended with great but indescribable uneasiness. The penis and scrotum were suddenly distended, and he became greatly alarmed.

On Wednesday 27th, in the afternoon, the scrotum was punctured near the rapha, and fomentation cloths were applied. In the evening the swelling of the scrotum on that side appeared to be diminished; at this time vesications were observed on the penis. These were opened, and the scrotum again punctured in several places. At this time the integuments of the belly appeared distended.

On Thursday 28th. The scrotum was reduced in size, but the penis was black. The integuments of the penis were this day laid open, which gave freer vent to the urine. At this time, when the patient attempted to make water, he was sensible of the urine passing through the incisions. In the evening of this day his pulse was full, and he had frequent hiccough. The penis was diminished in size, but blacker.

Friday 29th. The gangrene is accomplished in all the scrotum and penis; the tongue is brown and dry; pulse 80. not so full: skin cool. He says he is drowsy. The hiccough has ceased.

During the 30th and 31st, he was becoming

worse, and complained of a heavy dull pain in his loins, and the lower part of his abdomen. He could make urine through the opening on the penis, yet, from the fulness of the abdomen, the bladder seemed distended.

On the 1st of the month, the pulse became fuller, and 88. The numbness of the loins and belly was increased; the belly distended, apparently with flatus; and there was an appearance of more effusion under the skin.

On the 2d, the tension diminished, and a slough hung out from the wound. The next day the countenance altered, the pulse fell to 77, and feeble; the urine passed off continually.

On the 4th, he rallied; pulse 83, and skin cool, and he felt himself better.

On the 6th, he fell very low, and the extremities became cold, attended with hiccough. He was convulsed during the night. The convulsions continued at intervals until the morning of the 8th, when he died.

In this case, as in the others, it was very difficult to get the patient to take any nourishment. On the appearance of mortification the camphorated spirit was applied under the fomentation cloths. Afterwards it was dressed with slips of lint dipt in the sp. terebinthinæ, and the sour poultice over the dressing. He had decoction of bark with wine three times a day, and afterwards his wine was changed for brandy in his gruel: his bowels were moved by the ol. ricini, and he had occasionally an anodyne.

It was not permitted to open the body, but the bladder was drawn out from the perineum. The bladder was dark coloured, and loaded with blood, as after inflammation. The muscular fibres were uncommonly strong, and the muscles of the ureters very large and distinct. The prostate gland was of a natural size, but the ducts or follicles of the gland were much enlarged, and small abscesses had formed on the outside of the gland in communication with these ducts. The urethra, from within four fingers breadth of the bladder was dilated, but there the probe passed out of the canal into the sloughy integuments; immediately anterior to this hole there was found a stricture of small extent, but firm as cartilage; and to appearance the canal at this place was actually stopped. The kidneys had the pelvis distended.

URINARY ABSCESS

CONFOUNDED WITH HERNIA,

AND THE

PATIENT LOST BY DELAY.

Tuesday, February 21st. A professional gentleman called upon me to beg that I should take under my care, a man whom he had just carried to the Hospital, and whom he described as being in eminent danger from strangulated hernia.

I found the man so ill as to be nearly incapable of giving me any information. I took this note.

He had a scrotal hernia on the right side, the integuments of the scrotum are much tumefied, and have a blush of redness. There is a swelling on the left side of the pubes, the nature of which would be doubtful, from its being in the seat of inguinal hernia, were I not able to trace it downwards to a connexion with a swelling in the perineum. Behind the scrotum there is a tumor which has burst, and in the hole there is a ragged slough of cellular membrane, I got a tolerable answer to questions put to a man whose eye was dead, whose features were sunk, and who was in a sort of drowsy apathy. He had not been troubled with complaint of the bowels, he had had regular evacuations, and there was no fulness of belly. He said that he had had no obstruction of urine, but not trusting him in this I used a bougie. I found a stricture very near the orifice, but forcing that I could pass a middle sized bougie into the bladder.

I introduced my bistoury, and enlarged the opening in the perineum, and fomentations were put to the scrotum and perineum, and an anodyne enema given.

Wednesday, 22d. This man is with difficulty roused. His breathing is affected, and nothing can save him. He has had a stool, but the nurse cannot assure me that he has passed urine. Eight ounces of urine have been drawn off by the catheter: the urine is purulent and very foetid.—Let him have a few spoonfuls of brandy and water.

A blister is to be applied to the back of his head and neck. The fomentations to be continued, and the opiate enema repeated.

Evening of the same day. He is less sensible. There is subsultus. P. 120, not intermitting. His manner of breathing indicates that he is dying. He is dying of irritation from which the old man in the opposite bed was saved by timely incision.

While the wound in the perineum ought to be an incision and not a puncture with the lancet, care must be taken not to touch the substance of the penis or the larger branches of arteries. This patient lost eight ounces of blood from the incision, which certainly tended to weaken him.

The hernia gave a fine example of the anatomy of the sac and ring. There had been no mischief there. The cause of death was the shock and irritation from the obstruction in the urinary canal, and the sloughing of the cellular membrane. The preparation is marked, XIV. 1. M. 57.

The stricture is not narrow, the canal seems rather as if it had been compressed by the abscess. The abscess extends round the urethra, and betwixt the spongy body of the urethra and the cavernous body. It also passes far forward upon the penis, and backward towards the anus. It does not appear that the abscess communicated with the urethra.

It may be necessary to draw the attention of my younger readers to the chief circumstances of these cases.

1. It appears that punctures of the scrotum are insufficient even to empty the cellular texture of the extravasated urine, and quite unfit for preventing the urine taking the same course a second time. If the lancet be used, the shoulder must be moved, while the point is kept at rest, so as to make a large opening in the skin.

2. For the most part the urine bursts into the perineum, and is carried by the fascia of the perineum forward into the looser scrotum.* In this case the opening into the scrotum must be at the back part, and the point of the instrument directed backwards, so as to give issue to the urine as it escapes from the perineum.

3. But it will be seen here, that the extravasation takes place sometimes more anteriorly, and the *œdema* of the preputium is the first sign of the approaching danger. In all cases, therefore, it is proper to sound the urethra with a bougie [and this should be done in the gentlest manner] to ascertain the place of stricture, and that the puncture may be directed with reference to the spot from whence the urine issues from the urethra, and which is always behind the stricture.

4. The urine has a deadening effect on the cel-

* Turn to the observations of Mr. Abernethy. I say turn to them, for no surgeon should be without that valuable work.

lular membrane, when it is permitted to fill the integuments. When in a smaller quantity, and with diminished force, it produces a blush of erysipelas, which subsides and rises again in the form of more phlegmonous inflammation. This was particularly the case in two instances, and the fever and the hard swelling of the skin required cold and sedative applications.

5. In most of these cases, the yielding of the urethra was preceded by a state of much excitement and irritation. An ulceration of the urethra is a consequence of this irritation, and the membrane is thereby weakened. The push of urine bursts through this tender part, before there is consolidation of the surrounding parts, or before the cells of the common texture are glued together by the process of inflammation. Hence there is no limit to the flow of urine, and hence the dangerous nature of the accident: for the general powers of the system quickly sympathize with the death of the part and fall low, and there is a just apprehension of the patient sinking.

6. The circumstance of irritation preceding the rupture, teaches us to be particularly cautious either of exciting the urethra by interference with instruments, or of permitting a fever to be raised by imprudence on the part of the patient, in a certain state of stricture with irritation. I need not here repeat what may be the dreadful consequences. These cases make it too apparent.

This view of the subject enjoins another precau-

tion, that when the accident of bursting does take place, after giving free passage to the urine, it must be one of our principal objects to allay the irritation.

As it is probable, that in the prosecution of the work, I may have new opportunities of describing the effect of injuries to the perineum, I shall not here speak of the extravasation of the urine from the urethra when ruptured by external violence.

The Subject continued.—Cases of Urinary Abscess.

UNDER this head, we consider all those abscesses which are occasioned either by the irritation within, the urethra causing abscess external to it, or by the escape of urine through ulceration of the canal. For it will be remembered by the surgical student, that the urine does not always escape as in these examples just delivered, at once abroad into the cellular membrane. It will now appear, that sometimes it makes its way by little at a time, and by the irritation of its presence produces abscess.

While the surgeon is inattentive to the different ways in which the urinary abscess forms, he must be liable to produce them by his improper interference with the urethra; and I am inclined to think, that many have produced such abscesses while innocent of the knowledge that they were themselves the cause.

ABSCESSES OF THE PERINEUM

FROM

Stricture of the Urethra,

WHERE NO BREACH OF THE CANAL TOOK PLACE.

*Abscess in the Perineum, produced by the Operation
of the Bougie.*

HOLDEN, 68 years of age.

1st Day. This old man is taken into the house, because he is in a very miserable and helpless condition from stricture in the urethra. He rises many times in the night to make water; he passes it in small quantity, and in a small stream. The wax on the end of a soft bougie is moulded to a very narrow stricture, and is brought out exhibiting a small projecting point.

3d Day. A fine bougie has been passed into the bladder.

4th Day. Complains of shivering and fever, and that he is very ill.

5th Day. Was relieved by an enema of starch and laudanum, with a sudorific powder. Says he is much better, and passes his urine more freely.

7th Day. A bougie was passed into the bladder and withdrawn after five minutes.

9th Day. Complains of irritation and burning in making water. There is a little hardness in the perineum. The bougie is not to be used again. He is ordered laxatives and tepid bathing of the

hips, and an anodyne draught with the aqua kali.

11th Day. The tumour of the perineum is considerably enlarged and hard.

At this time our interest in this man's situation was considerably increased. He formerly had a hernia, and wore a truss. The hernia came down, and could not be reduced: it became strangulated in three days, and was operated upon. He was in extreme danger, for a small portion of intestine came down under the Poupart ligament, and the delay of a night would have been fatal. The bleeding, the warm bath, the clysters, the continued vomiting, kept him sufficiently low to permit me to leave the abscess in the perineum and the stricture of the urethra to nature. The abscess broke, an extensive foul sloughy suppuration was established; a cataplasm was applied to the perineum, but nothing further was attempted. While the man was under discipline for the wound made in the operation for hernia, the abscess became clean, healthy, and closed, and not a drop of urine was discharged either at first or in the course of the cure.

When the wound had cicatrized, and the abscess had closed, I used the bougie again, but with great precaution; and this patient was dismissed perfectly well.

The particulars of this case will form part of another series. But at present it proves, (what I

wish were more generally known than I find it to be) that a very little pressure of a bougie more than is right, into a narrow stricture will bring on irritation in the canal; and that the effect of that irritation within the canal will be a suppuration or abscess on the outside of it. The cellular membrane is so much more prone to fall into suppuration than the part primarily affected, that matter is collected external to the urethra, and without any direct communication with that tube.

It will no doubt also be observed, that the circumstances of the case required rest and forbearance, and that the cause of irritation being removed, the abscess closed. If the bougie had been persevered in, urine would soon have appeared in the abscess; that is, the urethra would have become ulcerated, and then a fistula would have formed.

Another Example.—Stricture of the Orifice of the Urethra, producing Abscesses of the Pubes.

There is no kind of stricture which is attended with more distress and spasm, and the consequent irritation, than the very narrow stricture situate immediately within the orifice of the urethra. The first specimen of stricture of the urethra preserved in that division of my collection which contains the morbid appearances of the urinary organs, is of one just within the orifice of the urethra, and which with difficulty admits a bristle. In this case the effect of irritation in the canal was

to form a succession of abscesses around the root of the penis. There was no communication betwixt the urethra and these abscesses.

A Third Example.—Of Abscess from the Use of the Bougie.

At the breaking out of the war with the United States, I had under my care an American gentleman, who, in his desire to get home, used the bougie too frequently, and without allowing the excitement of the parts after the introduction of the instrument to subside, before he passed it again. In consequence of this I found him complaining of heat, throbbing and swelling, in the perineum; and on examination a hardness was perceptible in the perineum. This hardness increased, and was prolonged towards the anus. The skin caked; I could not resolve the swelling; it became red and suppurated. But the canal being sufficiently pervious, by making him live very low and quietly, by soothing the part, and by giving mucilaginous drinks, and deferring the use of the bougie, it closed and healed. I might give many other instances of the same occurrence, were it not against the plan of this work to refer to cases of which I have no longer any record, either in notes or in anatomical preparations.

A suppuration will take place at the inner corner of the eye, bearing the same relation to the lacrymal duct that these have to the urinary passage,

and without any communication with the duct itself, but proceeding from irritation there. If such an abscess be neglected, it may become true fistula lacrymalis; and then, like the fistula in perineo, it will, by the increasing excitement, support itself.

ABSCESS OF THE PERINEUM,

COMMUNICATING WITH THE URETHRA.

L. B. was proceeding with bougies to enlarge a stricture in the urethra at the bulb, and had succeeded so far that he could pass a bougie of the size of a writing quill, instead of the smallest with which he began. He was about to leave town when he had an attack of shivering and feverishness; and at the same time he felt a hard and painful spot deep in the perineum. When he explained his situation to me, I advised him not to undertake his journey, but to remain very quiet and to live low; to apply leeches to the perineum, to foment the perineum, and to take a dose of salts.

He returned to me with the swelling hard and prominent, complaining of a burning sensation when he made urine, and that after making it there was spasm and drawing of the part attended with great pain. This he said subsided until called again to make water, when the symptoms returned.

I had no doubt that the urine had got from the urethra into the abscess, and that it was exciting it to unusual inflammation. I therefore introduced the

gum catheter, and let it remain in the bladder; by this the urine was drawn off without falling into the abscess, and he was easy for two or three days.

On visiting him at the end of this time I found him complaining, as formerly, of pains and contractions, and a burning sensation when the urine passed. This was explained by discovering that the urine passed by the side of the catheter as well as through it. Upon withdrawing this catheter, and introducing one a size larger, this symptom disappeared. The swelling subsided, the inflammation and pain in the perineum was removed, and he appeared quite well, having the additional satisfaction of seeing an unusually large instrument pass easily into his bladder.

About three weeks after this, having made preparations for his journey, and having dined with a friend in a coffee room to be ready for the mail, he rose to make water, and suddenly he felt his old symptom, an acute burning pain in the perineum. He was aware of what had taken place, and returned to his lodgings, and sent for me.

We repeated the means formerly employed, but without all the same good effect; an abscess formed, which burst and discharged a few drops of urine, and became a fistula. By the use of the gum catheter, and afterwards by the use of the bougie occasionally, this fistulous abscess diminished and closed; and at length the patient got into the country.

STRICTURE,

WITH

Abscess in the Perineum.

THE PATIENT IN THE FIRST INSTANCE SAVED; BUT ON A RETURN
WORN OUT WITH IRRITATION.

— *Pool*, a servant of Sir J. St. A. aged 50, has been taken into the Hospital. I attended him formerly in the following circumstances.

He had been subject to strictures in the urethra for many years, and by the kindness of his master he had been placed under the care of more than one surgeon; the caustic had been applied several times. The occasion of my seeing him was this. In coming up from Brighton he was exposed to fatigue and cold, and hence came a frequent call to make water and a great difficulty in passing it, which was followed by a complete strangury. He told me he had been subject to ague, and that this attack had been preceded with cold shivering.

One o'clock. There is a tumor in the perineum, and a little oozing of matter from the urethra; his pulse is full and strong, the belly is distended, and the bladder can be felt above the pubes. I introduced the smallest bougie into the stricture, but it did not reach the bladder; while I withdrew it, I urged him to try again to make water. He was enabled to pass eight ounces of urine. Leeches were then applied to the perineum, after which he was ordered into the hip bath.

Eight o'clock in the evening. He is not only feverish, but is excessively anxious and perturbed in his mind, and his countenance declares his long suffering. It is a state which must not be long permitted to continue. He has been in great pain, and the bladder is felt above the pubes. He has not passed urine since my visit. He experiences a burning sensation in the tumor of the perineum, and the scrotum is slightly swollen, I suspect with urine. A purging draught has had no effect on the bladder, and an opiate clyster has given him no relief. Contemplating these circumstances there was but one thing to be done. I introduced a metallic bougie down to the stricture. I then took a sharp and narrow bistoury, and passing it into the base of the tumor I directed its point towards the end of the bougie. I then drew the bistoury so as to lay open the tumor—a quantity of foetid pus burst out to some distance on introducing the bistoury, and by-and-bye the urine dropt freely through the incision. This so effectually relieved the urethra of pressure, that the patient was in a short time able to pass a few ounces of urine by the natural passage.

On the succeeding day the belly was soft; the bladder was still to be felt, but the feverishness had diminished. I was prepared to puncture the bladder, if this amendment had not been evident. He escaped on this occasion; the swelling subsided; the urine became more free, and only a small fistulous opening remained in the perineum,

from which two or three drops of urine came when he made water.

On examining this man's stricture, I found it to be of the most obstinate kind; admitting only the end of the smallest bougie; of a cartilaginous firmness, being continued some way along the canal, and very irregular. For the cure of this stricture he was under the care of a surgeon for twelve months, with some amendment. But the bougie was never passed into the bladder; he was subject to smart feverish attacks, with aggravation of pain, and difficulty of making water, and on these occasions he was also liable to an inflammation of his chest.

This man being received into the Hospital, I find him much exhausted, as it were older by some years. He is now suffering under one of his attacks, which belongs, at the same time, to the urinary organs and the lungs. In receiving him, my object is to enlarge the fistulous opening in the perineum, and to get an instrument into the bladder from the perineum.

The attack being somewhat subdued by the warm bath, ipecacuanha joined with opiates and diluent mucilaginous drinks, I thought of gradually enlarging the opening in the perineum by introducing a bougie into it: by this I intended to give more vent to the urine, and thereby to relieve the continued excitement of the bladder. This attempt being continued for some days very gently, there came on alarming symptoms, with a crystal-

line tumefaction of the prepuce, and a hardness of the scrotum at its connexion with the side of the penis. I thought it necessary, however unwilling, to touch this patient with the knife, to relieve the canal more effectually.

I introduced a grooved staff into the urethra down to the stricture. I then took a sharp and narrow bistoury, and introduced the point of it into the opening in the perineum, I carried it forward until it grated on the groove of the staff, then moving the handle of the instrument, while the point rested on the staff, I effectually opened the urethra.

Next day the tumefaction was abated, and the patient passed urine freely, both by the wound and the urethra. For some time after this, I satisfied myself with giving him a saline mixture, with Dover's powder and the tepid bath, by which the fever and the dryness of his skin was again abated. But I find in my note of the case, "time slips away, and no amendment of this man's condition." So I endeavoured to make good the passage, and close the wound.

After the incision the wound was dressed with a pledget of lint and a poultice, by which it was kept open, so that in my future operations I might have no further use for the knife. Having made him retain his urine, I prepared to pass an elastic catheter into the bladder. The stream had a direct issue from the bladder by the wound. I had little difficulty in introducing a gum catheter from the

wound into the bladder. I gave him liberty to withdraw the instrument whenever it hurt him, or if the urine did not come freely; the urine came freely through it, but was offensive and dark coloured.

The condition of this man induced me to wait for the favourable moment, and what I did was quickly performed, and without exposing him to suffer either much or long; but his situation did not improve. He was subject to cold shivering, he had great pain in his right side, his breathing was much affected.

The report was still to the same purport—"He breathes with difficulty; he has pain in the right side, which cuts him in drawing his breath; his face is flushed; his pulse quick. There is, at the same time, a dulness and indifference about him, and he is inclined to dose."

After a consultation he was bled, and a blister applied to his breast. Next day he was more oppressed, and although his friends, who visited him, said he had often been as ill, it was evident to me that he would die. "He passes his urine freely; and attention has been paid to allay any irritation which may be upon the bladder; but it is to no purpose, his breathing is quick, and his eye turbid." Died the morning after the report.

Inflammation was found in the right side of the chest, and the lower lobe of the lungs adhered to the diaphragm, by means of a layer of coagulable

lymph, foul with purulency. The lungs were dark with inflammation. The liver and all the abdominal viscera were sound. The stricture in the urethra was very narrow. The passage from the bladder to the wound of the perineum was free. The inner surface of the bladder was rough, in consequence of repeated attacks of inflammation, and studded with irregular projections, formed by coagulable lymph*. Parts preserved. XIV. 1. M. 56.

A SIMILAR CASE TO THE LAST,

ATTENDED WITH REMARKABLE DESTRUCTION OF THE
URETHRA.

— *Maxwell*, 55 years of age, Clayton Ward, 5th February, 1815. This man has been long subject to strictures in the urethra. He is deaf, and particularly stupid, but the appearances speak for themselves. There is an orifice in the scrotum discharging urine and pus; a discharge flows from the urethra. There is a large tense swelling in the perineum.

I introduced a sound into the urethra down to the stricture, which was near the bulb of the urethra. I then struck a double-edged scalpel into the prominence of the tumor, in a direction towards

* In a future part of this work, the affection of the chest, as connected with local diseases, and the irritation from surgical operations, will be treated of, and illustrated with cases.

the point of the sound. Urine and pus started out with force from the puncture. I drew the knife backward, so as to make an incision, into which I could introduce my finger, and feel the end of the staff. I ordered him an enema of starch and laudanum. He passed the night in great comfort and free of pain.

6th. I now had a more intelligible account from the patient. Caustic had been applied to his stricture, and the bougie afterwards used. He was relieved, but not cured; and for some time made water pretty freely, but always with a burning sensation in the urethra. The pain became more and more, attended with scalding, whenever the urine reached the part of the urethra where the caustic had been applied. The tumor rose very gradually, and was soft the day before it was opened.

9th. Passed a small silver catheter into the bladder.

10th. Catheter withdrawn in the night, because it gave him pain.

15th. Passing urine freely by the urethra, and some part by the wound.

21st. The dresser has been dilating the stricture by the use of the bougies. The passage is enlarged, and he is wonderfully contented.

March 7th. They are neglecting this man. I find the passage narrower; the urine comes altogether by the wound, and a small bougie passes with difficulty through the stricture.

9th. I experienced great difficulty in attempting to pass a small silver catheter into the bladder, and desisted; taking then a large soft bougie, to ascertain the state of the canal, I found it, unexpectedly, and without using force, pass out at the wound.

11th. A catheter has been passed into the bladder.

25th. The catheter has been retained till this day; the urine came freely through it, and also by the side of it. No urine has come by the wound, and the swelling and redness of the perineum is rapidly diminishing. A larger catheter introduced.

27th. The scrotum is large, but this comes from a swelling of the testicle, not from extravasation nor inflammation of the perineum.

April 10th. The passage was made perfectly free by the use of the silver catheter, for catheters successively of a larger size were introduced; but his health did not improve. His evening fever continued, his pulse was always quick, he had no appetite. He had a cough, with purulent expectoration. He was wasting. A natural question occurred—Could the presence of the instrument occasion or assist in keeping up the irritation? Accordingly, for some days, the catheter has been withdrawn, and only a soft bougie passed into the bladder, very gently, twice a week. But the symptoms have not mended.

20th. Every attention has been paid to soothe and cherish him; the urethra has not been touched. His hectic increases; his pulmonary complaints increase. He is much in the same state with the patient in the same ward, whose death is certain, but of whom it is difficult to say whether he sinks from fistula in ano or phthisis.

His voice became husky and low; he died on the 2d of May.

What was remarkable here, as the preparation exhibits, XIV. 1. M. 54. was a deficiency of the urethra: there was a great vacuity from the orifice of the bladder, to within five inches of the glans. A process of ulceration and absorption had entirely carried away the urethra.

From this and some other examples that have fallen under my notice, I have held out a caution to the pupils, against exciting or keeping up a degree of irritation by the continuance of instruments in the urethra; for in certain constitutions [I believe scrofulous], such an absorption of the canal may take place, as must render the cure quite impossible.

CASE OF FISTULA IN PERINEO,

OF TWENTY YEARS STANDING,

WITH REMARKABLE DISORDER IN THE PERINEUM.

William Huggens, a sailor, aged 45. Clayton's Ward. Oct. 22d, 1814. It appears that he has had gonorrhea several times in his life; that

about twenty years ago, he had discharge from the urethra, attended with phymosis, so troublesome, that it was necessary to divide the foreskin. For some years after this, he describes himself to have been in health, but he was at sea, and lived a sailor's life for four years. About this time he became subject to obstruction in the urethra, and the difficulty was so great, that he would continue to make ineffectual efforts for twenty-four hours together, before he could pass a drop of urine. For four years he was subject to this distress. It was at this time that he fell from the ship's side, and received a violent contusion of his loins, on account of which he was carried to the hospital ship at Sheerness. Here, experiencing some of his old symptoms, with obstruction of urine, the surgeon attending was led to examine his urethra with a bougie. But he never succeeded in passing the instrument into the bladder. Notwithstanding this, the patient experienced considerable relief, and made water more freely. He was discharged from the hospital ship, but ever after attributed the discharge from the urethra to the operations he underwent while there.

About ten years ago he was taken prisoner, and remained in Valenciennes until the peace. Three years after his confinement he experienced an increasing difficulty in making water, and had more frequent calls. He was attacked with fever, ushered in with cold shivering, and followed by inflammation and swelling in the perineum.

Hence came still more obstruction to the flow of urine, and a severe scalding pain as it passed. This was attended with a thick discharge from the urethra. A hard tumor now formed in the perineum, which they attempted to bring to suppuration by poulticing ; but no opening was formed at that time: the pain, irritation, and inflammation subsided, but the tumor in the perineum continued.

Two years after he experienced another attack. It was ushered in as formerly by rigors and fever ; and now an abscess formed more forward in the perineum than the last. It opened and discharged matter. After this he discharged his urine, in part through the urethra, in part by this fistulous opening in the perineum.

It was three years after the formation of this fistula that another formed. There was again the cold shivering and fever, unusual difficulty of making water, and burning in the passage, followed by a new suppurating tumor, which burst in the perineum. On examining the parts, with a view to understand these successive abscesses, this last appears to have formed in the scrotum.

He remained in this distressing state for several years, passing urine at the same time through the penis scrotum and perineum. While in prison in France, little had been attempted for his relief ; at one time he was attended by an English surgeon, from whom he expected a cure, but a misunderstanding arose betwixt the French and English

surgeon, by which he was deprived of the latter's assistance. Last June he returned home.

This is his present condition. Five inches from the extremity of the penis there is a firm stricture in the urethra. The scrotum is large and irregular, from successive inflammations. There is a fistulous opening on the lower part of the scrotum, through which the urine drops. The perineum exhibits a singular appearance; it is irregular and tuberculated, and as firm as a board. One tumor more considerable in size hangs pendulous; it is of the form of a pear, and hard as stone. The whole space is undermined with fistulous communications. The hole through which he has long discharged the greater part of his urine is at present closed.

This patient was kept three weeks under repeated attempts to pass the finest bougie into the stricture in the urethra, the common bougie, the catgut bougie, and the silver sound were ineffectually tried to make a lodgment in the contracted urethra. But the canal at the part had partaken of the hardness and irregularity of the perineum, and successive extravasations of urine, and the consequent inflammations had consolidated the surrounding parts to such a degree, that there was not a probability of introducing an instrument. From the extent of the solid portion of the urethra, and its irregularity, the use of the caustic was, in my opinion, out of the question. Accordingly, after three weeks experience of the patient's constitution, and a full

examination of the great extent of parts destroyed, I planned the following

OPERATION.

The urine to be retained. If possible, ascertain the situation of the testicles in the mass of diseased scrotum, and make an assistant push them up to the groin, out of the way of the knife. Pass a sound down to the stricture, and let it be held steady by the same assistant. Pass the common probe into the sinuses in the perineum.

Begin the operation by following the principal sinus with the scalpel. Dissect back the mass of parts so as to expose the spongy body of the urethra. Next open the urethra so as to expose the end of the sound, which is in the urethra. Having opened the urethra anterior to the stricture, endeavour to find the passage backward, through the stricture, with a fine probe: Cut upon that probe so as to make way for the point of the catheter, that it may be passed into the bladder, and there retained.

Nov. 12th. Such were my anticipations of the operation, as stated to the pupils; very different was the operation in effect.

1. As to dissecting the bulb of the urethra it was impossible; it could not be distinguished. The mass cut into was firm and dense, as a scirrhous tumor, and thus what actually fell under the edge of a sharp knife was cut, but there was no

possibility of using the knife as in dissection, to lay bare a surface.

2. In cutting into the urethra, anterior to the scrotum, I found myself much incommoded by the great size and firmness of the scrotum. Although it was possible to arrive at the catheter, and expose it, by digging into the firm substance of the scrotum, yet when I came to use the probe and to point it backwards into the stricture, it was impossible to give it the direction. Though the probe could be directed forwards to the penis, it could not be directed backwards to the bladder, because the large unyielding scrotum overhung the opening.

3. Knowing the bad consequences of keeping a patient too long upon the table, who is worn down by much suffering, and that peculiar influence which disease in those parts has upon the constitution, I found it necessary to be decisive. I therefore cut out a portion of the callous urethra, and opened the sinuses which run backwards.

4. Having now cleared the parts, I wished the patient to make water; but I found he had been told to strain hard, to pass every drop of urine before coming into the theatre. This was a disappointment, in so far as it became necessary to finish the operation by introducing a portion of bougie into that hole which appeared most like the urethra, and to send him to bed.

In the evening of the same day, I took off the dressings, and made him pass his urine; it came in full stream from under the pubes, and without

any difficulty or delay I passed a full sized hollow bougie into his bladder. I drew off a great quantity of urine, and such a sight the patient declared he had not seen for ten years. I now passed the silver catheter into the extremity of the urethra, and brought it out at the wound. I then directed it into the hole from whence the urine had been discharged, and passed it home into the bladder.

After Treatment.

The appearance of the wound in the perineum was not promising; it was of great extent, and very irregular, so that six days after the operation I found it necessary to cut across a firm band of condensed cellular membrane to admit the catheter to lie deep enough. The patient, in the mean time, did well, was of good heart, and very much pleased to see his stream of urine come at a call. The wound was dressed simply with slips of lint dipped in oil, and a poultice over them. He was kept on very low diet; had an opiate at night, and decoction of althea for drink.

December 1st. The house surgeon, finding that the silver catheter produced pain, and did not give free passage to the urine, withdrew it. The holes of the instrument were filled up with mucus, so that it required the patient to strain, in order to pass the urine; this, with the presence of the instrument in the bladder, irritated the bladder, and

occasioned a mucous sediment in the urine; an elastic gum catheter was introduced.

3d. He makes water so freely through the elastic gum catheter, and the wound has closed to such a degree, and so hides the instrument, that I am inclined to let it remain.

5th. He has been in pain from the wound being dressed with blistering ointment; return to the simple dressings, and the cold application to the scrotum until the tumefaction and redness shall have subsided.

10th. The tumor, which was pendulous, from the perineum, contracts; the irregularity and hardness of the integuments diminish. He retains his urine sufficiently long, and voids it freely. But the wound diminishes very slowly, and an unkindly exudation covers the surface of the granulations. More generous diet allowed.

12th. To-day a large silver catheter was substituted for the gum catheter. The gum was much dissolved by the urine, a shell of concretion had formed on the end of the catheter, and the tube was much stuffed with mucus.

16th. The tumefaction of the scrotum has subsided. The pendulous tumor has wasted almost entirely, and the depth of the wound is remarkably diminished. The surface of the sore is red and healthy. I can still touch the catheter with the probe, although it is hid in the granulations.

19th. The instrument being in the bladder,

produces some irritation; but every thing is favourable.

26th. The catheter withdrawn, it was black, but has no crust upon it: it is cleaned and replaced.

January 10th. I can touch the catheter with the probe: the wound is dressed with the blistering ointment, and a warm poultice over it. It wants activity.

20th. The sore contracts, but the granulations are not inclined to close. Lime water and tincture of cantharides injected; the sore dressed with the digestive ointment, mixed with red precipitate.

February 10th. Let all irritating means be omitted. Foment at night, and use the bread poultice to the perineum.

March 5th. The catheter to be withdrawn, and only the bougie passed every morning. This was done, from the conviction that the presence of the instrument excited the discharge, and that this discharge kept open the wound. It is hoped, that the passage being clear, and no source of irritation remaining, the small hole which remains may close. To-day I had an opportunity of seeing him make water, which he does in full stream, but a considerable portion comes by the perineum.

From this time forward various attempts were made to close a small hole which remained in the perineum, but without success. The gum catheter was left for some weeks without a change being effected; the largest sized silver catheter was left in for a very long time. The occasional

use of the catheter was tried, by which the urine was drawn off twice a day. Hot and stimulating dressings with poultice were employed: mild dressings and poultices were in vain substituted: stimulating injections of tincture of cantharides and solutions of sulphate of zinc, were thrown in: hot oil of turpentine was used to touch the fistulous opening: the edges were touched with a red hot wire. A seton was drawn across the opening. By these means, and many more contrivances, the opening was not diminished of that diameter which it had spontaneously assumed. It was remarkable, that I had at this time under my care three other cases of fistula in perineo, in one of which, there had been loss of substance; in the two others, there had been much disease, but no loss of substance. In the case where there had been loss of substance, I experienced the same difficulty as in this case of Huggens; in the others, the fistulous opening and sinuses closed by merely keeping the urethra pervious.

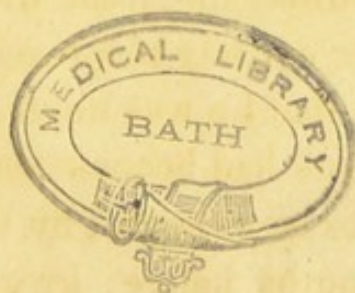
For some time this man had been more diverted than interested in attempts to perfect the cure. He was quite well. He had recovered his health, and was no longer subject to cold fits or fever. He did not suffer the least irritation of bladder, and it had so entirely recovered its contractility and right tone, that he was never disturbed at night. The perineum had become soft and natural, in a degree not to be expected by those who had seen it a few months before: irregular with

knobs, and pendulous tumors of long standing, and of a stony hardness; by placing his little finger on the perineum he could make a full stream of urine by the natural passage, without a drop coming by the small hole which remained. In this state he was dismissed.

This case will illustrate many points important in practice; but I confess that it left on my mind this reflection, that in no instance is it necessary or proper to cut the smallest portion out of the urethra or perineum; and that the difficulty of closing the breach of the canal is principally to be attributed to the portion cut out in the operation.

This subject will be resumed.

END OF PART I.



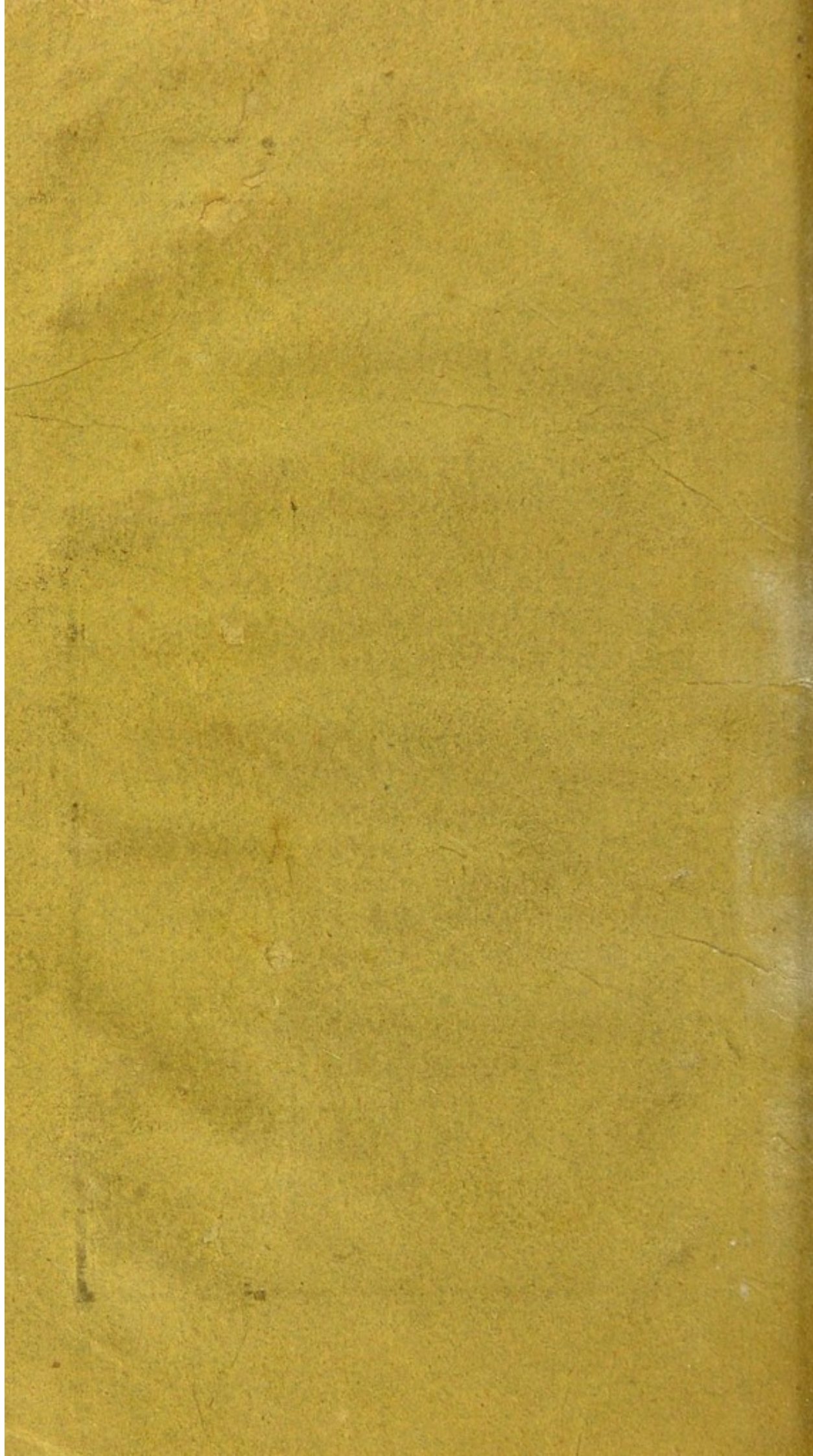
knobs and pendulous tumors of long standing, and of a stony hardness; by placing his little finger on the pediculum he could make a full stream of urine by the natural passage, without a drop coming by the small hole which remained. In this state he

was dismissed.

This case will illustrate many points important in practice; but I confess that it left on my mind this reflection, that in no instance is it necessary or proper to cut the smallest portion out of the urethra or perineum; and that the difficulty of closing the breach of the canal is principally to be attributed to the portion cut out in the operation.

This subject will be resumed.

END OF PART II.



[Price 6s.]

PART II.
OF
SURGICAL
OBSERVATIONS,
BEING A
Quarterly Report
OF
CASES IN SURGERY.

BY
CHARLES BELL.

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EXPLANATION

OF THE

PLATES.

FIGURE 2, PLATE IV.

In the First Number.

This Figure represents the Prostate Gland, with Part of the Bladder seen from within.

- A. A. Openings of the Ureters.
- B. Muscles of the Ureters, very strong.
- C. Insertion of the Muscles of the Ureters into the Prostate, the Part into which they are inserted forms a projecting Tumour, hitherto considered to be the third Lobe.
- D. Opening of the Urethra closed by the projecting Portion of the Gland.
- E. Part of the Coat of the Bladder thrown down on the Prostate.
- F. Prostate slightly enlarged.
- G. Beginning of the Membranous Part of the Urethra.

The back View of the Prostate is not given, but in the Preparation the Portion called Third Lobe, may be seen projecting downward, and distinct from the Valvular Tumour, commencing at C.

PLATE V.

This Plate illustrates the Dissertation on the Ligature of Arteries.

FIG. 1. The Femoral Artery dissected from the Stump, after Amputation.

- A. A very small Clot.
- B. A considerable Branch going off very near the Place of the Ligature, and which, by bringing down the Stream of Blood, has prevented the Formation of the Clot. We see here by what a precarious Tenure the Secondary Hæmorrhage is restrained. Such a Circumstance has produced fatal, because unexpected and sudden, Hæmorrhage.

FIG. 2. Represents the Effects of an Experiment—A Ligature was thrown loosely around the Carotid Artery of an Ass; the Effect was to intercept the Course of the Blood.

- A. The Ligature encircling the Artery, but not drawn; but only in Contact with the Outer Coat.
- B. B. The Clot formed as a Consequence of the Ligature as a foreign Body irritating the Artery.

FIG. 3. The Artery of a Stump.

- A. The Clot.
- B. The Hole from which the Ligature was withdrawn. This Preparation shows, that in a healthy Stump the End of the Artery below the Ligature remains; that the Ligature comes away without bringing a Portion of the Coats with it.

FIG. 4. The Artery of a Stump.

- A. The Remains of the Clot.
- B. The Ligature remaining three Weeks after the Operation.
- C. The Coats of the Artery fast degenerating into common cellular Tissue. This Preparation shows the Necessity of twisting the Ligature, to prevent the Threads being entangled with the Granulation; and that, long after the Artery is closed, the Ligature will retain its Connexions to the Granulations, and seem still to be attached to the Coats.

FIG. 5. The Section of the Artery of a Stump.

- A. The Clot divided, so as to show its Adhesion to the Sides of the Vessel.

PLATE VI.

This Sketch was taken from a Frenchman wounded at Waterloo; the Head of the Humerus and the Acromion Scapulæ were fractured by a Musket Shot. It is to illustrate the Question, whether in such Cases, the Excision of the Bone, or Amputation at the Socket, should be performed.

PLATE VII.

This Sketch illustrates the Second Part of the Paper on Amputation at the Shoulder Joint; it is one of four Cases taken after the Battle of Waterloo, in which the Arm was carried off by a Cannon Shot; where in each the Treatment was different, and in all successful.

He belonged to the German Legion; a round Shot carried off his Arm on the Field of Waterloo; in this Condition, unsubdued, he rode upright into Brussels, fifteen Miles, and presented himself to Dr. Bach at the Hospital of St. Elizabeth. When put into Bed he fainted, and remained insensible for Half an Hour.

PLATE VIII.

FIG. 1. Represents a Joint formed after Fracture of the Thigh.—See the Case of Soane, and Observations on false Joints.

- A. The superior End of the fractured Bone.
- B. The Extremity of the inferior Portion.
- C. A new Capsule formed.
- D. A Ligament, having a near Resemblance to the internal Ligaments of Joints.

FIG. 2. A Fracture of the Femur, followed by soft Cancer.

- A. The superior Portion.
- D. The inferior Portion of the Bone.
- C. C. The new Ossification extremely irregular.
- B. B. A soft Cartilaginous-like Matter, occupying the Cancelli of the Bone.—See the Cases of soft Cancer in the succeeding Number.

Fig. 1.

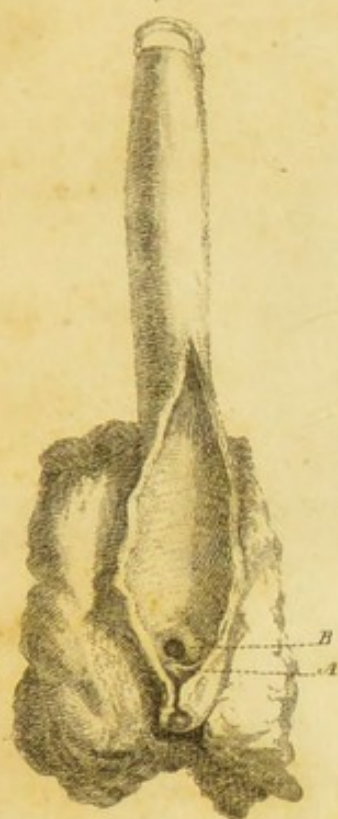


Fig. 2.



Fig. 3.



Fig. 4.

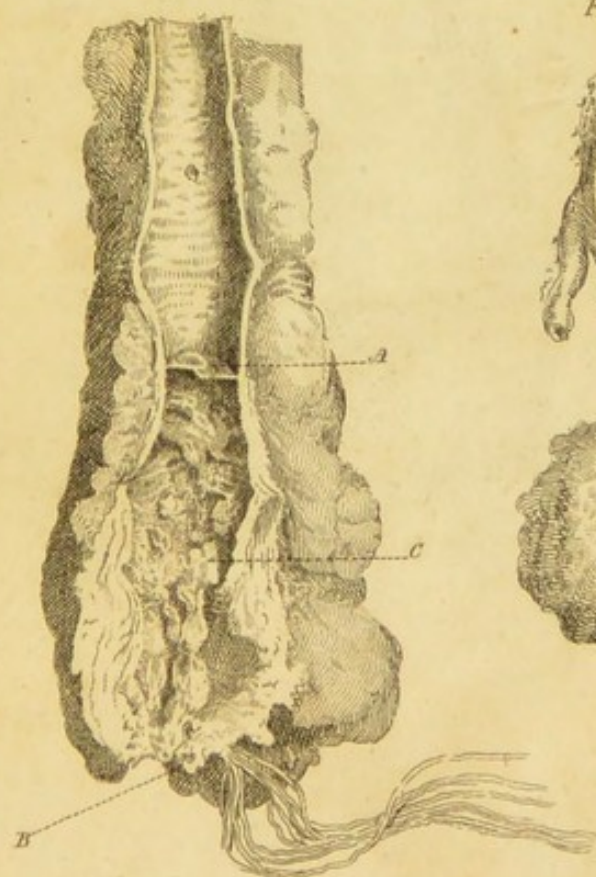
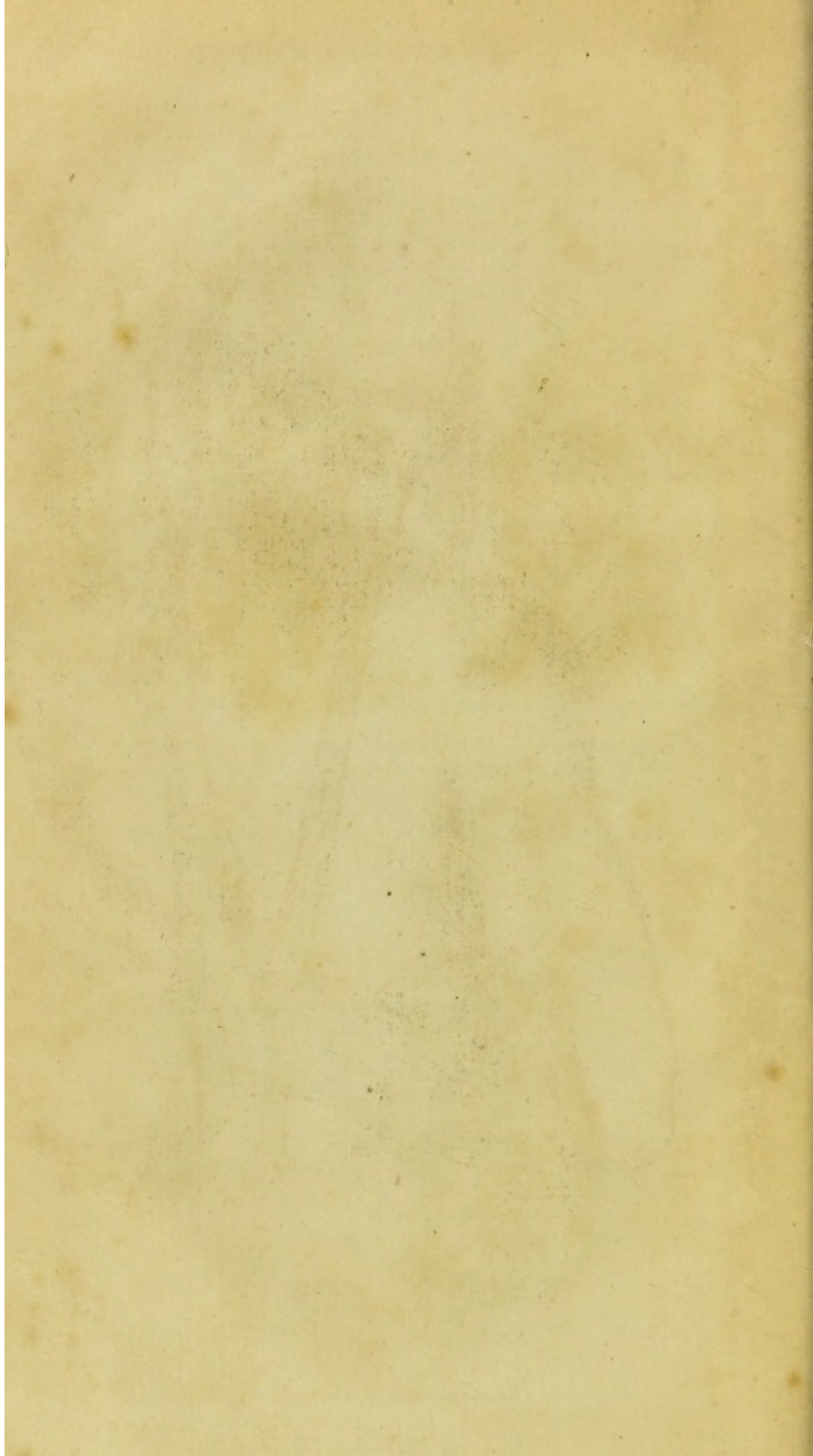
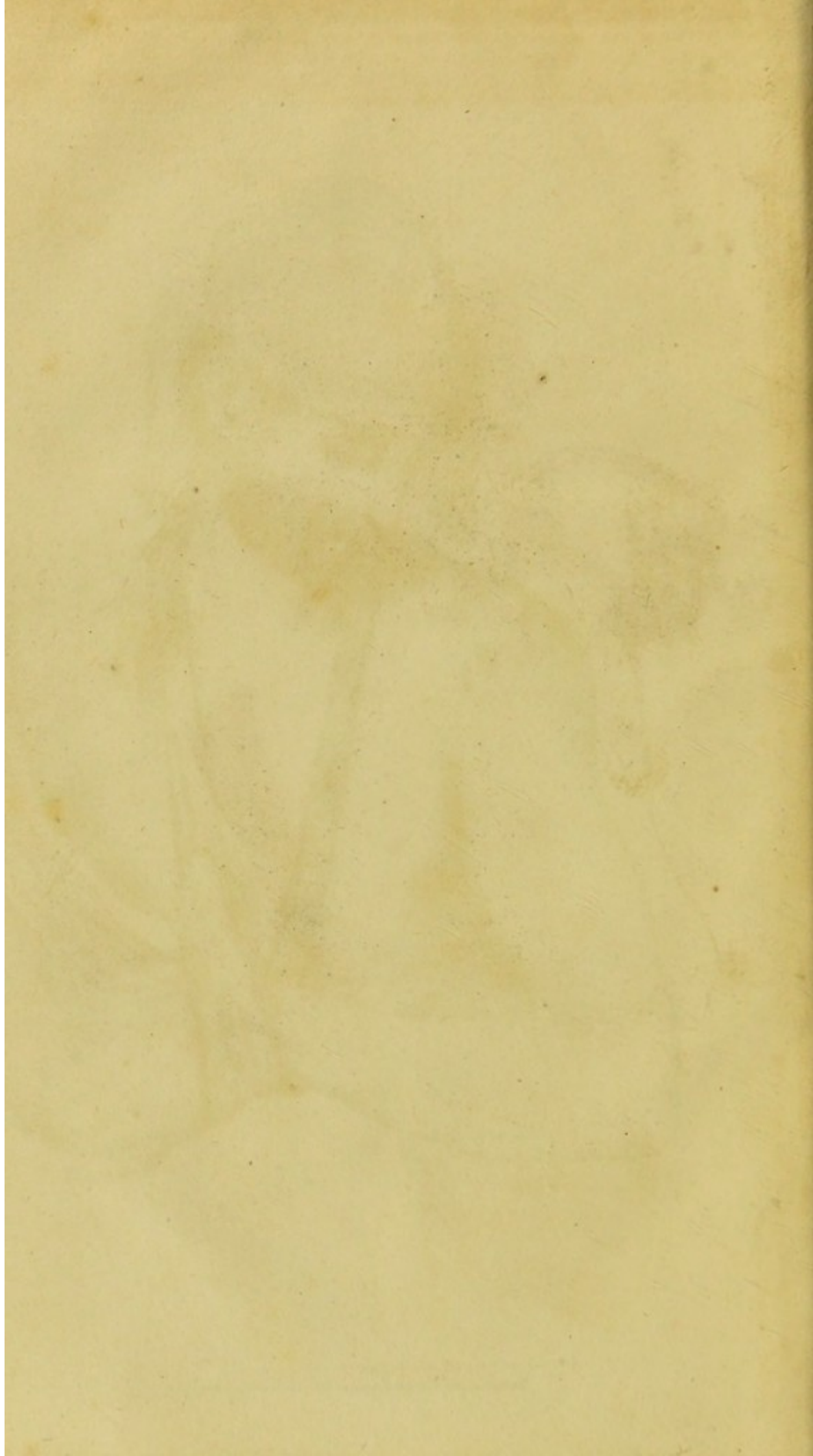


Fig. 5.









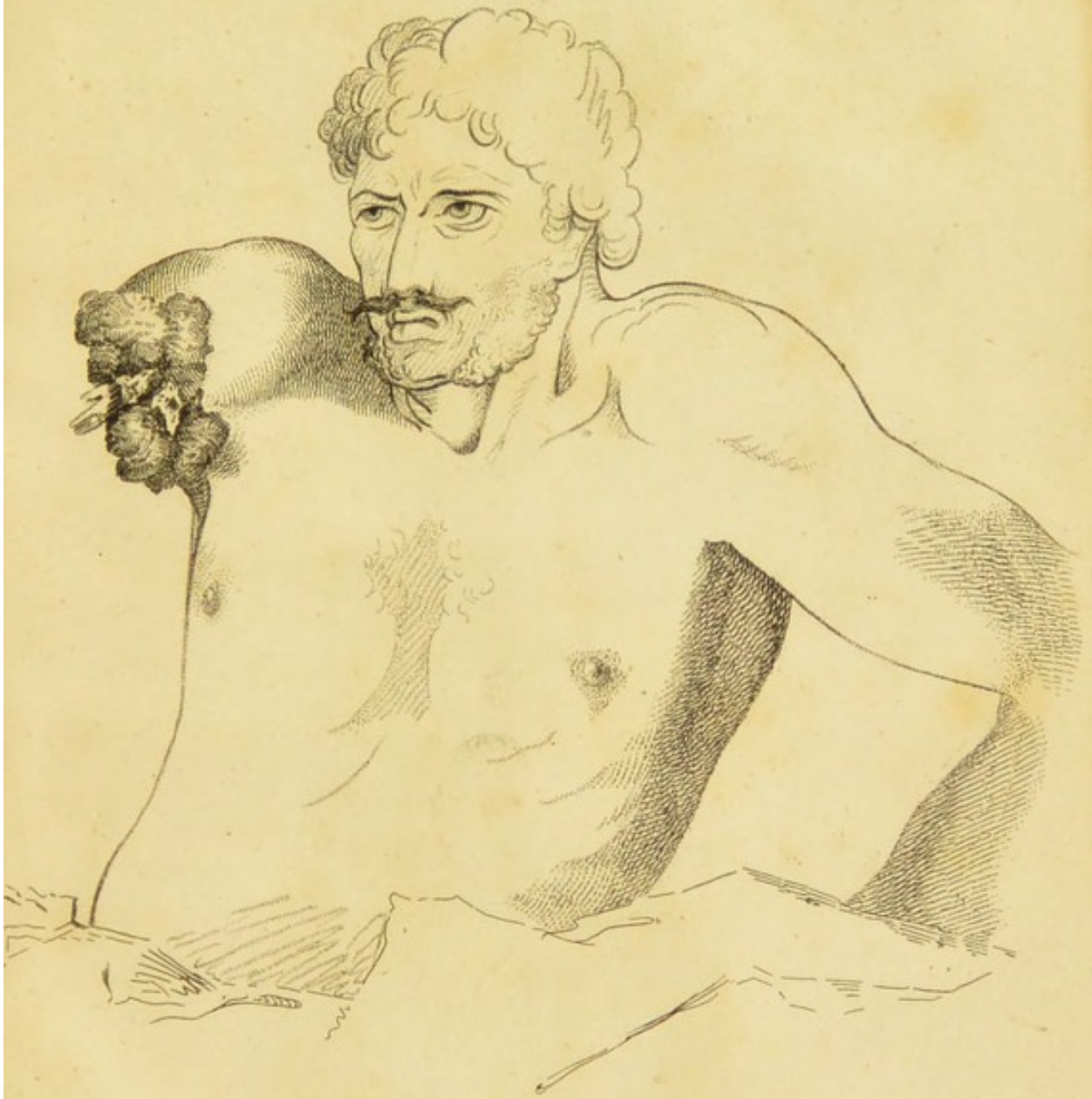




Fig. 1.

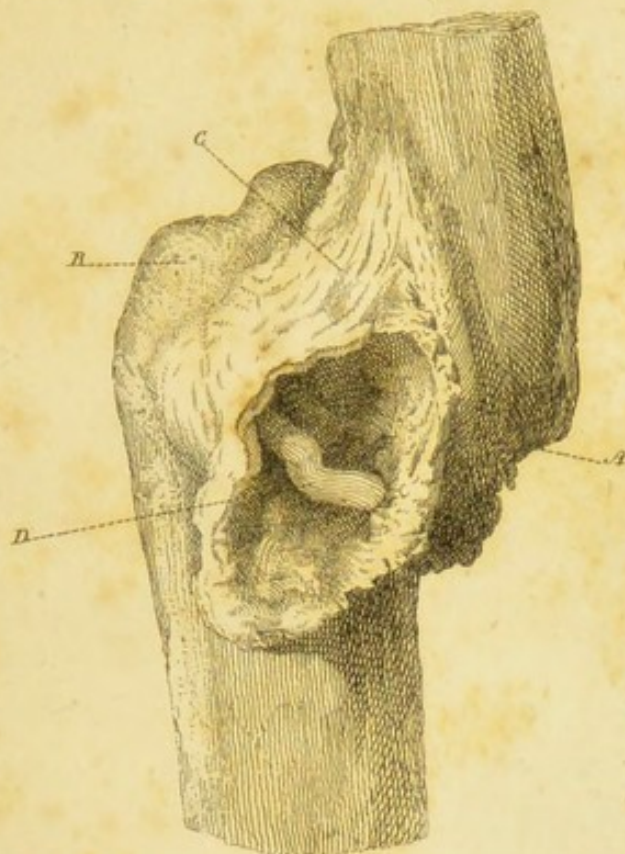
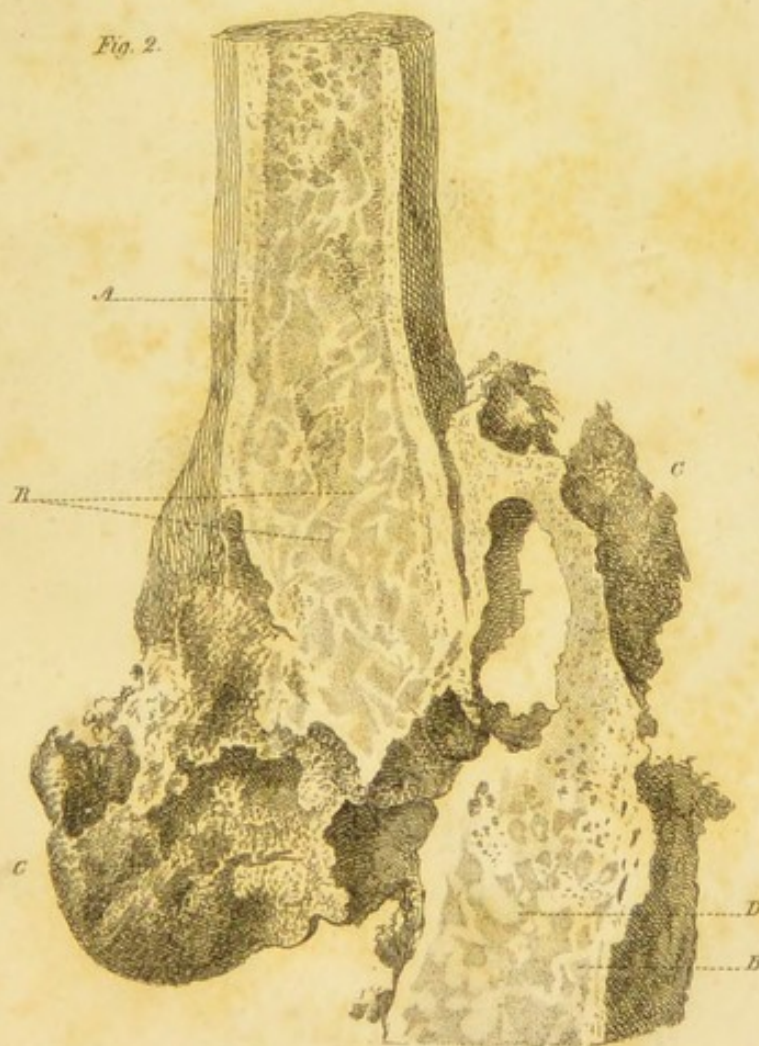


Fig. 2.





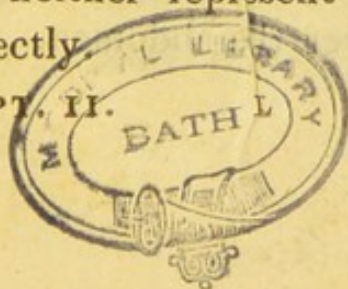
Surgical Observations,

&c. &c.

THE number and endless variety of "accidents" received into the Middlesex Hospital, give me daily opportunities of witnessing the house surgeon and dressers occupied in setting fractures, and the difficulties which they experience at first entering on the practice of their profession. And even under the vigilant superintendence of experienced surgeons, fractures sometimes go wrong, and exhibit on the patient rising to walk, or using his arm, awkward demonstration of the principles which ought to have directed us. I mean occasionally to revert to this subject, and to take notice of some of the lesser cases: but fractures of the bones of the chest form a subject of far greater interest, as they implicate parts of vital importance.

Strange as it may appear, this is a subject which notwithstanding the activity of the members of the profession, has been much neglected; and I am sure that those for whom these cases are chiefly intended have no means of knowing the true principles of practice, since the books which are in their hands neither represent the facts nor the practice correctly.

VOL. I.—PT. II.



FIFTH REPORT.

CONTAINING CASES OF FRACTURE, DISLOCATION OF THE SPINE, AND INJURY OF THE SPINAL MARROW—OF EMPHYSEMA, AND OF CARIES, FROM FRACTURED RIBS.

FRACTURE of the Spine is the most formidable injury to which we are liable, without the immediate extinction of life. It may not perhaps appear to be very useful to present melancholy examples of this truth; but the fracture of the spine, great as the injury is, still affords some hope of cure, and that hope may be increased by proper treatment. There are, besides, some vague unsettled notions which prevail on this subject, and which demand examination.

CASE OF FRACTURE OF THE SPINE, FATAL.

Sept. 12th, 1816.—*Auton*, 25 years of age, a plasterer. This young man fell from a height of forty feet, and in his descent his back struck against the corner of a stone stair about eighteen feet from the ground. When brought to the hospital, a swelling was to be felt over the lower dorsal vertebræ. On pressing the finger deep, a depression, or interval, betwixt the spinous processes could be distinguished. He complained of great pain in the part, and all over the abdomen. He breathed

naturally, and was perfectly sensible: there was no defect of motion or of feeling in the lower extremities.

He was bled to sixteen ounces: twelve leeches were applied to his back; and he had a dose of the house physic.

13th. He has passed a restless night. He is in great pain; he vomits every thing he takes; the purgative mixture was rejected, and he has had no relief in his bowels. An enema ordered.

14th. He is delirious. His pulse frequent, not full; his skin hot. He passes his fæces and urine involuntarily: but there is no flaccidity of the abdominal muscles, and he has the perfect use of his limbs.

15th. This young man's condition is very threatening; his pulse is 136. He was delirious during the night, and threw himself out of bed. He is now in a state of extraordinary excitement, and although he has full motion of the limbs, yet the spine is undoubtedly broken, or crushed, and he will, I fear, die with the symptoms of the last case, and from the same cause, suppuration within the tube of the spine.

Evening. He is delirious, and like a man who is good-tempered in his cups: he talks continually, and invites the nurse to bed to him with very gay discourse. His stools and urine still pass involuntarily; pulse 130; weak.

17th. It has been necessary to tie him down in bed. He now appears dying; his breathing is

very quick and laboured; his pulse hurried; his countenance is sunk, and his tongue is covered with a brown fur.

About an hour before death, a change took place from that happy delirium, and groaning as, in much pain, he fell insensible, and died.

The eleventh dorsal vertebra was fractured in its body. The spinous process of the same vertebra was crushed. The spinal marrow did not appear to have suffered mechanically, or to have been crushed. Pus thick in consistence, and of a greenish colour, lay betwixt the sheath and the spinal marrow. There was an effusion of serum betwixt the membranes of the brain.

INJURY OF THE SPINE, WITH UNEXPECTED RECOVERY OF THE PATIENT.

Sarah Beddoes, 18 years old. *Bird's Ward*, 1st Nov. *Mr. Joberns's patient*. This girl was thrown from a window two stories high; her back struck the ground. When brought into the hospital, great tumefaction appeared opposite to the lower dorsal vertebra. One of the spinous processes was found to be crushed, and the spine, above and below, stood remarkably prominent. The lower extremities were not paralytic, nor the belly tumid; nor the bladder distended: her sufferings were confined to her back and loins. A wound was found at the bottom of the sacrum, which ran up-

wards, to the extent of four or five inches. It appeared to have been made by her falling on a spike or long nail.—A dozen leeches were immediately applied to the part injured, and repeated for three successive days.

It would be tedious to give the unvarying journal of this case. She was long supposed to be in the utmost danger, from the violence of the injury; for weeks she lay complaining and moaning in a pitiable state, in all which time nothing could be done but repeating the leeches, the fomentations, and poultices, which gave some relief, and administering the saline mixture of the house, with occasional laxatives and opiates.

She has for three months lain on her side, with her body bent forward, and her knees drawn up. This has been her posture of ease.

It is now eight months since this young woman was received into the house. Her lower extremities are contracted; her back is bent; she is extremely thin, and the knobs of the vertebræ are very distinct: two spinous processes stand out projecting, and leave an interval of two inches. She proves to have syphilis, and is sent into Hawkins's Ward.

15th Sept. This girl is dismissed from Hawkins's Ward, perfectly well, and a most remarkable change has taken place upon the spine; the extremities of the spinous processes have approached,

and she has regained her erect posture ; she has at least recovered her shape in a manner quite extraordinary.

FRACTURE OF THE SPINE FATAL.

Thomas Wills, aged 30, admitted *Sept. 24.*—Being on the top of a neighbour's house, extinguishing a fire, he fell a height of two stories, and came with his back upon the pavement. No injury to the spine was to be felt, but he had lost sensation and motion in all the lower part of his body and lower extremities. The bladder and intestines were insensible to their natural stimuli : he complained of a pain in his back, and referred it to the middle dorsal vertebra.

He remained for six days in this condition ; blood was repeatedly drawn, by cupping, from the sides of the spine ; his bladder was emptied by the catheter twice a day, and he had a stimulating enema thrown up at regular intervals. Liniments were rubbed on the extremities, which, however, could serve no purpose but to ease the patient's mind.

When he had been in the hospital for six days, his breathing became more affected, and he had a slight haeking cough. Emulsions, expectorants, and opiates, gave no relief. He was bled freely from the arm. The symptoms continuing, and the blood being buffy, venesection was repeated : but the relief was not lasting, nor indeed very obvious. For the pain in the side,

and the difficulty of breathing, a blister was applied to the side. He had a mixture containing the *mistura salina*, *tinctura scillæ*, and *æther*.

About this time a consultation was held, and I was drawn attentively to observe his condition. He was quite sensible and collected, the lower extremities lay without motion, and quite insensible. The belly was full, but exhibited an unusual flaccidity; the respiration was performed by the heaving of the chest; and there was a catch in his breathing, from pain running round his ribs on a line with the injury of the spine. That the spine was injured appeared, not only from these symptoms, but also from a certain degree of depression of several of the spinous processes of the vertebræ of the back.

Repeated scarifications and cupping on the injured part of the spine were ordered.

Oct. 8th. In the evening his respiration became very rapid, being sixty to the minute. Ten ounces of blood were drawn from the arm, but without relief. The *fæces* passed involuntarily, the respiration became slower, and he died.

Dissection.

Much coagulated blood lay over the sixth and seventh dorsal vertebræ, and the spinous processes of these vertebræ were broken, the tube of the spine was forced in upon the spinal marrow, and a sharp portion of the bone had pierced and lay pressing upon the spinal marrow; a rib was fractured on the left side, the broken extremity of

which pressed against the pleura. This side of the chest shewed marks of inflammation.*

SUDDEN DEATH FROM DISEASE OF THE
SPINE.

—— —, about thirty years of age, was brought into the hospital on Monday 22d July. He was found in Portland Road, fallen in a fit; and brought by strangers to the hospital. When brought in he was discovered to be quite dead: frothy blood appeared at his mouth, and it was supposed to have come from his lungs.

On examining the body nothing unusual was observed in the abdomen or head, or in the viscera of the thorax: but on turning back the lungs a tumor appeared in the posterior mediastinum, exactly resembling an aneurism of the descending aorta. On prosecuting the matter further, however, the aorta was observed running close upon the tumor, but not making part of it. On opening the sac it was found to contain a thick mass of scrofulous matter, in contact with a carious portion of the spine. On clearing the matter away, the bodies of the vertebræ were found eroded, and the inter-vertebral substance also destroyed in part, so that the spinal marrow was exposed.

From his sister I learned that he had that day

* It is important to observe, that the splinter which crushed the spinal marrow, belonged to the body of the vertebræ. It could not have been removed by operation.

taken a long walk into the city; that, after such walks on former occasions, he would complain of great pain in his back: that all the complaint which he had was this pain in his back, for which he had taken the advice of many doctors, but nothing had relieved him. On further question, she allowed that he was subject to a palpitation, which was sometimes very distressing. He had experienced no impediment to swallowing, notwithstanding the tumor seemed to press upon the œsophagus, and no difficulty of breathing.

CASE OF DIASTASIS OR SUBLUXATION OF THE
SPINE, FATAL.

March 29th, 1816.—*Marshal*, a coal waggoner, was brought into the hospital from Edgeware; the account given by the people, who brought him, was rather confused. They agreed, that he had been riding on the fore-shaft of his cart, and by a sudden jirk was thrown off, and pitched on the back of his neck and shoulders. The man was somewhat intoxicated, and could not give a distinct description of what befel him. When carried into the hospital, he was put upon his legs, but he could not stand; and when supported by the shoulders, he dragged his legs after him. At this time he complained of pain in his loins, but no injury was perceptible there. Between his shoulders, however, there was a degree of swelling and discolouration. Some of the people who were

with him said that the wheel of the cart (which was empty) had gone over the small of his back ; but after the first day he never complained of that part. Leeches were applied to the spine betwixt the shoulders, and his bowels were opened.

For nearly a week he lay without complaining of any thing, except stiffness in the back part of his neck, and up to this period he had no symptom of paralysis; on the contrary, he could throw his arms and legs about, and retain his fæces and urine, and expel them naturally.

On the 8th day he was almost instantaneously seized with convulsions over the whole body. He was relieved, in some degree, by bleeding, and continued sensible though his jaw was locked.

His pulse, at this time, was very strong. Two hours after the first bleeding the convulsions were returning with more violence, when he was bled a second time. A few minutes after the second bleeding his lower jaw moved with great rapidity, and continued moving in an extraordinary manner for nearly five minutes, when all at once he exclaimed, with great animation, that he could speak. From the moment he began to speak he appeared to be maniacal, for his expressions had by no means the appearance of common delirium: at this juncture he clearly proved, by his exertions, that he was not at all paralytic, for it required two men to hold him, and he almost sprung out of bed to be revenged on the nurse.

He passed a great deal of fæces and flatus with singular force, for he evidently had the command of the sphincter, saying, at the time with a smile, beg pardon Dr. —, while he indeed used little ceremony. On raising him up to put on the strait waistcoat, he complained of pain in the back of his neck, but as there had been a blister on it we could not, from his description, understand whether it was the pressure on the skin, or something internal, of which he complained. In the course of an hour he was perfectly composed, so that from the first attack of the convulsions to his being again sensible, a period elapsed of twelve hours. In the morning he had such marked typhoid symptoms that the physicians were called to him; at this time he had so far regained his senses, that he answered questions pretty distinctly, but when left to repose fell into a low delirium. On the third day after the attack of convulsions, he complained of difficulty in using his arm; and two days after he had total palsy of the lower extremities; he altogether lost the feeling in them, which was the more remarkable, as at this time he regained the use of his arm. He lived for a week after this, but continued sinking, and still retaining about him much of the character of typhus fever. The day before his death he was perfectly sensible, and had recovered sensation in his legs; for he could feel the rubbing of a finger upon them. At this time, though he appeared to

pass his fæces involuntarily, still he passed them with great force, and he was able to reject an enema which was given contrary to his desire.

Dissection.

The brain was examined carefully, and nothing was remarked except a little effusion between the pia mater and tunica arachnoidea. On cutting the muscles by the side of the last cervical vertebra a little pus oozed out, it was found to come from between the vertebræ. On dissecting up the muscles, there was found to be an evident loosening of the last cervical from the first dorsal vertebra. A few of the dorsal and cervical vertebræ were removed, and then it was distinctly seen that there was a considerable space between the last cervical and first dorsal vertebra, the intervertebral substance was completely destroyed, and an immense quantity of pus surrounded them. On the back part the pus had extended under the scapulæ, and on the fore-part was bounded by the œsophagus. On examining the spinal canal the pus was found to have dropped down through the whole length of the sheath to the cauda equina.

Observations on the last Case.

Authors considering the strength of the intervertebral substance have said, that the dislocation of the bodies of the vertebræ from each other was impossible. It is true, that commonly the body of

the vertebra gives way before the ligaments yield. But here is an instance of diastasis or subluxation of the bodies of two of the vertebræ. From Hippocrates to the multitude of French authors who have touched upon this subject, dislocation has been considered in no other light formidable, than as producing pressure on the spinal marrow. But this case serves well to shew, that luxation will prove fatal, even although the spinal marrow be not bruised.

The last writer who treats of this subject is M. Boyer. He observes, that in the violent bending forward of the spine, the ligamenta interspinalia are sometimes ruptured, but that no bad consequence results; rest restores the part. But the rupture of the ligamentum subflavum (*ligament jaune*) is followed by paraplegia and death, and without doubt, he adds, it is because the spinal marrow itself suffers distention. The foregoing case will place this matter in another light. It is the progress of inflammation to the spinal marrow, and not the pressure or the extension of it, which makes those cases of subluxation and breach of the continuity of the tube fatal. The alternation of symptoms in this case is worthy of attention.

DISLOCATION OF THE PROCESSUS DENTATUS OF THE SECOND VERTEBRA SUDDENLY FATAL.

A man was trundling a wheelbarrow in Goodge-street near the hospital; in wheeling it from the

roadway upon the pavement he felt some difficulty, and had once or twice drawn it back to give it the more powerful impetus. When at last the slight incumbrance was overcome, the barrow went suddenly from under him, and he fell with his chin upon the curb stone: he was instantly motionless, and although it was only a few yards to the hospital, when brought in, he was quite dead. Upon dissection it was found, that the tooth-like process of the second vertebra, which threads the ring of the atlas, had broken from the hold of its ligaments; and, the transverse ligament yielding, the process had crushed the medulla oblongata.

Under the head of Counterfissure, in the First Report on Fracture of the Skull, another example of sudden death from injury to the medulla oblongata will be found.

This sudden death will remind you of the different effects of an injury to the spine, according as it is higher or lower on the column. When the fracture is low it is attended with loss of sensibility, and motion in the lower extremities and disorder of the bladder; when the injury is higher up the abdomen suffers more distention; still higher, the respiration is affected; and when the fracture is above, the principal origin of the phrenic nerve, the act of respiration is stopt, and death from suffocation suddenly follows.

PREPARATIONS ILLUSTRATIVE OF THIS SUBJECT IN THE MUSEUM.

—— A pistol ball has passed through the body of one of the vertebræ of the back, and lies pressing on the sheath of the spinal marrow.

—— A triangular portion of a fractured vertebra is sunk into the spinal marrow.

—— The vertebra fractured, has united again, and the perfect union shows that the patient must have long survived the accident. Yet he died paralytic of the lower parts of the body, supposed to be in consequence of the pressure of these inequalities.

—— The spine fractured, but the spinal marrow not injured. But this appearance is deceitful; for although the spinal marrow was not crushed, it became inflamed, and was the cause of death.

—— The vertebræ of the neck having suffered diastasis or subluxation, the intervertebral substance is seen to be wasted in suppuration, and inflammation being communicated to the spinal marrow it had extended in the whole length of the sheath.

—— Caries of the vertebra of the back affecting the spinal marrow; without any token of so formidable a disease, the man fell down suddenly and expired.

—— Vertebrae and theca laid open, exhibiting a scrofulous tumor similar to what we find in the brain, occupying the spinal marrow.

I shall subjoin two examples of the consequence of a lesser degree of injury of the spine.

CASE OF INJURY OF THE SPINE, ATTENDED
WITH AFFECTION OF THE LOWER EXTRE-
MITIES.

Fineckin, aged 33.

It appears that he fell down a shaft full forty feet in depth: he complains of having hurt his back. There is uneasiness and defect of action in the lower extremities. Ordered a laxative mixture, and to be repeatedly cupped by the side of the vertebræ of the loins.

About eight days after his reception into the hospital he began to complain of languor and universal pain; of sickness and debility. His pulse was quick, and his skin hot. It presently appeared that he had an attack of typhus fever, and he was sent into the physician's wards. Three weeks afterwards, I was called to him; he had recovered from his fever, but still complained of pain in his loins, or torpor of his lower extremities. I again ordered scarifications and cupping in the extent of the spine, and stimulating liniments: he was discharged, relieved.

INJURY OF THE SPINAL MARROW, FROM A
HURT ON THE SPINE.

A respectable tradesman, in mounting curtains to a window, fell from the steps, and struck the

lower part of the spine against the corner of a table. The bruise was severe, but he got the better of it by the usual remedies, and in the usual time. It was some months after, that he began to feel a want of power over the lower extremities; indeed the nature of this affection being a want of the full power of motion, and a defect of feeling, he did not attribute it to his former accident, the more especially as so long a time had elapsed before these symptoms appeared.

This man is about fifty: square, and stoutly formed, and of regular habits, seldom exceeding his pot of porter; his arms are so powerful that even now he can mount a ladder, drawing his more unwieldy extremities after him. He is active in mind and body, and the only apparent defect is in the exercise of the will over the lower extremities, for they have not shrunk nor lost muscular firmness.

When I first saw this man, I conceived that these symptoms might proceed from disorder of the lower part of the great intestines. From such a source of internal irritation we have very singular sensations of pain, and numbness about the hips, and stiffness, and spasm of the lower extremities. I therefore gave him calomel, with occasional purges of neutral salts. But when, after a period of two years, I was called in to consultation, and learned that outline of the case which I have delivered, I advised more moderate living, leeches to be applied along the course of the spine, from

time to time, and issues to be formed by caustic, opposite to the lowest lumbar vertebra. I have no doubt that these means have, and will continue to, prolong his life, and the enjoyment of that limited power of the lower extremities, which he now possesses.

These two last cases recal to mind one of the most interesting of the kind on record, that of the Count de Lordat, in the Medical Observations and Enquiries, Vol. III. He was overturned, and had his neck twisted in the corner of his carriage; after the accident he served two campaigns, sufficient evidence of the slow progress of that paralysis, which encroached at last gradually on every bodily function. The report is very striking. He appeared stooping, emaciated, and dejected: he could still walk with the assistance of a cane in a tottering manner: his left hand and arm were much reduced, and he could hardly perform any motion with them, the saliva was continually trickling from his mouth, and he had neither the power of retaining it nor of spitting it out freely. What words he still could utter were monosyllables, and these came out after much struggle, with a violent expiration, and in a low voice and indistinct articulation. In the last stage the functions were more and more oppressed, and often he was threatened with suffocation. Upon examination the membranes of the spinal marrow were found thick and tough, and the marrow itself

had acquired an extraordinary degree of solidity. The symptoms of the two slighter cases of palsy, which we have here are, I imagine to be explained on the same principle, viz. the injury to the soft envelope of the spinal marrow and the accession of inflammatory thickening. Such slighter injuries to the spine have produced a scrofulous tumor, which, insinuating betwixt the processes of the bone have at last oppressed the spinal marrow. *Med. Obser. Eng.* Vol. III. p. 160.

Review of the Cases of fractured Spine.

It is remarkable that a subject of this magnitude should have so little attracted the attention of the profession. I do not know to what books I can direct you: for authors have treated of the subject very superficially, and we have only some occasional cases in our books.

The cases which I have noted for your observation, make it evident that in injuries of the spine the danger to be apprehended is the same with that which accompanies injury to the brain; viz. the rising of inflammation, and the suppuration within the theca. This indicates the necessity of repeated general bleeding, or constant local bleeding while the danger continues. We also see the necessity of controlling the motions of the patient, whether at first as in the state of inebriety; or afterwards when delirious. The manner of accomplishing it, I shall not consider in this place.

The first question which it is necessary to

agitate is this: how far does the analogy hold in fracture and depression of the skull, and fracture of the spine with crushing of the spinal marrow?

I have not found a young surgeon who has entertained any doubt on this question; and some, who have just proceeded so far in their studies as to know why the depressed portion of the skull is to be elevated, I have found very decisive in their opinions, considering the operation as equally fit to be adopted in fracture and crushing of the spine. They confidently ask; where is the difference? a bone is injuring the brain and it is raised: a portion of bone is depressed upon the spinal marrow: let an incision be made and the portion of bone withdrawn!

They are encouraged in this by disquisitions in dictionaries of surgery, and by the discussions of lecturers. M. Boyer, the latest French authority on the subject, objects to the proposal only on this ground, that the indication is never sufficiently clear to authorise the operation, and our English authors object, because we might mistake concussion for fracture.

1. Now it is my belief that an incision through the skin and muscles covering the spine, and the withdrawing of a portion of the circle of bone, which surrounds the marrow, would be inevitably fatal. For it is not sufficiently observed, that the membranes of the spinal marrow are the most susceptible of inflammation and suppuration of the whole frame; not exceeded by those of the brain

itself, of which they are prolongations. The cases before us afford indeed sufficient evidence on this head.

2. It further appears, to me that the analogy on which this practice is proposed, is false, and that in truth there is no resemblance in the cases. When a portion of the skull is depressed, a comparatively small portion of the brain is injured by the intrusion; and were it possible to take away the part of the brain bruised by the bone, the function of the organ would remain entire. But when a portion of bone has crushed the spinal marrow, the entire diameter of the cord is crushed; and although it be but a small portion which has suffered, the injury of that portion is sufficient to cut off all connexion betwixt the parts above and below.

3. Nay, even if it were a sharp spine of fractured bone which had run into the spinal marrow (supposing that the injury then produced were sufficient to cause palsy of the lower parts of the frame) before that sharp spine of bone could be withdrawn, the circumstances would be so aggravated by the exposure of the spinal marrow, that inflammation, suppuration, and death, would be the inevitable consequence. Instead of diminishing the danger, the unhappy fate of the patient would be accelerated.

4. These cases shew how inaccurately the diagnoses of authors have been drawn. What tyro will not readily answer that paraplegia, dis-

tention of the bladder and intestines, are the immediate consequences of fracture of the spine.

Yet we see here instances of fracture of the entire body of the vertebræ, without such symptoms as can inform us of the nature of the accident. And in the progress of the case we see symptoms arising, which no one has hitherto pointed out, as proceeding from affection of the spinal marrow. Instead of loss of motion and feeling, you have seen the patient tossing in restless agony; an agony of mind without any definable suffering. Instead of palsy confining his lower extremities, you find him throwing himself suddenly out of bed, and at last rising in a wild delirium, which our observations hitherto would not lead us to expect, as a consequence of that sort of injury which is for the most part attended with loss of sense and motion.

5. The dissection in those cases proves the nature of this excitement. The great injury done to the spine, to the bone, is followed by inflammation, which is rapidly propagated along the membranes of the spinal marrow; and as is the nature of these involving membranes of the nervous matter, when inflamed, suppuration rapidly follows: and in the present example we find the pus dropping out from the sheath when cut across at a part far distant from the fracture.

Hence we see the cause of the general irritation, and of the oppression or palsy which follows.

The inflammation of the spinal marrow is attended with an almost universal nervous irritation, which is presently followed by excitement of the brain; in the mean time, matter is poured out into the sheath of the spinal marrow, and either by its pressure causing palsy, or by its irritation disturbing the function of the part, so as to be attended with the same consequences. The excitement of the brain being followed by effusion death ensues.

6. There remains a question of some moment, and on which, in discussion with my learned brethren of the profession, I do not mean my brethren of the hospital, I have had the misfortune to disagree. A man who receives an injury of the spine recovers from the immediate effects of the accident, but at the distance of months, instead of having the full use of the lower extremities restored, he begins to drag them more and more, and at length becomes totally palsied in the lower extremities, and languishes, and dies.

I have heard it proposed by very high professional authority, to cut down upon the spine and apply the trephine and raise the bone. This appears to me a most desperate measure.

In the first place, it is not proved that it is the bone which presses the spinal marrow. Indeed, I am confident, that in these protracted cases, when the palsy increases slowly, it is the thickening of the membrane which encroaches on the spinal marrow; or a diseased action which is

gradually more and more affecting the nervous matter itself.

It may be said, that although the pressure is produced by the thickened envelope of the spinal marrow, still it is the confinement of the bone which causes the membranes to press in upon the spinal marrow; and if, by taking away the part of the tube of bone which confines the membranes, freedom were given to them, the spinal marrow would be freed from pressure. But this is an idea too mechanical. On the other hand, I offer this view: the palsy is a consequence of the swelling of the membranes, and proceeds from inflammation; and if you cut down upon the bone, and saw it out, and expose these membranes, you will not only increase the swelling and thickening of the involving membranes, but you will most probably raise such direct inflammation and mischief, as to cut off the patient suddenly.

What then are we to do nothing in these desperate circumstances? I do conceive the case to be desperate; but that does not authorise us to attempt a remedy which is not only desperate, but which will not stand examination, and affords to me, I confess, no hope. We are to take up the case as a scrofulous inflammation of the spine, and I am certain, that much may be done by prosecuting the cure with energy and perseverance, by local bleeding and deep issues.

OF EMPHYSEMA FROM FRACTURED RIBS.

*I am happy to meet you again, and especially, because there is a subject on which I wish to address you: and you must excuse me for saying, that it is a subject of which you are criminally negligent. It is easy to know whether or not a student be properly educated, by observing the things to which he attends in an hospital, just as you may know a gentleman of liberal pursuits by his conversation, and the objects which interest him. You will presently observe the application of this remark.

There was an old Irishman, one of my patients in the accident ward, when I left town, in whom I took much interest, and often I drew your attention to the case, and made you feel his sides. To many of you I explained his critical situation. Shall I confess I was concerned to observe the little attention that you paid to this subject.

He was a man of 65 years of age. He had fallen from a ladder and struck his left side upon the corner of a chair; he remained at home for three days, until his master, having called on me, procured his admission here, to which you know his misfortune gave him a title without my influence. I found him sitting up in bed, suffering much from pain in his side, aggravated by a short cough. On examining the side, it was not possible

* From Clinical Lecture.

to feel the ribs, but you might perceive other evidence of his ribs being broken in the emphysematous tumor which covered them. He was fat, with that looseness of skin which is characteristic of his years; the skin was blown up, forming a tumor extending from the ilium to the clavicle.

There was no doubt that the rib was broken, and the lungs torn. I witnessed his situation with considerable uneasiness; but as he could lie down, and as he repeatedly affirmed he was easy, but for the troublesome cough which he said gave him pain in his side, I was satisfied with ordering him to be bled, and to have a linctus for his cough. I sent to inquire for him in the afternoon: I visited him in the evening: I sent again in the morning: and I saw him at twelve o'clock. The tumor spread further over the breast, and over the hips; but nothing untoward occurred. He continued better the 3d day; on the 4th he was still better. On the 6th and 7th day from the accident, the emphysema began to dissipate, and by the common attention to confine the motion of the rib, and keep the circulation low, he quite recovered.

Here was a case in which more was present to the understanding, than visible to the eye; he who had never studied would pass it with indifference, but the pupil who had read what Dr. Hunter had written on this subject; what Portal had delivered to the Academy of Surgery; what experiments Hewson had made; or who had felt the interest which Mr. John Bell had given to this subject in

his book of wounds; such a pupil would have looked with intense interest on the case. I wish that some among you had so attended to the case, I should not then have had to record the following instances :

Wednesday, July 6th, 1816. — *Lynn*, a common labourer, was brought to the hospital in a state of insensibility. He had fallen from a scaffolding ten feet high, into the area below, and his side struck a cross bar of iron. His head was slightly grazed, but there was no other visible injury. He was taken up breathless, and apparently dead, and in this state he was brought to the hospital. When received, his breathing had been, in a great measure, recovered; fourteen ounces of blood were taken from his arm; gradually he recovered his senses, and as he grew better he became impatient to return to his home. He walked out of the hospital without assistance, and did not seem to suffer from the accident. The house surgeon had wished to detain him, as one or more ribs were fractured; he applied a roller around his chest, gave him some opening medicines, with injunctions to return if he found himself worse.

On *Friday*, the 3d day, it was reported that he was worse, having been delirious all night. The dresser went to visit him, he found him labouring under great difficulty of breathing, and on examining his chest, he felt a slight emphysema extending over the right side. He re-applied the flannel roller, and ordered the medicine to be repeated.

On *Saturday*, the 4th day, the same pupil visited him; a distinct emphysematous crepitation was to be felt, and the tumor extended widely in every direction upwards, upon the neck, and downwards over the hips, the whole being enormously swollen. Owing to the prodigious degree of tumefaction, combined with the deceitful feeling of crepitus in the integuments (the reporter adds) we could not detect a fracture.

He continues.—He was at this time labouring under great difficulty of respiration: his breathing was short and hurried, and very much like that where there is effusion in the chest, with a rattling in the throat, and constant expectoration of mucus. His countenance was bloated and anxious, his pulse 120, hard and contracted; his skin hot and feverish; he complained much of pain in his right side. Twenty ounces of blood were taken from him, which, for the time, appeared to relieve him considerably.

The same gentlemen saw him at ten o'clock. It is not of want of attention that I have cause to complain. The report continues.—They now told us that the patient had once or twice jumped up quite deranged, and appeared to be suffocating; his breathing was little improved, his pulse was still hard and frequent, and the blood last drawn was deeply cupped, buffed, and firm in texture. We had no doubt of the propriety of taking away more blood; conceiving that active inflammation was going on in the chest, we bled him again to

eighteen ounces, which as before gave him relief; the bandage was attempted to be renewed, but it could not be borne an instant, on account of the sense of suffocation it produced.

The man was now lying panting and struggling for breath; now and then he moaned, and seemed much exhausted with his exertions to get a free inspiration. The expirations rapidly succeeded the inspirations, he foamed at the mouth and was constantly spitting up frothy and yellow mucus matter. He had been sick and vomited once or twice. We left him relieved by the last bleeding; the pulse had fallen considerably.

Sunday, 5th day. Soon after we left the house last night the man fainted, but he soon recovered, and passed an easier night than before. This morning he is very pale, breathes still with great difficulty, and lies half comatose: the pulse is low and quick; the swelling of the chest, back, and neck, is increased. The blood taken last night is neither buffed nor cupped.

During the rest of the day he was low and feeble, and seemed quite exhausted. When questions were put to him, to discover the place and nature of his pain, he always referred to his right side, and complained of the oppression in his chest. We observed that his restlessness was greater at one time than another. He had no uneasiness of his head.

Monday, 6th day. He passed a bad night; seemed rapidly to be sinking; was now delirious,

and gasping at intervals; his pulse intermitted: he died at eleven o'clock this morning.

Remark.

If you did not know that this case occurred out of the hospital, and out of the knowledge of the surgeons, you would no doubt be surprized. If you did not know by whom this case was written, you would be surprized to see a train of symptoms so well described, and yet the nature of the accident so entirely misunderstood. I have made no change upon the expressions, unless to throw out some passages on the operation of saline draughts, injections, and digitalis, which to see, on such an occasion, is abundantly provoking.

Dissection.

The whole trunk was extremely swollen, with emphysema, but more particularly the right side. In opening the right cavity, we accidentally punctured the pleura, and gave exit to a great quantity of confined air. On examining the interior, we found the right lung quite collapsed. The left side was natural, in all respects. From the right side we sponged up about four ounces of blood, which we supposed had come from one of the intercostal arteries. On further examination, we found a portion of the lung lacerated, and laying in contact with the rugged edges of two fractured ribs. On moving each rib individually, we saw clearly that they had both penetrated the pleura pulmona-

lis, and opened the air cells, making a wound equal to half a square inch. There were five other ribs fractured besides those which penetrated the lungs. The surface of the lungs was red around the part injured. The viscera of the abdomen were natural.

Observations on the Case.

I need scarcely remind you of the true nature of this case. 1. The extremity of the broken rib, wounds the surface of the lungs—2. The enlargement of the walls of the chest in inspiration sucks the air through the lungs, and by successive motions accumulates it in the cavity of the chest—3. The lungs are then compressed, the side is kept elevated, and the freedom of respiration is checked—4. The distention of the cavity more and more, is at last attended with a disturbance of the other side of the chest; for the diaphragm is thrust down, the mediastinum pushed aside, and the capacity of that other side and of the lungs consequently, is so diminished, that the patient is every moment in danger of suffocation. What are his sufferings this case strongly proves. Here then ought to have been the triumph of surgery; for one touch with the scalpel, opening the side of the chest, and this man's sufferings would have been instantly relieved. The distention of the right side would have been removed by the escape of the air, the diaphragm would have been free to act, and the mediastinum would have regained its place, and

the left side of the chest would have resumed the freedom of its action.

The following Case is curious, from the degree of injury, and I may say from the absence of all unfavourable symptoms.

THIRD CASE OF EMPHYSEMA, FROM BROKEN
RIBS.

Nov. 18. *Donald Riley*, 50 years of age. He fell from a height of twelve feet upon some iron bars: when brought into the hospital, he was very pale and agitated, and complained of much difficulty of breathing, with a sharp pricking pain in the left side. On examining this part, the seventh and eighth ribs are found to be fractured. A swelling extends over all the left side of the body; it is soft, compressible, and crepitating. Sixteen ounces of blood to be taken from the arm, and the tumor to be deeply punctured in three different places.

19. The tumor has not increased, the air has escaped in great quantity from the punctures; although the crepitation can be felt further forward upon the neck, the tumefaction is less prominent. His pulse is calmer; he can now lie down.

20. He has a constant cough, which gives him pain in his side. He breathes with some difficulty; pulse 70; tongue white; his bowels

moved by the house mixture: he has an anodyne linctus, for his cough.

21. He has been sick, and vomited; he is purged. The pulse is calm and regular; his breathing is much easier. The emphysema has not increased, but it has not in any degree diminished.

25. Breathes easily; emphysema diminishing; his cough is better, but he still has pain in the side, on making a long inspiration.

28. Much of the air is absorbed, and now the body is ordered to be swathed.

Dec. 4. Discharged.

We have here a case intermediate betwixt the first and second, in the degree of distention of the cellular membrane by the air. The punctures were made, not to prevent the air extending further over the body, which, though a frightful looking thing, is not attended with bad consequences, but to let the air escape more freely from the chest. If it had not had this effect, and if the breathing had not been relieved, I would have made an incision through the intercostal muscles, and punctured the pleura costalis.

I have observed, in common cases, that the air has been absorbed from the cellular texture about the sixth and seventh day.

I have in my last number advised my younger readers to keep Mr. Abernethy's works always near them. And on this subject of emphysema, it is natural that they should consult the same autho-

rity. But it is equally my duty to say that they will not, on this subject, find the distinct statement of facts, nor the lucid reasoning which in general characterizes the works of that gentleman.

We find him doubting whether the lungs collapse when the chest is opened; of opinion that there are two states of emphysema; and recommending the practice of Sir William Blizard, to bandage the chest, in order to prevent the air from escaping; and further, he combats the opinion, that the air collected on one side of the chest, oppresses the action of the opposite side. From the notions which I have heard expressed by very intelligent surgeons, on service, in the cases of wounds of the chest, it is evident to me that these opinions of Mr. Abernethy have had the effect of confounding the students' ideas upon this subject. I hope to have an occasion of returning to it, and of explaining the experiments on respiration, which have thrown an obscurity on this matter. At present I shall only add:

1. That in slighter degrees of emphysema, the patient generally does well. The practice is as in a common case of fracture of the rib. He is bled again, as the pulse rises, or when the breathing is oppressed; the chest is swathed, that he may be forced to breathe with his diaphragm, and give rest to the rib.

2. That in cases where the air extends far, still it is only frightful, and nothing need be done; but if with this there be much oppression of breathing,

we puncture and press out the air in the neighbourhood of the fractured rib.

3. That if the patient be still oppressed, we relieve him by giving free exit to the air, from the side distended, and consequently permit freer action of the other side of the chest.

4. That on all occasions, when emphysema appears, the patient requires to be strictly watched; for there may come a rapid increase of difficulty of breathing and the patient be suddenly cut off.

DISLOCATION OF ALL THE RIBS FROM THEIR CARTILAGES.

Sept. 5. J. Herving says he is 46 years of age: he appears much older; he is brought into the hospital with his sides squeezed together in a manner truly singular. In running across the horseway of a mill, thinking to take the shorter way, he was caught betwixt the beam and the wall. He was squeezed into a space of five inches, and was so wedged as to stop the horse: it was with difficulty that they got the horse backed so as to extricate him.

When brought into the hospital, he was pale and breathless, and a cold sweat bedewed his face and body: his chest was to the feeling like a dead body where the thorax had been opened, and the sternum left loose under the integuments; for on both

sides the end of each rib, at its junction with the cartilages, stood out distinctly marked and prominent. I concluded that the heart must have been bruised, and that he would not recover*. The clavicle of the left side was dislocated from the acromion scapulæ; he had cough, with pain in breathing; he was bled to 16 ounces, and a roller was put round his body, and the shoulders were braced back, by means of the figure of 8 bandage.

6. He passed a restless night. At present his breathing is little disturbed—indeed, he is easy, except when moved. The pulse, which was weak and fluttering last night, is now more steady; the bandage to be removed, and twelve leeches to be applied over the sternum.

In the evening he felt so much additional distress, from the absence of the bandage, that it was applied, and with evident relief.

12. This man remains quite free of pain; he has been bled again, but it has been in way of precaution, rather than from the presence of symptoms.

30. He is quite well, only the ends of the ribs, on the right side, still stand prominent.—There is in a case of this kind no means of reducing the dislocation of the cartilages but by causing the patients to inspire forcibly, and no means of relief but by bleeding and by the application of a roller around the chest.

* While sending this to the press, I learn that one of my patients, whose sternum was fractured, has died, after lingering, with more and more oppression, for five days.

FRACTURE OF THE RIBS NEGLECTED, AND
FOLLOWED BY CRIES, AND BY SUPPURA-
TION IN THE CHEST AND PERICARDIUM.

William Mark. In a wrestling match he was thrown, and his adversary fell upon him, striking his knee upon his side with all his weight and force. For three months he felt the consequence of this bruise, and a colourless swelling arose upon the right side of the chest, with great pain. He was a shoemaker, and during all this time he had continued to work at his trade. But as he changed his posture, and especially as he stooped and pressed the last to his breast, he felt severely the pain in the parts injured: yet it was not supposed that his ribs were broken. Six months after he received the injury, the swelling was punctured, and a Scotch pint of matter was discharged. The surgeon who opened the abscess told him that the ribs were broken. This abscess was under the pectoral muscle, and the matter spouted to a considerable distance, when the lancet was withdrawn. His breathing became now short and oppressed, with much inward pain. The discharge continued during the whole summer, when another abscess formed near the sternum. It was nine months after the wrestling match (to which he attributed all his sufferings) that I saw him; the following note refers to this period.

The abscess on the chest has been opened again, and now the several holes on the side of the chest are the mouths of sinuses, communicating with each other, and leading to the surfaces of several carious ribs. Attempts might be made to diminish the extent of these suppurating cavities, by drawing a seton through them, and using the restrictive bandage, but the cause would remain in the diseased ribs; besides, there is reason to suppose that there is abscess within the chest, as well as on the outside.

Three months after the first Report we have the following. The symptoms are those of confirmed hectic, from suppuration within the lungs. For weeks past he has had incessant purging, and he is now weak, and hardly able to crawl to stool, and the quantity of matter expectorated, threatens to suffocate him.

Dissection.

The principal external abscess was found under the pectoralis major and pectoralis minor muscles. The third and fourth ribs were fractured, and their surfaces were bare and carious to some extent; the bones were black, spongy, and immersed in fœtid matter. On opening the abdomen, the liver was found to have retreated altogether under the margin of the ribs, and the diaphragm to be drawn up very high. This was explained, when upon opening the thorax, the lungs of the right side were

found adhering to the inside of the ribs; they were firm, being consolidated by inflammation, and by this means the cavity of the chest was diminished, and consequently the diaphragm drawn up. The lungs were seen adhering to the pericardium, and that sac itself was inflamed and thickened, and distended with a purulent serum. The surface of the heart itself was rough with coagulable lymph and pus. And now it was found that the lungs of the right side contained a large abscess, which was in connexion with the communication betwixt the carious ribs, and it proved to have been from this abscess that the copious discharge of matter had flowed out in the dressing of the outward wound. With this abscess in the lungs, the cavity of the pericardium communicated, by means of an ulcerated hole in that membrane. The lungs of the left side, and what remained of the lungs of the right side, external to the line of adhesion, caused by the irritation of the carious ribs, were free from all disease.

Remarks on the preceding Case.

Some were of opinion that the ribs had not been fractured in this case; but that the part in contact with the ribs having been bruised, suppurated; that the matter lying in contact with the bones, had made them carious. But, without entering into the question, whether or not the contact of matter will produce such an effect on the surface of bone, I am of opinion that pus formed by a bruise in the side would not thus propagate itself in succession to

the ribs, the pleura, the lungs, the heart. On dissection, I found the ribs fractured, and rough with caries, and with irregular projecting points of bone. There was not cause sufficient to account for the fracture of the ribs, but in the first accident: and besides, a surgeon in the country, on first opening the abscess, had declared to the patient, that his ribs were fractured.

I have no hesitation in saying, that we have here an example of the formidable consequences of neglected fracture of the ribs. This young man continuing to go about his usual occupations, and work at his trade of a shoemaker, kept the broken ends of the ribs jarring and rubbing against each other. By which continued attrition, an inflammatory process was kept up, and matter formed around the fractured extremities. This, in process of time, we have seen to have affected the parts both within the chest, and the cellular substance on the outside, subjacent to the pectoral muscles. The cause of the great extent of the suppuration was in the continuance of the irritation. And if it be said that such a consequence would not have arisen, but in a scrofulous patient, I may admit it, and add, do not scrofulous patients break their ribs? and is it not most necessary, seeing these consequences, that the patient be carefully treated and watched in the first two or three weeks, and especially, that the broken extremities of the ribs be kept at rest by the swathing of the chest.

It was particularly distressing to see, this last week, a child in the waiting room with an abscess on the lower part of its neck, which had burst, and shewn its connexion with a broken clavicle. The careless wretch, its mother, had neglected the child, permitted it to use the arm unrestrained by a bandage, and this abscess and sore over the clavicle was the consequence.

SIXTH REPORT.

CONTAINING

CASES OF FEMORAL HERNIA.

THE first series of these cases is illustrative of the manner in which incarceration and strangulation of the intestine take place. The succeeding cases explain the nature of the sac in this hernia, and the last refer to the treatment of the mortified intestine.

If the rising class of surgical pupils do not prove to be better practical surgeons than those who have preceded them, it must be owing to their teachers, and the wrong methods we take with them. I have witnessed the utmost anxiety of the students, to acquire a knowledge of hernia. Night and day have I seen them labouring at the dissection of the fasciæ. It is an investigation worthy their best endeavours; it is of much consequence

to follow a description with the edge of the knife ; for it gives a precision to the motions of the surgeon's hand. But having made himself master of all the fasciæ and ligaments, I would tell the pupil he has still to commence the study of hernia, which has very little to do with the natural anatomy.

What is it that oppresses the mind of the just man and judicious surgeon on this very head? what is it that he revolves anxiously in his mind, is it the difficulties of the operation, the question of what produces the stricture, the thoughts of how many coverings the tumour has, or the place of the epigastric artery? No, it is this great question, when should the operation be performed? am I authorized to take the knife now? and have I not let the decisive moment pass! These are the questions to which all others are of minor consideration. I have seen the operation of hernia performed rashly, tediously, awkwardly, even ignorantly; but always with effect, if the surgeon were right in the grand matter of TIME.

To be able to distinguish symptoms, we must attend particularly to their cause, which is in the intestine. The changes to which the intestine is subject, has not been inquired into, with all that diligence which has been so happily exercised in regard to the anatomy of the rings.

I have in the following cases stated some occurrences in practice, which reflect light on the pathology of hernia; a subject which I had long

since unsuccessfully endeavoured to illustrate, by experiments on brutes. In vain I had endeavoured to noose the intestine of dogs and cats, and produce upon them the effects of strangulation. When the intestine was surrounded with a cord, the cord was in a few days carried within the intestine, and when the noose of string was made to embrace a turn of the intestine, instead of producing turgescence and strangulation, it was found to cut the coats; and, as the cord cut its way into the intestine, a new membrane covered it so that there was no breach in the intestine, and the alimentary matter, continued to be carried in its course, these cruelties were therefore of no avail.*

The futility of experiments on animals, when brought in illustration of the morbid changes of the human body, makes even a single fact observed in practice valuable; and I am well convinced by many failures, as well as by what I have observed in my friends, that it is in vain, by experiment on brutes, to anticipate the years of practice and actual observation.

We may consider the intestine, in a hernia, as subject to four different conditions: 1. It lies in the sac, its function continues, and there is no impediment to the alimentary matter: 2. It is included in the sac, and retained by adhesion; but it performs its function without interruption: 3. It is retained in the sac by *incarceration*, that is, in

* See preparations in the Museum illustrative of this.

consequence of its distention; but there is on stricture on the blood vessels of the intestine: 4. The intestine is *strangulated*, which is that state, when not only the alimentary matter is obstructed in the canal, but when the blood in the vessels is also obstructed, and there is momentary danger of mortification.

Without attending to these last distinctions, it is not possible to comprehend how the circumstances of cases differ essentially, while they are attended by exactly similar symptoms; or how a patient shall labour under signs of danger for many days, and recover; while another shall be cut off from hope, in as many hours. It is meant to limit the subject, in the first place, to this consideration of the change from incarceration to strangulation of the intestine; that is, from the state of obstruction of the alimentary matter in the canal, to obstruction of the circulation and consequent mortification of the gut.

We often find, in dissecting-room subjects, a small process of the peritoneum, like the finger of a glove, pushed into the abdominal openings, and empty. This is the first stage of the formation of a hernia, and I believe that even in the cases where the gut comes down suddenly, during violent exertion, there is a partial descent previously existing, making a predisposition to a more formidable rupture. The progress of the hernia is probably in this manner: a portion of the intestine, or small part of the omentum, is pushed

into the passage carrying the peritoneum before it. No bad consequence follows, because the intestine is withdrawn by its own action. But after this partial protrusion of the intestine has taken place several times, it is at last urged further, and the peritoneum bursts through the remaining confinement, and appears without the wall of the abdomen; then it forms a sac, for it is permitted to expand; the gut consequently is allowed to distend, and then incarceration and strangulation may succeed.

It is the object of the following case to explain the manner in which the gut fills.

FIRST CASE OF FEMORAL HERNIA IN A WOMAN.

A woman of 35 years of age was received into the physicians' ward, on account of *enteritis*: the apothecary, after hearing the account of symptoms, very properly inquired if there were any thing wrong in the groin; which the patient stoutly denied; but the old mother, who was with her, cried out that there was, and something very bad indeed! which proved to be the case.

On being called to examine her, I found her pulse quick and weak, her features sharp and cadaverous, her eyes wild. She moaned, and was

in pain, the expression of it being subdued through complete exhaustion. The belly was tumid, not hard: it was tender, and the tenderness was greatest near the groin; she described the pain as rolling from side to side in her bowels.

There was a tumor in the groin, and when she coughed, the percussion reached the tumor, although she coughed feebly. I learned, with some difficulty, that the swelling in the groin came during a strain, and that it preceded all the train of distressing symptoms: by her description, she must have had stercoraceous vomitings for some time.

Upon examining the tumor, I satisfied myself that it was a femoral hernia, and I saw plainly that it was not in a state for me to attempt reduction by pressure, without increasing the danger. Although the gentleman who accompanied the patient into the hospital said, very simply, "I gave it a squeeze myself, Sir, before I thought of troubling you," yet I believe the parts had not suffered at all by this squeeze, and hernia had unfortunately never before then, been suspected to be the cause of the symptoms.

The circumstances of the operation need not be further detailed than to observe, that there was nothing of that inflammation of the integuments and investing membranes, which we find in the last stage of hernia, where repeated attempts have been made to reduce it; and the vessels which

were cut across were inactive, and did not bleed freely, although they were of a size that we could discern their orifices.

The peritoneal sac was so weak that in pinching it up with the forceps (intending to cut it by carrying the knife horizontally), it burst, and dark serum was discharged.

The portion of the intestine included in the stricture formed a body an inch and a half in diameter, and was perfectly globular. It was of a dark reddish, brown colour, and adhered by coagulable lymph to the neck of the sac, on the side towards the ilium; a lacteal vessel was visible on the surface; it was large and tortuous, and loaded with colourless matter.

On separating the neck of the sac from the gut, which I did by drawing up the neck of the sac with my finger and thumb, a little matter exuded, which I hoped, from its consistence, might be pus; but on smelling it, the deplorable nature of the case was made evident: it was fæculent. This matter came so directly from under the sharp stricture, that I could not at first determine whether it came from the gut, or from the cavity of the abdomen.

Having cut the sharp edge of the stricture, and disengaged the gut from its firm embrace, I drew the intestine gently down. When this was done, there appeared no opening, but only a dark sloughy spot, obscured by coagulable lymph, nor could I find the passage into the gut with the

point of the probe; I therefore pressed upon the belly, when liquid fæces came out from the sloughy spot of the intestine, and I knew that the fæculent matter had originally come from this opening. I next pressed the portion of the gut which had been included in the hernial sac, and which till now retained its globular form; from this portion of the gut there flowed nothing but a clear mucus, of the consistence and appearance of jelly, which had been shaken or broken down. This mucus proved to be the whole contents of this portion of the intestine, and when it was pressed out, the intestine was flat, and could have been reduced. I brought down the torn part of the gut, so as to prevent the fæces escaping into the abdomen. I saw the patient dying; the discharge of fæces showed me there was no immediate occasion to do more. I dressed the parts lightly, waited to see her recover, but she continued to sink*.

The nature of the matter contained within the gut gives us proof of the manner in which those very small portions of the gut fill by their secretions, and we may follow the changes thus:

1. The portion of the intestine was pushed down when the young woman strained herself: for a time the intestine lay empty, and the stricture was so tight that no alimentary matter was admitted into it. 2. But the tightness with

* See Concluding Remarks on this subject.

which the stricture embraced the intestine was not so great as to stop the circulation of the blood in the vessels of the intestine. The intestine, therefore, remained alive, and in no danger of strangulation, while it remained empty. 3. The vessels, however, continuing to secrete into the cavity of the intestine, such an accumulation of mucus was at last produced, that the portion of the intestine became fully distended, and then there was imminent danger of strangulation. 4. As the included portion of the intestine became filled, the angle of reflection formed over the sharp edge of the stricture, increasing every hour, the coats became so tightly drawn against the edge of the stricture, that they were first gorged with stagnant blood, and, finally, the circulation was stopped. *Strangulation* then took place, and *mortification*, or the *ulceration* of the intestine by pressure against the tendon.

Thus we may see how an intestine strangulates itself; how it fills by its own secretions, until an effect is produced equal to the binding of the stricture, although the tendon be passive, and of a nature not liable to change. The stricture operates in retarding the free return of the blood by the veins of the intestine, and the consequence is not only a distention of the intestine with secreted fluid, but an infiltration into the coats of the intestine, which produces a thickness in them, and a sensation to the feeling of fleshiness in singular contrast with that part of the gut em-

braced by the stricture. I have observed, that in this case there was a turgid lacteal seen upon the surface of the strangulated intestine. In the state of mere incarceration, no doubt these vessels are active, and retard that perfect fulness which proves so fatal: but by the increasing tightness betwixt the intestine and the neck of the sac, the larger lacteals must loose their office, and partake of the general turgescence.

I beg my reader's attention to one circumstance of this last case. We see here the necessity of drawing down the intestine before attempting the reduction; not only to bring the firmer part of the gut opposite to the stricture, but to examine the part, for in such a case as this, if the intestine were to be reduced, the fæces would be freely discharged into the cavity of the abdomen.

In hernia, the signs of danger—the hiccough, the vomiting of fæces, the filling of the belly, the tormina, have not a direct relation to the strangulation of the gut, nor to the state of the gut included in the herniary sac. These signs proceed principally from the state of distention of the bowels within the belly, and are a consequence of the obstruction; they do not, therefore, accord with the actual danger, in as far as that danger depends on the inflammation or mortification of the gut included in the hernial sac.

As obstruction and consequent fulness of the intestinal canal are the sources of the more urgent

symptoms, so we find that when the vomiting is free, and the discharge by this means copious, the other symptoms are in a less alarming degree, of which the following case is an example.

II. CASE OF FEMORAL HERNIA IN A MAN
RENDERED OBSCURE BY AN INGUINAL
HERNIA, AND THE PATIENT LOST BY THE
UNIMPRESSIVE CHARACTER OF THE SYMP-
TOMS.

A gentleman 63 years of age, and living at the time thirty miles out of London, perceived a small tumour in his groin. This swelling coming in circumstances which, to his confused notions, gave him the idea of its being a venereal bubo, although he had pain and vomiting from the commencement, he threw himself into a mail-coach, and came to town. This gentleman first felt the tumour on Saturday morning, he came to town on Sunday, and I was called into consultation on Monday, after my lecture; I found him sitting in his parlour, drinking a large basin of tea; and as he was receiving his friends, I heard them compliment him upon his good looks. There was, to my observation, an unnatural excitement about him. He was animated and restless. I saw him vomit the tea which he had been drinking, and the vomiting was easy, and without distress, or such exertion of retching as accompanies a common fit of sickness.

Still my patient was of opinion that his complaint was a bubo. I examined and found a tumour, which, though occupying the place of inguinal hernia, I thought came from under the femoral ligament; and so certain was I that it was a hernia, that I laid him down upon a sofa, and endeavoured to reduce it. I desisted, and ordered him a stimulant enema. I returned about three hours after. I became alarmed. I ordered the family to be informed of his danger, and requested the surgeon, in whose opinion I had nearly an absolute reliance, to be sent for. In the mean time, I took my patient in a sedan chair to the hot bath, and there made some further attempts to reduce the intestine.

We met in the evening, and the gentleman for whose advice I had anxiously waited, said, that he did not conceive that the case was hernia! the operation was, therefore, at this meeting out of the question. We met again next day at one o'clock. I had, in the interval, seen the patient, and from the continuance of symptoms, the manner of his vomiting great quantities of fluid with little distress, I conceived that we would be of one opinion, and I had my assistant, with instruments, in waiting. We now agreed that it was a hernia; but my senior consultant saw no occasion for the operation. There were no pressing symptoms, no sign of strangulation, no apology for hurry. He was to leave town, and proposed to meet me the second day hereafter. The patient

died the succeeding day. His strength held up until the tobacco clyster was administered to him, after which he very suddenly fell low, and sunk.

Upon examining the body, I found an inguinal hernia, and concealed by it, and under a load of fat, I found a small portion of intestine, strangulated by the femoral ligament. This was the cause of death; and the journey in a coach over thirty miles of bad road had been decisive of his fate. This was a great mortification to me, and I need not add, that I felt I should have been more decided. It was not the first example of the kind which I had seen.

III. CASE OF FEMORAL HERNIA ALLOWED TO SLOUGH.

I witnessed a difference of opinion on the occasion of an obscure tumour in the groin: some said it was a bubo; some that it was a hernia. The patient naturally sided with those who were against operating, arose from bed, and contrived to walk five miles with a hernia, in the last stage of strangulation. Hearing that he died, I followed him, and on dissection found the included intestine a putrid rag!

How much happier are the poor, who are admitted to a well-regulated hospital! how often have we to wish that our rich patients were laid on a pallet and iron bedstead, where the dictates of

sound reason and humanity might have free exercise.

IV. CASE OF FEMORAL HERNIA.—OPERATION
SUCCESSFUL.

Holden. French Ward. See p. 111.—In visiting this patient, he tells me his rupture has come down, and that he cannot return it. I find a small soft tumour in the left groin, with a neck coming from under Poupart's ligament. I have not been able to reduce it. I have made the patient continue to press his hand gently against it. He is ordered to be bled, and put into the warm bath, and then the house surgeon is ordered to try gentle and long continued pressure on the hernia.

In the evening it was announced to me that the hernia was strangulated, and the patient very ill. I found him in great pain, but without much tension of belly; no hiccough, no vomiting, but only pain in the belly. I made an effort to compress and reduce the tumour, but did not succeed. Large clysters had been repeatedly administered. Aware of his danger, yet considering the short time the tumour had been down, its softness, and the absence of tension and sickness, I thought it better to let him lie for the night.

R. Ol. Ricini ꝑss, Vitelli ovi, Aq. Menth pep. ʒj. Tinct.
Opil gtt. viii. Capiat haustus et rep. Enema.

June 24th. This morning I found he had put on his truss, insisting that the tumour had gone up. He expresses a desire to go home: but the hernia is not reduced. The evacuation he has had is only of the lower part of the gut. He is alarmed, and the truth is no longer to be got from him. Repeat the castor oil.

25th. He has been vomiting; no relief downwards. *Six o'clock.* The tumour is harder: he has had fæculent evacuations, from a large enema of solution of neutral salts and senna. He has vomited a chamber-pot full of fluid. I saw him vomit just now: he does it easily, emptying his stomach with little exertion. I asked him if he was as sick as at some former times, when his stomach was disordered. No, he said, he was not very sick. He has hiccough.

A consultation being called, and the symptoms still continuing, the OPERATION was determined on, for these reasons—1. The tumour harder, and no hope of reducing it: 2. The countenance more shrunk, and the pulse quicker: 3. The peculiar nature of the vomiting.

Operation.

The incision was begun an inch and a half above the Poupart ligament*, and continued be-

* It is necessary in this operation to have room upwards, and to clear the ligament on the neck of the sac.

low the tumour* ; a small artery was cut, a branch of the epigastrica superficialis : a considerable quantity of fat lay over the tumour, which, when it was cleared away, the tumour appeared so distinct and round, that it did not seem to the spectators to have any fascia covering it.—Several successive layers were dissected, by raising the membrane with the forceps, and carrying the knife horizontally, then introducing the directory, and cutting upon the groove; the last layer was so strong and tense, that it was difficult to catch it with the forceps and pinch it up. On exposing the gut, a very small portion of bloody serum escaped, and the gut rose freer from its bed. The colour of the intestine was like a ripe cherry† ; there was a slight degree of fleeciness on the surface, but no adhesion had formed.

The portion of intestine was so closely embraced that it could not be drawn down, to extricate the part long pressed, and consequently tender from the embrace of the stricture. The stricture being cut with the probe pointed bistoury and directory‡, a portion of the intestine was then

* Because it was small and deep, and required to be fully disclosed.

† When in a degree further advanced, the small knuckle of intestine more resembles, in form and colour, a small plum.

‡ The semicircular connexion established betwixt the Poupart's ligament, and the sheath of the vessels of the thigh. *Op. Surgery*, Vol. I., p. 286. It is more accurately stated in a pupil's case book. Mr. B. introduced a directory rather on the

drawn down; and here a remarkable contrast was observable, betwixt the portion long included in the hernia, and that newly brought down, in the paleness of the latter, and the dark red of the former. The intestine being now gently pressed, the contents went up, and the flat piece of gut was easily reduced. No stitches were used, the integuments were brought together by adhesive straps, on these a compress was laid, over this a broad strap, then a compress soft and like a cushion, and finally the double headed roller was applied.

6th. The patient's countenance much improved; he has had two full evacuations.

7th. The evacuations are as they ought to be, but his tongue is parched; he has great thirst; his pulse is frequent; he has no appetite; he is desponding, and "wishes it were all over." It is needless to follow the account of this case, for the symptoms were mixed, as the patient was at the same time suffering from an abscess in the perineum; he recovered, without a bad symptom recurring in any way connected with his rupture.

When a small portion of intestine is strangulated, mortified and burst, the fæces are freely discharged, and fæces being found in the sac, we are led to suppose that they formed the contents of the strangulated portion of the intestine. But the

pubic side of the gut, and cut a very small part of the *deep fascia*, having passed the straight bistoury along the groove, he raised his hand and cut the edge of the fascia; after this, relaxing the parts, by raising the thigh, the gut was easily reduced.

fæces come from the intestines which are within the belly. The circumstances of the first case very well illustrate this fact, that the strangulation is from the distention and consequent form of the intestine, not proceeding from the direct consequence of the stricture, since as soon as the distended intestine bursts, the contents of the intestinal canal have free egress. I shall give another example, although the case be one of familiar occurrence.

V. CASE OF FEMORAL HERNIA, EXPRESSIVE OF THE WORST SYMPTOMS, AND OF THE STATE OF THE INTESTINE IN MORTIFICATION.

Mary Lane, æt. 52, is just now admitted into the hospital. She has been subject to hernia for some years; formerly, when the swelling appeared, she could always push it up; but last Thursday it came down after a hard day's work at the washing tub, and she has not since been able to reduce it. From the time it came down, she has been sick, and what she has vomited has had a fæculent smell. This is the sixth day, and now, for the first time, she has seen a surgeon.

An irregular tumour extends from the pubes to within two inches of the superior spinous process of the ilium of the right side, a blush is over the whole surface of the tumour, and it feels irregularly hard, like the caking of the integuments around a

diseased gland. There is an appearance, as of the pointing of an abscess, for there is a point more prominent and soft, and evidently containing fluid. On further examination, there is crepitus; it is not a watery fluid, but air which is contained within this part of the tumour.

This poor woman's face indicates that there is no hope. There is a character of the eyes, declaring that she is struck with death; the features are shrunk. The belly is tumid, but soft and painful on pressure; the pulse is small and quick. She had an evacuation from the bowels last night, which, however, on inquiry, proves to have been in very small quantity. While preparing for operation, she has one of her attacks, which come in paroxysms; during it she rolls in bed, and cries aloud, which, with the death-like aspect of her face, declares her extremity; during these paroxysms her pulse is not to be felt.

In operation, unusual difficulty was experienced in dissecting back the skin from the tumour, for it was thickened and condensed by inflammation. But having exposed the tumour, the soft and prominent part of it was found to be a vesicle, thin and distended with air, and which, both in colour and the character of its vessels, had a remarkable resemblance to a portion of intestine. Layer after layer of this thin membrane being lifted on the directory, it burst, and discharged a fluid of the consistence of cream, yellow, and very foetid, evidently feculent.

I laid open the sac, let out more pus and air,

and fæces, and then appeared the intestine, shrunk and flat, and covered with coagulable lymph. From which latter circumstance, it bore so faint a resemblance, either to the natural intestine, or to what is usually found in strangulated hernia, that I saw the necessity of pointing it out to the surrounding pupils. When the parts were sponged clean, I did not discover the holes from which the fæces came; but on pressing the belly, liquid fæces exuded freely, by three small holes in the intestine.

I need not carry this case much further. I opened the intestine; the fæces were discharged through the opening; there was no necessity of stitching the intestine; it was adhering. She died next morning.

Here was the proof, I sought, of the passage of the fæces being free, as soon as the intestine burst, and therefore shewing that the obstruction to the course of the alimentary matter, as well as the obstruction to the blood in the strangulated gut, is owing to the distention of the intestine itself, and to the form it assumes, and that in suffering these changes, the stricture is still passive, and that the passage under the ligament remains capable of transmitting the alimentary matter as before strangulation took place.

I have now, I hope, fulfilled my first object, which was to place these points of the pathology of femoral hernia distinctly before the profession. I hope that I have proved that incarceration results

from the sudden angle which the included intestine forms. And that when this has taken place the danger is imminent from a cause not hitherto noticed, viz. the secretion of the intestine itself.

From the cause of strangulation, being in the secretion of the intestine two consequences are apparent, viz. the greater danger attending small hernia, and the necessary increase of the danger as time elapses. While we are left to suppose that the intestine is merely full of fæces, which neither admits of increase nor diminution, we might be inclined to temporise; but if we understand that when a small portion of intestine is retained in a stricture, that it is filling by its own secretion, we see a further motive to early operation.

The next point which I have ventured to urge, is the danger of the rule to wait for symptoms. It has been my purpose to show that the symptoms have no correct bearing to the urgency of the case, and that they do not proceed from the state of the strangulated intestine, but from the general distention and excitement of the canal above the strangulated portion. Tormina-sickness and vomiting, and tension of the belly, even the character of the countenance, and the frequency and feebleness of the pulse, depend on the state of the bowels generally, and we find them in excess, while yet the intestine in the sac is natural; on the other hand, we find the whole of these symptoms but little urgent, when the intestine is fast approaching to gangrene. To wait for symptoms is therefore to

wait for the gangrene of the gut. The conclusion is obvious, we must study the distinctions as they are afforded us in examining the tumour; we must accustom ourselves to determine by the place, shape, sign, and hardness of the herniary tumour, whether an operation shall be required or not; when we have ascertained the tumour to be a hernia, when this tumour can not be reduced by the hand, and when the symptoms announce that the canal is obstructed, the sooner the operation is performed the better.

VI. CASE OF GRACE GLOVER. FEMORAL HERNIA, WHERE STERCORACEOUS VOMITING CONTINUED FOR TEN DAYS—THE PATIENT REDUCED TO A STATE OF INSENSIBILITY—SAVED BY THE OPERATION. [*Infirmery of Edinburgh.*]

The next case of this series which I shall present to my reader, was the first in which I publickly operated; and as the notes were taken very fully, I am in hopes an extract from them may prove useful in supporting our hopes during the most threatening symptoms of mortification.

This woman is thirty years of age. About seven years ago she lay-in of her eighth child; and three weeks after her confinement, in raising her washing tub, she found something came suddenly down into her groin. It produced pain as severe as a la-

bour pain, and continued with this degree of violence for two hours; and then she says, it went up, and she was as suddenly relieved as on the delivery of her child. About two months after this, she had a return of the rupture, with the same excessive pain. From this time she could not take her infant in her arms without danger of bringing down the rupture. These attacks continued for three years; after which she had a period of the same length without experiencing any inconvenience. But one day, after a long walk, she found the swelling descend again, and she became subject as formerly to its frequent return. When it descended, although it was painful, she could always force it up, until Saturday last.

On this day, she was sitting down to breakfast, when she was attacked with pain, and found the old swelling had come into her groin. She tried her usual applications, but they all failed. The pain became intolerable, and it continued night and day; and for a fortnight she was in this state of suffering and without evacuation.

This is her condition since she has been brought into the hospital. In the right groin there is a small tumour, compressible, and retaining for some time the impression of the finger; when touched it gives exquisite pain: purgatives and clysters of the most stimulating kind have been given without procuring stool; and she has had stercoraceous vomiting for ten days. An operation was immediately undertaken, but without much hope of success.

I shall here transcribe Mr. John Bell's note on the case book. "I have seen many desperate herniæ, but never one where the patient's death seemed so inevitable, so certainly prognosticated by the symptoms. I expected her to expire even upon the operation table; and as my brother was the operator, and myself the assistant, I was anxious that the consultation should be drawn out rather in the form of a protest, representing the operation as a necessary duty, but as a desperate attempt." She had the symptoms of internal gangrene; her voice was quite gone; her cheeks were hollow; her visage ghastly; her eyes turned up, and her eye-lids half open. Her arms lay still by her side, unless moved by the attendants; her hands were cold: her pulse quite thready, but equal and not intermitting. She was quite sunk and insensible, only screamed out deliriously, when she found herself laid amidst assistants.

Operation.

This poor creature, quite delirious, and apparently dying, was laid upon the table. The carrying her, roused her to that state of wild and disorderly violence, which makes our duty so painful: it had nearly prevented me fulfilling it on this occasion. A long incision was carried over the tumour, beginning pretty high up. The hernia now appeared covered with its fascia, and that being divided, the hernia somewhat flattened before, sprung up. The sac and its contents now appeared; but it was a

tumour which still required a little dissection before it could be understood. It was dissected all around, and still it presented more of the form of a tumour than of a hernia, as described by authors;* for it hung like a glandular tumour, pendulous by its narrow neck or funiculus of vessels.

Proceeding to open the sac, the omentum presented of a dingy straw colour, very hard and condensed by the pressure; and this mass, so unlike the natural omentum, looked as if we had only got into the heart of a tumour.

The omentum being drawn out and unfolded, it seemed to occupy the sac so entirely, that the gut might have escaped my notice; but on careful examination, I found lurking behind and under the omentum, a small knuckle or single turn of the intestine. Without the conviction from the symptoms of there being a portion of the canal strangulated, and which led to a careful examination, the gut might have escaped us. It was of a dark colour and gorged with blood.

The finger was now pushed up to the neck of the sac, which was extremely narrow; the bistoury was introduced upon the finger, and a touch, the very slightest imaginable, a nick of the knife, just sensible, and which would hardly have appeared on

* This is improper; for if the outside of the herniary sac be thus separated, it must slough after the reduction, being deprived of its vessels.

dissection was sufficient.* The gut went up easily; and after it the omentum was reduced.

The alarming symptoms in this woman, and which indeed continued, or returned at intervals for three weeks after the operation, were as follows: faintings, languor, vomiting, frequent low delirium, the eye being sunk, and the countenance cadaverous. There was much tension of the abdomen, with a tenderness so great, that she could not bear the touch of the clothes: then came diarrhœa, which threatened to extinguish her remaining powers. From this state of abdominal inflammation, she was saved, as it seemed to me, by covering the whole abdomen with blisters. Blisters, with leeches applied around them, and the warm bath, and opiates, are, in these circumstances, the means most to be relied on.

* I have again to observe, that it is the acute angle of inflection made by the gut, more than the narrowness of the stricture, which causes the difficulty of reduction in the femoral hernia. When the operation of cutting the stricture is done to no greater extent than is sufficient to let the flatus of the intestine, or the liquid contents of the intestine be returned into the canal within, there is no danger of cutting any important part. When the neck of the sac is cut, and with it, a quarter of an inch of the acute edge of the ligamentous arch, it will be sufficient; though all this ligamentous part may be safely cut up, to the commencement of the Poupart ligament. But there is a manner of doing this operation which is so natural and so safe, that I am sure many must have done it though they have not described it: having cut a little upward, and that proving insufficient, do not prolong the first incision to a dangerous length, but direct the edge of the knife differently, to the inside or to the outside.

My reader after perusing this case, will perhaps look back to the symptoms described in the second case. The symptoms assigned to mortification were here very distinctly marked; and the reason is obvious. These signs proceed from the state of general disorder of the intestines within the belly, obstructed and suffering from the accumulation. The portion of the intestine in the sac, was saved by being surrounded by the omentum, which prevented it rising in a sharp turn round the margin of the ligament, and saved it from being cut on the edge of the ligament, as happened in some of the preceding cases.

VII. CASE OF FEMORAL HERNIA—ADHESION
OF THE INTESTINE TO THE SAC—THE OPERA-
TION SUCCESSFUL.

A Surgeon reported one of his patients to have hernia, which he found was strangulated, and desired that she might be admitted. She was not brought into the hospital till the next day, and in the mean time, she had a smart dose of jalap and calomel given to her [* 1].

When received into the hospital, a small Femoral Hernia was discovered: her belly was much distended; she vomited frequently; she had pain on pressing the belly, within the ligament. Such are the symptoms which would influence me im-

mediately to undertake the operation. But it was reported that she had evacuation downward. On this account the operation was deferred.

Consultation. 10 in the Evening.

The symptoms continue: the belly swelling more; the tumour not harder, but distinctly pinched; and the neck of the sac exceedingly narrow. The determination depended on the answers to two questions: 1. Had every thing been tried? Yes, she had been bled and had been put into the bath, and had had large stimulating enemæ, and the taxis had been repeatedly attempted. 2. Had she relief in her bowels? No: the reports had been vague; but now it appeared there was nothing returned with the enemæ. These answers being received, the operation was determined upon immediately; for although the tumour was not hard, yet the vomiting continuing, attended with a tense belly, pain on pressure, and that pain felt especially at the neck of the sac; there was no time to lose. [* 2.]

During *the operation*,* it was remarked, that the fascia [* 3.] was particularly thin, so that being opened, it so much resembled the peritoneum, that the pupils, some of them very conversant with this subject, supposed the peritoneal sac [* 4.] to be the gut itself. But the peritoneal sac being pinched up with the forceps, burst like a bubble, and a quantity of clear serum jetted out. And now

* The operation was performed by Mr. Cartwright.

the gut was found but very little distended ; not at all discoloured, and adhering by means of coagulable lymph to the neck and great part of the inside of the sac. [* 5]

I think I never saw the stricture on the neck of the sac so narrow. It required time and the utmost nicety to insinuate the directory. It could only be introduced on the side of the stricture towards the pubes. The probe-pointed bistoury being introduced upon the groove of the directory, and the stricture cut, it was not difficult to reduce the small portion of the intestine ; for the coagulable lymph was as yet soft which formed the adhesion. The moment this was done, the serum rushed from the abdomen, and the stream of fluid catching the edge of the sac, made a beautiful exhibition of it ; for it appeared like a hydatid, it was so thin and delicate.

On the third day, there arose pain and swelling in the abdomen ; it was partial, so that the part she complained of, could be covered with the hand. This yielded to leeches and a large blister ; and she is now doing well.

Remarks on the last Case.

* 1. It is very dangerous practice, to give drastic purges, when the intestine is strangulated ; it overworks the intestines, which have no means of unloading themselves. May we attribute to this, the quantity of serum which was collected in the belly, and which ran out after the reduction of the gut.

*2. When we have ascertained that there is a hernia; that it produces vomiting; that it prevents evacuation downward; that it cannot be reduced; there is danger after this, in every moment of delay.

Mr. Cooper has said, that if he were himself the subject of strangulated crural hernia, he would only try the effect of the tobacco clyster, and if that did not succeed, he would have the operation performed in twelve hours. If by strangulation be meant here, that tightness which deprives the gut of circulation, twelve hours is a fearful length of time. The expression seems precise; but from what period are we to count the hours? Is it from the first coming down of the hernia? Is it from the time of the last evacuation—Is it from the commencement of pain and sickness?

When symptoms announce the canal to be obstructed, and when we feel a small hard herniary tumour rising from under Poupart's ligament; when we have failed to reduce that tumour by the taxis, aided by bleeding, large purgative clysters, and the relaxation or deliquium induced by the warm bath—lose not a moment in performing the operation with the knife, for the danger is imminent.

*3. This envelope ought not to be called a *fascia*. It is the cellular membrane, which the peritoneum pushes before it in its descent, condensed and become firm; and accordingly it surrounds it on all sides, and has a narrow neck like a bottle.

*4. The proper sac of the femoral hernia, is

purely the peritoneum, and instead of being thicker than that membrane, it is transparent, and very delicate. It is not easily distinguished from the intestine, unless it be from the conviction of the Surgeon, that he has not previously divided the peritoneum, and by the superficial and long course of the vessels which are visible upon its surface.

* 5. My reader will observe that I here state a fact, at variance with the theory which I have offered in the preceding pages. Here is strangulation without distention of the gut in the hernia. There are some other circumstances here which may be worthy of attention: viz. the gut was not discoloured, and it was coated with coagulable lymph. I attribute the lesser degree of fulness in this portion of intestine, to the distention of the sac with serum; for although the whole tumour was very small, fully an ounce of liquid escaped from it when the sac burst, consequently the intestine could not assume its usual rounded and distended form.

VIII. CASE OF FEMORAL HERNIA, WHERE THE SAC WAS REDUCED ALONG WITH THE INTESTINE, THE OPERATION SUCCESSFUL.

I WAS requested to give my opinion on a case of strangulated hernia. I found a woman of 46 years of age, with a tumour in the place of femoral hernia. It was circumscribed, smooth, elastic, and I could feel the neck of the tumour going under

the ligamentous arch of the thigh. The belly near the neck of the sac was tender on pressure [*].

On inquiry I found that she had been subject to a rupture for five years; but that heretofore she could always put it up. That on the preceding day, in the morning, she had eat something which had disagreed with her, and made her vomit. During the exertion of vomiting the tumour came down, and she could not put it up. This had happened at 12 o'clock, and it was now 7 in the evening of the second day. I had no doubt that the case was hernia. The next inquiry went to what had been done. She had been bled, repeated doses of calomel had been given, she had been put into the warm bath, enemæ had been thrown up, and the taxis attempted.

She was now in great pain, and under great alarm. The pain came in paroxysms of about six minutes duration; she vomited a foul turbid and foetid fluid. In attempting to reduce the hernia it felt as if it yielded; it seemed to disappear, but the tumour was only pushed lower or deeper; when the fingers were removed it rose to its former volume, and no part had been reduced into the belly. The neck of the sac was indeed to be felt so narrow, and so distinctly nipped by the ligament, that I had no expectation of the woman's life being saved, but by an operation; the woman had resolution immediately to accord. The sur-

* This is a very important indication.

geon operated with great deliberation, and very successfully: with the blunt hook the several layers of membrane were raised up and dissected off; at length the sac assumed a transparent blackness. A gentleman present said it was the intestine, which arrested the operator's hand; he proceeded to introduce the directory under the ligament, and with the bistoury cut the stricture, in a direction upwards and outwards. He now attempted to reduce the hernia, and I thought that the intestine at this time went up; of this, however, I can not be certain; he resumed the bistoury, cut the ligament a little more, and separating a few adhesions, he then reduced the whole tumour.

The same evening the woman had two copious evacuations; in the morning she was quite comfortable, having neither pain nor sickness. I visited this woman twice after the operation, and there was nothing remarkable, unless the singular appearance of the wound, which seemed to heal by the first intention; for I must allow that I never saw an operation of this kind look so well, there was a mere line of adhesion. However, it afterwards broke out into suppurations. She had some tendency to disorder in her stomach and bowels, which was relieved, and she got quite well.

Remarks on the Case.

In the femoral hernia, the proper sac, that is to say, the process of the peritoneum, is quite peculiar in respect to its thinness and transparency; and

the slighter adhesions which it has to the surrounding or outer sac; we have seen in one of the preceding cases, that the membrane left, after the reduction of the gut, was so transparent, that when the serum flowed from the belly, and filled the sac a second time, it appeared like an hydatid; and in the last example of all, the colour of the intestine was given to its membranous covering, in that degree, to make the surgeon reduce both the gut and the peritoneum; for myself, I must confess, that I was for a moment mistaken, and both the sac and intestine were reduced before I had an opportunity of giving an opinion, which, during an operation, is a delicate matter, unless it be asked.

The success in this operation was perfect, which makes it the more necessary to consider the subject, else, in imitation of this, a practice may obtain which would be very dangerous. In the splendid work of Mr. Cooper, there is an example given, where, by mistake, the sac was returned with the intestine, the symptoms of strangulation continued, and the patient was lost. I have, in my Surgery, stated, that *Le Dran* reduced the sac with the intestine, and that the neck of the sac continued to embrace the intestine, and the patient died. It appears then, that it is not uncommon to mistake the peritoneal sac of a femoral hernia, for the gut itself; and who in this are to blame so much as those, who in their works fail to distinguish betwixt the difference of sacs in the several kinds of hernia? It is further evident, that it is possible to reduce both the sac and the intestine in the case of femoral

hernia; but is it allowable to do so? certainly not: for the intestine may be strangulated by the neck of the sac, in which it remains included*.

But a second question may be agitated, Is it allowable to reduce the intestine without opening the sac? that it is possible, this case proves: why it is possible in the femoral hernia, the knowledge of the nature of the sac and of the ligaments, informs us: but this also must be a very dangerous operation, and if attempted, no sort of violence must be used.

What I have called the outer and false sac of the femoral hernia, is by some authors called a *fascia*. Let us first endeavour to understand what this is, and then to give it a name. When in the operation, we have cut through the skin and cellular membrane, and pushed aside the bed of the inguinal glands†, and raised some loose and fine layers of membranes, we come to a dense coat, which, if we dissect it all around, is like a bottle with a narrow neck, which neck is embraced by the ligamentous arch of the thigh. This is an exact covering to the proper peritoneal sac of equal thickness all around, and the cellular adhesions, both to its out-

* This seems at variance with what has been delivered on the delicacy of the proper sac of the femoral hernia; but while the lower and exposed part of the sac is of extreme tenuity, the neck of the sac is some times firm as a cord.

† In cutting down upon the fat of the groin, we in fact cut through the *fascia superficialis*, which, however, has its fibres scattered and intermixed with the adipose membrane.

side and its inner surface, are so fine and so very easily torn even by using the handle of the knife, that the surgeon, who has not all his recollections about him, is very apt to mistake it for the peritoneal coat; which error leads him further wrong.

To call this the *fascia*, is to confound every thing, and to set a task for our demonstrators, which they never can execute, in shewing all which pertains to hernia, in the anatomy of the natural body. This membranous *bottle*, which surrounds the inner sac or peritoneal sac, is made of the cellular texture, external to the peritoneum, and which it meets with as it descends. This loose texture spread over the proper sac, being compressed, condensed, and suffering a kind of inflammatory process, is moulded into this regular form. It is, therefore, not a thing to be seen in the natural state of the body; it is a woof, the rude material of which is visible in the natural state; but the manufactory is completed by the protrusion of the hernia. For want of a little precision, both in the names we use [calling that fascia which is merely condensed cellular membrane] and in the description, the dissecting pupil is puzzled in his endeavour to discover parts of which he reads, and the surgeon is prepared for falling into the mistake of taking the sac for the gut, or making a discovery of a *lusus*: viz. one sac within another; and if we turn to the cases recorded of femoral hernia, where this circumstance occurred, we shall find reason for concluding, that the surgeons have been deceived

by the appearance of the outer, or false sac, and inner or peritoneal sac, which I have here described.

There remains a subject of some practical importance: viz. the treatment of the mortified intestine. I assisted a very particular friend in the following case, we were both young to the profession, when it occurred.

IX. CASE OF MORTIFIED INTESTINE, IN FEMORAL HERNIA, WHERE IT WAS THOUGHT NECESSARY TO CUT THE LIGAMENT AND RELIEVE THE GUT. [*Edin. Infirmary.*]

Marion Brown, æt. 50. In the right groin there is an oblong tumour, extending from near the spine of the os ilii towards the labium; it is irregular, and in part compressible, inflamed, and painful to the touch. The abdomen is tense, and she complains of excessive uneasiness; her pulse is so languid as hardly to be felt; and her countenance is sunk. By the account of her friends, she has been subject to rupture for twenty years. Her present sufferings commenced twelve days ago, for then the hernia came down, and from that time she has been obstinately constipated.

Notwithstanding that this woman had suffered with symptoms of strangulated hernia, and stercoraceous vomiting for twelve days, it was remarked

that "she was far from being so exhausted as the patient, Grace Glover; her voice was hale; her face was not so pale nor so ghastly." Yet, from the history, and the continued vomiting, and from the croaking* within the tumour, there was reason to fear the worst.

Upon making the incision, which was nearly five inches long, over the tumour, the parts were found adhering, and the cellular substance and fascia were soft, and of a dirty yellow colour. The knife seemed to have penetrated, at particular points, into a foul abscess, from which there was an oozing of matter. My friend, having by a little dissection, exposed the parts, the sac and intestine were found entirely gangrenous and broken into one mass, over which the firmer fibres of the superficial fascia crossed like strings, and through which the fæces were forced out. The bistoury was now used, and the intestine freely opened.

A small quantity of fæces only was discharged from the intestines; a little tepid water was thrown into the intestine, but it was not returned. In the evening, there was no further discharge of fæces, nor were the symptoms alleviated. The succeeding day a majority of surgeons overruled Mr. John Bell's objections, and the surgeon introduced his finger into the intestine, and with the

* In a recent hernia, it indicates that the distension of the gut is not great, or that its contents are moving up, but in so late a stage as this, it indicates gangrene.

bistoury divided the edge of the ligament. After this there was a considerable quantity of fæculent matter discharged, but the patient was not relieved; she continued sinking, and died in the evening.

Dissection.

On opening the abdomen much putrid air escaped; the whole intestines, but particularly the small intestines, were very much inflamed, and greatly distended; their colour was dark brown. The ileon was traced into a passage under the Poupart ligament: here the two portions of intestines adhered together, and to the peritoneum. There was a little coagulated blood at the neck of the sac, and a small nick visible from the abdomen, where the bistoury had passed in the second operation.

Observations on the Case.

Authors, in treating of the *bursten* intestine, should have distinguished two cases; the intestine burst by ulceration on the sharp ligament, and the intestine burst after mortification. We have to enquire, whether or not, in such cases, it be necessary to dilate the ring; secondly, in what manner it is to be done; and, finally, how we are to prepare for the re-union of the gut. When the intestine is burst in this manner by gangrene, the opening is to be enlarged, the surgeon then introduces his finger (within the gut), and passing the point under the ligament, he feels if the stric-

ture be free to allow the fæces to pass, and if he can pass in the tip of his little finger, no further operation is necessary.

But if the contents of the intestine be not freely discharged, and if the gut have come through a space so small as to impede the discharge, then the ligament is to be cut. But this ought not to be done by introducing the bistoury on the finger which is within the gut; for then the sound part of the gut is cut, and the abdominal cavity may be opened, which, in this state of parts, is happily closed. The parts must be dissected around the ring or neck of the sac; the edge of the ligament is to be raised without injuring the intestine, and the firm or ligamentous parts only cut; and I have already said, very little cutting will enable the surgeon to pass the finger up the gut, and through the ring or stricture.

I have in this Report given ten cases of femoral hernia, and I have seen many without keeping any account of them, and many in which I saw only the fatal result on dissection. But the question which has been so much agitated about the manner of cutting and sewing the mortified intestine, has never occurred to me in a practical form, unless the first case of this series might be so construed. When there was mortification, there were also adhesions of the gut to the ring and mouth of the sac. That adhesion is not to be undone for the purpose of tying or sewing the sides of the gut together! Here experiments on brutes are

good for nothing, and worse than nonsensical; they mislead.

Nor is the practice, though possible, much better, where the surgeon passes a ligature through the mesentery, to retain the mortified gut from slipping into the abdomen. The manner of accomplishing every indication, is this: having cleared away the mortified portion of the intestine, attend carefully to the two canals which are left, the one leads to the superior, the other to the inferior portion of the intestinal canal. Pass the needle, carrying a seton cord, deep into the one orifice, and bring it out by the other. This will retain the intestine in its place, if that be necessary, and in due time it will form a communication betwixt the two portions, by which the continuity of the canal will be restored.

M. Dupuytren employs a very ingenious manner of restoring the continuity of the gut in cases of anus at the groin; he introduces the leg of a pair of forceps (formed for the purpose) into each orifice or portion of gut; these, being closed, meet at their extremities only, and first hold the portions of the gut together, and by continuing so to keep the instrument shut, by a mechanical contrivance, mortification takes place in the parts thus compressed, and consequently a communication is in the end, established betwixt the two portions of intestine.

This is a very ingenious method, and I have no doubt is practicable. The manner I have offered

is in imitation of the process of Nature, and it is always possible to do it. The instrument is a needle, and at hand: an instrument of so peculiar a form, as that of the French surgeon, will probably not be found when it is wanted.

Those who think, that to praise a man's book is to say he is my friend, and to criticise it is to declare the author is my enemy, will not comprehend how I can exult in the true splendour and usefulness of Mr. Cooper's work, as an honour to the time and the country, and yet object to particular parts. Nevertheless, this is the only just criticism; for where the particular advice is wrong, the general merit makes the passage more dangerous.

In his 12th Case, he spread the sphacelated portion of intestine in his hand, and cut off the mortified portion; after which he made three sutures upon the intestine, to bring its edges together; the intestine was then pushed as near as possible to the mouth of the herniary sac, p. 31. In the 11th Case, two inches and a half of the intestine were cut off, and the ends of the intestine joined by three sutures, so as to leave a small opening for the discharge of fæces. In the 9th Case, he passed a needle and ligature through the mesentery, and fixed it to the mouth of the herniary sac, and then made a large opening into the intestine two hours after, he dilated the stricture, and then the fæces rushed down into the mortified intestine, and were discharged.

If the cut edges of the intestine are to be joined with ligatures, the intestine should be reduced into the abdomen ; for to keep it without the ring, must make the passage through the intestine too intricately twisted, to expect the fæces will take the course of the canal, while this operation does not leave a free opening to unload the bowels of their contents outwardly through the groin.

To use a ligature through the mesentery to fix the intestine to the groin, is making no provision for the reunion of the end of the portions of the intestines. The subject will be further illustrated by the following example.

XI. ANUS AT THE GROIN.

In my Collection there is a preparation which illustrates this subject. A middle-aged woman had a tumour in the groin, which was soft, œdematous, and inflamed. From the train of symptoms, it was obvious that this was a herniary tumour : but she would not permit the operation, nor even the approach of a surgeon. In a few days, the tumour burst, and discharged matter and feculence. She lived three weeks from the time we saw her. On dissecting the body, I saw in the labium a bag of matter, and an ulcer, with sinuses in the groin. The portion of the intestine which had been held in the sac was quite sloughed away, and the sac was no longer distin-

guishable. An opening, through which the little finger could be introduced, communicated with the gut, and formed an anus at the groin. On opening the abdomen, two portions of the ileon were seen tending to one point, the passage under the femoral ligament; they were in close contact, and agglutinated as they approached the passage, and adhered to the peritoneum. In the preparation, it is still observable that these two portions of the intestine have one opening towards the groin, which is owing to the wasting of the intermediate septum; and here it appears, that if the opening had been closed outwardly by granulations or adhesions, a communication might still have remained betwixt the two portions of the intestines.

When we look to the preparation, it appears an easy matter to pierce or to destroy that septum by either of the means I have spoken of: but let it be remembered, that when the anus at the groin is thus established, the opening is irregular and deep. Although it may be easy to find the passage by which the *fæces* came out, it does not follow that the passage to the lower part of the intestine shall be found with the same ease. Here is an additional reason for passing the seton ligature into the extremities of the gut, in preference to passing it through the mesentery at the time of the first operation. The ligature serves to distinguish the two extremities of the gut, and if it do not prove effectual to the formation of a communica-

tion betwixt them, it will facilitate whatever operation may afterwards be attempted. Before this simple means be rejected, let it be remembered that there is a natural tendency of the two portions of the gut to form a communication by ulceration, which appears to me to ensure the enlargement of the hole made by the seton, and its continuance.

[See further Cases of Inguinal Hernia in future Numbers.]

SOME OBSERVATIONS ON THE STRUCTURE OF THE PROSTATE GLAND.

By Mr. Shaw, Demonstrator of Anatomy in Windmill Street.

The anatomy and diseases of the prostate gland have long been favourite points of discussion; but of late years they have excited greater interest. For this we are indebted to Sir Everard Home, who, by his book on Diseases of the Prostate, has not only shewn the true principles of practice, but by his description of the morbid anatomy of the gland, has incited surgeons to the further investigation of its natural and morbid structure.

Trusting to Sir Everard Home's love of science, and observing that in most of the papers which he

has given to the public, he seems desirous of bringing forward the younger members of his profession; I have, without fear of appearing presumptuous, given an account of some dissections which I have made of the diseased prostate; in the course of which I have remarked facts which induce me to vary in some points from the usual description of the third lobe.

In the demonstrations of anatomy which I have given for some years to the students in Windmill Street, I have always shewn that part of the prostate, which is called the third lobe; and in not less than 200 dissections which I have made of the bladder, I have never failed to find the same part, by following the description of the dissection, given in Sir Everard Home's book on Diseases of the Prostate. The situation and form of the three distinct portions or lobes of the healthy adult gland are there so accurately described, that were I to describe the parts from the most accurate dissection, it would appear only as a transcript of the passage.

In the Medico-Chirurgical Transactions of 1812, there is an account given by Mr. Bell of the different opinions of the ancient and modern anatomists on the diseases of the prostate; and particularly of that projection of a part of the gland into the bladder, which produces a valvular obstruction to the passage of the urine. In the investigations of this subject, Mr. Bell discovered that the bodies commonly called corpora carnosae,

which proceed from the mouths of the ureters, were small muscles, and that they were inserted by a common tendon into the prostate gland.

In the same paper he gives an ingenious theory, to account for the projection of a particular portion of the prostate into the bladder. In every case which I have examined, of that which is called disease of the third lobe, I have found his idea to be correct; that is to say, the portion of the gland to which the muscles of the ureters are attached, has been the part from which the projecting tumour arose. Though I agree with him in his theory, which I am sure every one who examines his collection in Windmill-street must also do, still there is one part of his essay which I think incorrect. I mean his description of the insertion of the muscles; but before I notice this more particularly, I shall state the circumstances which gave origin to my more immediate investigation of this subject.

About three years ago, I found a diseased bladder, the appearance of which led me to form the idea that the disease of the prostate, which forms a tumour within the bladder, was not always produced by the enlargement of the third lobe; but from the manner in which the preparation was mangled by a young student, who not only divided the pelvis, but also the prostate, with the saw, I was unable to judge accurately of the state of the third lobe; however it was evidently a portion of the gland anterior to the third lobe that projected into the bladder. I preserved the parts, and the prepa-

ration is now in the section of diseased prostates in Mr. Bell's Museum. The next opportunity I had of examining this disease, was in a subject where the projection of a part of the prostate into the bladder was in its first stage. The patient had long laboured under fistula in ano, of a very complicated nature; he was worn out with repeated suppurations, and was at length carried off by diarrhœa. On opening his bladder, I saw the muscles of the ureters particularly strong and very distinct from the other muscular fibres of the bladder; indeed these were not unusually strong. At the point of the prostate to which these muscles were attached, I found a projection of the size of a bean, evidently the commencement of that tumour which has been called disease of the third lobe. I made a careful dissection of all the parts round the neck of the bladder; and on the back part, I made the same dissection as that described by Sir Everard Home, in his description of the third lobe. I removed the vesiculæ seminales and ducts of the testicle, and though there was an evident projection of part of the gland into the inside of the bladder, still that part which is called the third lobe, was as distinct as it is found in a subject the most favorable for the dissection.

There are two points shewn in this preparation.

1. The commencement of a valvular obstruction to the urine, produced by the projection of a part of the prostate into the bladder, which part is anterior to the third lobe.
2. That the muscles of the

ureters are not inserted into the third lobe, but into that part of the prostate which, when diseased, projects into the bladder. In the works of some of the best anatomists, the muscles of the ureters are described as two cartilaginous bodies, running from the mouths of the ureters towards the urethra, and terminating in the caput galinaginis. On a superficial examination, they present very much this appearance; but Mr. Bell has shewn that they are muscular, and that they are attached by a tendinous band to the substance of the prostate. He is incorrect, however, in describing them as attached to the third lobe. This is proved by the preparation I have just described, which is at the same time an example of the truth of his theory, viz. that this particular enlargement is produced by the action of the muscles of the ureters.

I have very lately dissected another diseased prostate, which, though differing very much from the two I have already mentioned, is, notwithstanding, illustrative of the subject. The gland was taken from a man sixty years of age. It is enlarged, the opening of the urethra is of great size, and the bladder does not appear to have suffered from dilatation; there are three distinct projections from the prostate into the bladder, but there is no projection in the usual place: the muscles of the ureters are not increased in strength. On the back part, I perceive the third lobe slightly enlarged, and projecting downwards.

From these dissections, the following conclusions may be drawn :—First, that, in many cases the enlarged portion of the prostate, which projects into the bladder, is not the third lobe, but a more anterior part of the gland.

In the second place, it appears, that where there is a valvular projection into the bladder, the muscles of the ureters are found to be inserted at the root of the tumour.

Thirdly. It appears that whenever there is this valvular projection from the prostate, the muscles of the ureters are found enlarged.

It will perhaps be admitted, as in part a corroboration of what I have stated, that I cannot find in any book the description of a dissection of the back part of the prostate, where there was a valvular projection into the bladder; nor have I seen any drawing of a perpendicular section of the diseased gland, which could give a correct idea of the relation between the third lobe and the portion which projects into the bladder.

OBSERVATIONS ON THE AMPUTATION AT THE SHOULDER JOINT, AND ON THE EXCISION OF THE HEAD OF THE HUMERUS, IN CASES OF GUN-SHOT FRACTURES.

The consideration of such subjects recalls to my mind the cases which I have seen in military prac-

tice, and the surgeons whose operations I have witnessed with admiration. The many occasions which I have enjoyed of seeing the military practice, have given me a great interest in whatever regards that department of the profession. Some of the gentlemen of the army and navy, originally well-grounded in the knowledge of their profession, have come forward into notice, and given a reputation to their department of the service: and I hope that our common profession will be still more enriched by communications of the result of their experience during the late wars.

Some will say, that the subjects here treated of belong to the military surgeon. They have poor notions of the profession, who would suggest this distinction. Surgery has been improved in a remarkable manner during the last fifty years, by the lecturers and hospital surgeons. Their efforts have been ably seconded in the practice of the army and navy; and especially in operations, some very bold and remarkable things have been there accomplished. But every hospital surgeon and teacher claims the privilege of examining these operations, and the principles on which the military surgery has been conducted. I have sacrificed much to see our navy and army surgeons on duty, and in doing so, I have shewn my respect for them; but I will not lose the vantage ground which a laborious life has given me, nor yield it to them as a privileged body, to lay down the great

principles of the profession. The patients in military life are not drawn to their surgeons by their reputation—they have no power of selection—misfortune brings them under very absolute practitioners ; and this has often struck me as a reason why the army and navy surgeons should confine themselves to rules acknowledged by the general sense of the profession.

After the battle of Corunna, I went to Portsmouth, and lived a short time in Haslar hospital, where I studied, I hope, with all diligence under that excellent surgeon, Mr. Vance. They would joke with me on my picking up the bones shattered by gun-shot, saying these would make fine stories for lecture ! These bones were of much use to me ; and although, at first, I sought for them simply as the examples of such fractures as the united navy and army surgeons condemned to amputation ; gradually, as I saw more into the subject ! I began to question the propriety of their decisions.*

I prosecuted the subject in the York hospital, for Mr. Knight was liberal in the discharge of his office. My opinions published, and expressed repeatedly in lecture, were, if possible, more than ever confirmed by what I witnessed of the wounded at Waterloo.

* See the Section of Gun-shot Wounds, in the end of my Operative Surgery also published separately.

I shall confine myself at present to those wounds of the shoulder, which require extraction of the head of the bone, or amputation at the socket.

If the surgeon and his assistant be bold and dexterous, and use dispatch, the OPERATION OF AMPUTATION AT THE SHOULDER JOINT, may be safely performed according to the present method. I saw it done in Haslar hospital, in a manner which left no room for improvement, while committed to such hands. But considering it as an operation often required, and of course, pretty generally performed, it does seem to me, that a plainer and safer mode ought to be laid down. These are subjects which it is dangerous to consider theoretically. Experience leads us to a fuller comprehension of the difficulties; and sometimes, contrary to the general course, the hand leads the head: for, in performance, that is often difficult or awkward, which is plain in words, or easy to be done, though obscure in description.

In my volume of Surgery, I have explained the necessity of supporting the patient, and the manner of doing it. I there stated, that if the patient be not supported at the moment of dividing the artery, when the pressure should be greatest and the resistance most steady, the patient sinks, and the artery is free! I have additional reasons to caution the surgeon against this occurrence.

The compressing of the artery above the clavicle, does not secure the patient against loss of blood.

It may be done, but is not to be depended upon ; for if it be, there will be a great loss of blood.

The manner of making the incision has been a great deal too much dwelt upon ; for without considering the place and extent of the wound, it is absurd to be critical about the form of the incisions. Generally speaking, the deltoid muscle ought to be made to form the flap ; so as to fall down upon the semicircular incision on the lower or inner part. But the flesh of the top of the shoulder is sometimes torn or contused in such a degree as to make this form of incision impossible. Then two lateral semicircular flaps are to be formed. But these must still be accommodated to the form of the original wound, and with a regard to the security of the artery.

In this operation, the compressing and securing of the artery, is the point by much the most important ; and it is here that I think our military surgeons err : they disregard the danger too much. After experience acquired, they proceed boldly and with effect, without considering the circumstances of the younger surgeons, or the difficulty as it may present itself to a surgeon on his first operation. But according to the present method, it is not proper to cut the artery across, without security that the blood be arrested ; and on the knife dividing the remaining portion of the limb, and the artery with it, there should not, instead of quietness and security, be a general scatter of the assistants and spectators, to avoid the blood. I

think every practical surgeon must have noticed this fact ; that the suddenness with which the blood is drawn from the heart, is of more consequence than the quantity. I have seen in common amputation, a few jets of blood direct from the artery, give a shock to the patient from which he did not recover. The blood which flows from the artery in the shoulder-joint operation, comes direct from the heart ; and I have seen the moment of the division, the moment of the general sinking of the patient. In unskilful hands it is fearful to think of the consequence of this state of things.

Why, therefore, should not a safer method be taken, if it be as expeditious. I am entitled to speak strongly if I can prove that there is a safer method. It is this : When the incisions have been made above, or on the outer side of the shoulder ; pierce the capsule, and separate the head of the bone, so that the thumb sinks into the joint ; then grasping the integuments of the axilla with the fingers, the artery itself is in your grasp, and not a drop of blood escapes. When the last cut is made, severing the limb from the body, the artery is cut across ; and it is presented with open mouth to the tenaculum or the fingers of the assistant without a drop of blood distilling from it. It is tied with more ease than in a common amputation, and with no occasion for hurry or trepidation.

In the hospital, called Gendarmerie, at Brussels, I had occasion to perform this operation. A mus-

ket ball had struck the head of the humerus, and fractured it, and broken up the acromion scapulæ. Whether this was a proper case for the operation of amputation, we shall presently inquire : but I was employed in disengaging the broken bones when two staff surgeons came in, who induced me to convert the ugly wound which they saw, into an amputation at the joint. The state of the patient admitted of no delay ; and, taking the amputation knife, with three motions of the knife I separated the arm.

I stood behind the patient. Setting on the knife in the wound of the top of the shoulder, I drew it so as to make a flap of the outside of the deltoid. Then laying the wounds into one, (in the direction of the dotted line, Plate VI,) I drew the knife a second time in the cut, so as to open the capsule. I then passed the thumb of my left hand into the joint, betwixt the glenoid cavity and the head of the humerus, bending the fingers of the same hand into the axilla, I held the string of the artery and nerves firmly betwixt my fingers and thumb, and completed the operation by a semicircular sweep of the knife on the inside and lower part of the arm. The artery presented its empty mouth. Giving up the knife, I took hold of the artery with my finger and thumb of the right hand, and drew it out clear of the nerves ; when it was tied by my assistant.

In this manner of operating, the only thing that can be called a difficulty, is common to both methods of operating—the division of the capsule.

When the upper segment of that membrane is divided, and the arm permitted to hang, there is nothing to prevent the thumb from being thrust betwixt the scapula and humerus. I have done this so often at lecture, without changing the knife, that I found no difficulty in doing it on the above occasion. But as these are bloodless parts, time may be taken, and the probe-pointed-bistoury used to divide the capsule on the outside and inside of the head of the humerus. In the common manner of amputating, the artery being cut across, shrinks, but the gush of blood does not cease; it still issues from the retracted artery, and obscures its place. A great advantage of this manner which I recommend is, that the artery is so held that it cannot retract, but points towards you with open mouth. Now I ask with confidence, Is not this a safer, and therefore a better method, than trusting entirely to the compression of the subclavian artery? For in these circumstances the cry is, now! now! gentlemen, take care of yourselves! is all ready? I am about to cut the artery! and whiss it goes, giving evidence on every spectator, that they have been present at a great and bloody operation.

In a late publication (for it is the fashion not to mention names, unless we are going to cover a friend with extravagant praise), the author, who is considered for many excellent qualities, the example of the army surgeon, says, indeed I prefer feeling

the pulsation of the artery, that I may afterwards be certain that it is properly commanded. He continues, the axillary artery does not throw out so much blood at each pulsation as has been conceived. The blood thus thrown out immediately declares the situation of the artery, and if the judgment be not obscured by the hurry of the moment, very little pressure with the closed hand on the surface of the wound commands the hemorrhage. I will admit this is very good practice when a man is sitting on a pack-saddle, sublime amidst the Pyrenees, where a few jets of blood amidst the surrounding carnage, is a matter of no moment; but I believe my friend will acknowledge, that in a London hospital it would make a very considerable sensation!

In studying these same fractured bones I have spoken of above,* and seeing the consequences of the attempt to preserve the arm in such cases of gun-shot fracture, I concluded that the prolonged mischief was principally owing to the shattered bones being left.

There were two cases of the head of the humerus fractured by musket-shot; one of which I saw condemned to amputation at the shoulder-joint, by a naval surgeon, and the other by an army surgeon. And after this I had many occasions of knowing that such was the practice dur-

* Which are arranged in a cabinet in the Museum.

ing all the peninsular war. In these circumstances I could only make the strongest representations against such practice; and although I thought that my authority might have little weight, I expected that my reasons should have some; and I think I may say that in this I have not been disappointed. But my object is not merely to show that I have pointed out the necessity of these operations, which have been performed since the promulgation of my observations in my lectures and in my book; but to do a thing of somewhat more consequence, to show that they have been done with great negligence of the anatomy.

I saw Ellard, whose case is before the public, and on whom an operation was done in the York hospital. A musket-ball had passed through the head of the os humeri, and shattered it, forming a case exactly similar to that of which I have given a plate in my Surgery. When I saw this man I found that the surgeons in operating, had cut across the deltoid muscle, and separated it from its insertion into the humerus; the consequence of this was, such as might have been anticipated, The head of the bone being extracted, and the connexions of the humerus lost with the scapula, and the deltoid cut across, the pectoralis major and the latissimus dorsi, had drawn the end of the bone

towards the side, the consequence of which was that the bone lay irritating the skin on the inside, and an abscess had formed there.

The operation has been commenced in the same way in a second case, that is, by raising the deltoid muscle in a flap. Besides being wrong in respect to the operations of the muscles on the remaining end of the humerus, this is an unnecessary severity. The cutting across the deltoid muscle and then raising it up as a flap, presents the fractured bone entirely to view; but it makes a very formidable operation. The arm is more than half cut through, and an extensive suppurating surface is produced. To a patient reduced by long suffering this is a serious matter; and in a recent case it is of great advantage to have the operation simple and less frightful in appearance, that it may be the more readily submitted to.

When I first proposed this operation, it was in these words: "now supposing that instead of performing that very serious operation, the amputation at the shoulder joint, a decided and long incision be made through the deltoid muscle, the loose bones picked away, and the broken extremities of the humerus taken off with a small saw, what would the situation of the patient be? The operation is easy, not severe to the patient, and the cause of high inflammation and protracted suffering is removed."

That the operation of extracting the head of

the humerus, as performed in the York hospital*, was set about with very confused notions, is evident from the expression they have used in the report of the case. To remove the bone, "it became necessary to separate the capsular ligament from its connexions with the neck of the bone and contiguous muscles, viz. *teres major*, *pectoralis major*, *latissimus dorsi*, & *subclavius*." However familiar with the term, they ought to have known that the muscles to which this distinction of major is given, have no interference with the capsule of the joint, any more than the *subclavius*. The operation required three quarters of an hour, two arteries were tied, and two pounds of blood were lost. Here is another indication of the severity of the operation, and of the improper manner in which it was planned. On the subject of this operation generally, I have only to add, that if at any time it shall be necessary to make an incision across the arm, the middle portion of the deltoid should be preserved entire, to be a counterpoise to the *pectoralis major*, or *latissimus dorsi* †.

* I know that this operation was well done; I have seen the operator do things of greater difficulty. I only criticise the plan of this operation and the case, as it appears before the public; had it been the work of one head and two hands, I should not have noticed it.

† It is no apology to say that it may be necessary to cut off

Since the few observations of mine on this subject have stood, as it were, in the way of the reports of the military surgeons, the Baron Larrey is quoted with high consideration. As to the cases of Mr. White and the surgeon of Pezenas, they have no more to do with the question before us, than if it were debated whether those gentlemen used a bistoury in the operation of fistula; and if they be brought forward now with the laudable intention of giving to every one his due, this sort of justice is done with the unfortunate effect of drawing off the young military surgeon from the just knowledge of the case, and obscuring his understanding of the question, in practice.

In regard to M. Larrey, his cases do not go to the point; and his operations were ill performed. In the cases in which he extracted the head of the humerus, the humerus was broken near the head: a case, I imagine, which would do well, conducted on the principles of gun-shot fractures; and instead of performing the operation as it suggested itself to me, in considering the practice of the British army; he simply picks away the bones which are loose, *without completing the operation*;

the arm on discovering the state of the bone; and that therefore a flap must be formed; for the amputation may be done equally well beginning with an incision from the acromion, in the length of the fibres of the deltoid.

and accordingly we find that in all his cases the end of the humerus exfoliated; and what does this convey to the surgeon's mind? abscess, fœtid discharge, and long suffering.

But what truly was the estimate of these operations of *White*, the surgeon of *Pezenas*, and *M. Larrey*, in the British army? our surgeons preferred the formidable operation of amputation at the shoulder joint. "The disapprobation it met with from the medical department of the British army arose, not from any experience of its ill success, but possibly from too great an attachment to the operation of amputation." This is very well from one of themselves, with all the records of the campaign in Spain before him; and the fact is further illustrated by the report of another Surgeon, high in rank, in the Peninsular war; who, after stating that many soldiers, who had unfortunately experienced compound fracture of the shoulder joint, had suffered amputation of the arm, at its articulation, with the scapula, concludes by stating, (and this on the 5th March, 1816) that the case which he has laid before us will shew that such a *dreadful* operation is not *always necessary*.

After reading the portion of my *Surgery*, which treats of this subject of gun-shot fracture, and those more recent reports of military practice, I think I shall not be denied the agreeable reflection of having roused the army surgeons to a juster notion of

these cases, and of being eventually the cause of saving many a brave fellow's limb.

The Subject to be continued in reference to the Cases of Waterloo.

END OF PART II.

