

BAT 219

M E M O I R S

OF THE

MEDICAL SOCIETY

OF

L O N D O N,

INSTITUTED IN THE YEAR 1773.

V O L. III.

L O N D O N :

PRINTED FOR C. DILLY, POULTRY.

M D C C X C I I .



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P R E F A C E.

WE should think ourselves defective in gratitude to the Public, if the favourable reception of our former Memoirs had not stimulated us to a farther exercise of attention, in order to render the present volume equally deserving of general approbation.—Truly sensible of the importance of various communications already received, and the utility of their early production, we must necessarily lament that many of them are obliged, for want of room, to be postponed until our next publication, the manuscripts for the forming of which will be immediately committed to the press, and the volume completed with as much expedition as the nature of the work will admit of.

This we have considered ourselves under an obligation to make known to our Correspondents, that they might not have the least reason to suppose us capable of disrespect, or of being inattentive to the importance of the medical information on several subjects with which they have favoured the Society. For the experience of every day not only evinces how beneficial to our fellow-creatures are the discoveries made in the Medical Art, but how that benefit is often enhanced by expeditious promulgation.

Influenced by these considerations, the Society have resolved to facilitate the future communication of their papers, by publishing their volume in Numbers, four of which are to constitute a volume. The first part of the fourth volume is already in the press.

In order farther to promote the improvement of the healing art, in all its branches

so intimately interwoven with the interest of the community, the Society continue to offer Medals annually, as excitements to genius and abilities, that mankind in general may receive advantage from their exertions, and useful knowledge be diffused from the fountains of reason and experience.

Since the last publication the following Medals have been distributed :

The FOTHERGILLIAN Medal for the year 1790 was presented to Dr. ROBERT WILLAN, of *Ely Place*, Holborn, for the best Dissertation on *Cutaneous Diseases*, in answer to the Prize Question of that year.

The *Silver* Medal annually adjudged to the Author of the best Essay written within the year, by a *Fellow* of the Society, was presented to Mr. JOHN HAIGHTON, Surgeon,

for his Paper *On Original Deafness*, and other ingenious communications.

The other *Silver Medal*, appropriated for the best Essay written by a Corresponding Member, or by any person *not* a Member of the Society, was adjudged to Dr. CALEB HILLIER PARRY, of *Bath*, C. M. S. for his Memoir *On the Removal of certain Diseases of the Head by Compression on the Carotid Artery*.

The Medals for the year 1791 were distributed as follows :

The FOTHERGILLIAN Medal to Dr. JOHN COAKLEY LETTSOM, F. M. S. for the best Dissertation in Answer to the Question, “ *What are the principal Diseases of great Towns, and what are the best Methods of preventing or curing the same ?*” To which was required to be added, the history of the
Epidemic

Epidemic Constitution and Diseases of some great Town, for one whole year at least.

The *Silver* Medal for the best Essay or Essays written by a *Fellow*, was adjudged to Mr. JAMES WARE, Surgeon, for three valuable Dissertations *On Diseases of the Eye*.

The other *Silver* Medal, to Mr. CHARLES KITE, Surgeon, of *Gravesend*, C. M. S. for his very ingenious Memoir *On Submersion*.

No satisfactory Answer having been given to the Question on MINERAL POISONS, which originally stood as the subject for the Prize Dissertations for the present year, 1792, the same stands over until next year.

The Silver Medals of the present year were adjudged,

I. To Mr. WILLIAM TURNBULL, Surgeon, F. M. S. for his Dissertation on *Extra*

Uterine Gestation, and other ingenious papers.

2. To Dr. JOHN SHADWELL, of *Brentwood*, C. M. S. for his Paper *On the Internal and External Use of Oil in Hydrophobia*.

For the four ensuing years, the succeeding subjects are proposed, as Prize Questions, for the GOLD or FOTHERGILLIAN Medals, under the subsequent Regulations:

The MEDAL for the year 1793 will be adjudged to the Author of the best Dissertation, in answer to the following Question:

“ What are the Effects of *MINERAL*
 “ *POISONS* upon living Animals, and more
 “ particularly upon *MAN*KIND, when taken
 “ internally, or applied externally; and what
 “ are the most efficacious Means of counter-
 “ acting these Effects?”

Question

Question for the Year 1794.

“ What are the Effects of *VEGETABLE*
 “ POISONS upon living Animals, and more
 “ especially upon *MANKIND*, when taken in-
 “ ternally, or applied externally; and what
 “ means are most efficacious in counteracting
 “ these Effects?”

For the Year 1795.

“ What are the Effects of *ANIMAL*
 “ POISONS, either by internal or external
 “ Applications, upon living Animals, and
 “ especially upon *MANKIND*; and what are
 “ the most efficacious Means of counteract-
 “ ing these Effects?”

For the Year 1796.

“ What are the Effects of *AËRIAL* POI-
 “ SONS upon living Anima's, and especially
 “ upon *MANKIND*; and what are the most
 “ efficacious

“ efficacious Means of counteracting these
“ Effects?”

N. B. It is desired that every Answer to any of the foregoing Questions may, as far as possible, be founded upon actual Experiments, or well authenticated Facts. And that the several Competitors will, if practicable, ascertain the Specific, or Characteristic Symptoms of each particular POISON; in order to assist MEDICAL PRACTITIONERS not only in their endeavours to afford relief, but in the evidence which they may be required to give upon Questions of this nature in any COURT of JUSTICE.

R E G U L A T I O N S.

I. Each Dissertation shall be delivered to the Secretary in the LATIN, ENGLISH, or FRENCH Language, on or before the
First

First Day of NOVEMBER, of the preceding Year; and the adjudication of the Medal shall take place in the last week of the ensuing FEBRUARY.

II. With each Dissertation shall be delivered a sealed Packet, with some Motto or Device on the Outside; and within, the Author's Name and Designation: and the same Motto or Device shall be put upon the Dissertation, that the Society may know how to address the successful Candidate.

III. No Paper with the Name of the Author affixed can be received; and if the Author of any Paper shall discover himself to the Council, or to any Member thereof, such Paper shall be excluded from all competition for the Medal.

IV. All

IV. All the Dissertations, the successful one excepted, shall be returned, if desired, with the sealed Packets unopened.

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ADVERTISEMENT.

THE Delay in the Publication of this Volume has given much concern to the members of the Medical Society, which has been increased by the necessity they have been under of postponing some important communications till the appearance of the next Volume: but, as the fourth Volume is actually in the Press, in which will be included, among others, the following communications, we hope the Authors of them will not deem the Medical Society inattentive to their valuable favours.

1. *Dr. WITHERS on a second Small Pox.*
2. *Mr. KITE, on the Resin of the Acaroides Resinifera.*
3. *Dr. MUDGE on the Treatment of Fistula in Ano.*
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10. Mr. MALDEN, *Cases of the Locked Jaw.*
11. *The same on the Tinæa, or Scald Head.*
12. Mr. BIRD *on an Aneurism.*
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14. Dr. HUBBARD *on suspended Animation.*
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17. Dr. BISSETT *on Idiopathic Dissolution of the Blood.*
18. Mr. CRIBB *on the Hydrocephalus Internus.*
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20. Mr. PARKINSON *on a horny Excrescence.*
21. Dr. ROSELT *on Deafness.*

ERRATUM.

P. 160, l. 2, *for Ruffel, read Rush.*

M E M O I R S, &c.

ARTICLE III.

A CASE of original DEAFNESS with the APPEARANCES on DISSECTION.

BY J. HAIGHTON, SURGEON, F.M.S.

Read JANUARY 19, 1789,

THE vital parts, and the organs of sense, are more perfectly formed, and exist in a higher degree of perfection at the time of birth than the other parts of the body.

The necessity of this is very obvious; for if the former were not at this period formed in some degree of perfection, they would be unfit for performing those offices which are absolutely necessary for the preservation of life.

The different organs of sense are also very perfectly constructed, that they may be the more able to receive those various impressions which every surrounding object is ready to make on the new-born infant, and which,

B

being

being conveyed to the mind, produce what is called *perception*.

As soon as the mind becomes furnished with a variety of perceptions, it begins to employ itself in comparing them with each other, by which it discovers their agreement or disagreement: this is called *judgment*.

But before the mind can exert itself in acts of judgment, it must be well stored with a variety of perceptions: to this end it is expedient that the different organs of sense convey faithfully to it such impressions as may be made on them; but when either from disease, accident, or original maleformation, they are unable to discharge that office, the mind is deprived of a part of its materials, its operations become proportionally circumscribed, and its attainments impeded.

Original blindness has always been considered as a misfortune, because it keeps us in total ignorance of every thing relative to colour, confines our knowledge of the situation of places, and unfits us for most of the common employments of life. But original deafness places a person in a still more pitiable situation: he is unavoidably dumb; for in order to speak it is necessary to learn a language; and

and to learn a language it is necessary to hear. But to form a just idea of his calamity, we need only reflect on the very great loss he sustains from being deprived of the lights of education, and of the knowledge of many important truths inseparably connected with his happiness.

It would be a godlike act to relieve a fellow-creature from such a state of wretchedness; it would be in effect elevating his mind from a low groveling state, to the condition of a rational being. But this is an arduous work!

I wish the circumstances of the present case had been such as admitted even of *palliation*; this paper would then not only have had the merit of explaining one of the causes of deafness, but afterwards of suggesting the most probable means of affording relief. But even this has been denied!

I must therefore content myself with laying before you, in as clear a manner as I am able, the appearances which presented themselves on dissection, and subjoining such remarks as the circumstances furnished me with.

C A S E.

Mr. B. died when he was about thirty years of age. Having been deaf from his birth, was consequently dumb. He possessed but little originality of genius, and his intellectual powers were very limited; but he was not destitute of talents for imitation. He frequently employed himself in drawing patterns for needle-work, and generally executed them with great exactness. He has shewn me several of his productions. I have frequently conversed with him in his own way upon ordinary occurrences; and though he often made inquiries, they were always trifling, and such as indicated a very confined understanding. His disposition was naturally irascible, but his conduct was neither vicious nor immoral. While he was lamenting his situation during the illness of which he died, his friends attempted to console him on religious grounds; they endeavoured to impress his mind with the necessity of patience, and an entire resignation to the will of the Deity, whom they represented as the author of his sufferings:

sufferings: but so little light had his mind received concerning natural or revealed religion, and the relation subsisting between the Creator and creature, that he put himself into a violent fit of anger, which was with difficulty appeased. After death, Mr. Walshman, who had attended him during his illness, very obligingly gave Mr. Cline and myself an opportunity of examining the parts concerned.

APPEARANCES ON DISSECTION.

The brain, which was carefully examined, exhibited nothing peculiar; nor did any thing worthy of notice occur, until in the order of examination, we arrived at the seventh pair of nerves, which, from its function, is called *auditory*.

This nerve consists of two portions, one of which is called *portio dura*, from its firmness; but its connexion with the sense of hearing is somewhat remote; the other is called *portio mollis*; and is very properly considered the true auditory nerve. This last portion was remarkably small; it did not appear to be halt

its usual size; but the portio dura seemed in every respect natural.

Having taken out the temporal bones in order to examine the parts more at leisure, we found nothing preternatural in the meatus auditorius, membrana tympani, the cavity of the tympanum, or the two apertures leading from it, viz. the Eustachian tube, and the communication with the mastoid cells. The figure of the four bones of the tympanum was natural, and their relative situation very proper. The first of them, called *malleus*, was attached as usual by its manubrium to the membrana tympani; and the last, called *stapes*, had its basis resting on the entrance of the vestibulum, called fenestra ovalis.

Every appearance hitherto was natural.

The sole cause of deafness was found in the labyrinth.

This part of the organ, consisting of the vestibulum, cochlea, and semicircular canals, was perfectly formed; but instead of containing water, was filled with a solid caseous substance. This was the only preternatural appearance, and I believe will be very sufficient to explain the case, when we consider the economy of this organ.

With

With this view permit me to subjoin a few remarks.

R E M A R K S.

The organ of hearing, instead of being divided into external and internal, may, perhaps with more propriety, be distinguished into parts preparatory to the impression of sound, and parts more immediately subservient.

Under the first class may be ranked every part except the labyrinth, as the meatus auditorius, membrana tympani, the cavity of the tympanum, with its apertures and contents. Under the last class may be considered the labyrinth and its contents.

In the present case, the first of these classes appeared very perfect: the meatus auditorius conveyed the tremulous motions of the air to the membrana tympani, which again, by the communication of the malleus, incus, os orbiculare, and the stapes, conveyed those movements to the labyrinth.

The Eustachian tube being pervious throughout its length, performed its office, viz. that of preserving the balance between the air on the outside of the membrana tympani, and

that in the cavity of the tympanum, by which means that membrane is allowed to vibrate in a more perfect manner.

It is not altogether certain that an obstructed Eustachian tube will produce total deafness, though it may diminish that sense in a very high degree, in proportion as the freedom of vibration of the membrana tympani is impeded.

But if it could be clearly proved that a total deafness arose from this cause; and if it were likewise possible to ascertain this in a living subject; there is a probability of obtaining relief from an operation. The most natural idea in such a case would be to restore the natural opening by the introduction of instruments up the nose. But the distant situation of the orifice of this tube from the entrance of the nostril, together with its being out of sight, create a difficulty; and it is probable that our attempts in this way might be in vain. There remains, however, another expedient. It is well known that the mastoid process of the temporal bone is internally composed of large cells, which have an opening of communication with the cavity of the tympanum in a manner similar to that
of

of the Eustachian tube: in such a case a perforation might be made into that process, and the communication between the external and internal air be again restored.

But in the present case even this was a lost hope! The evil here was deeper seated; the labyrinth was the part which alone was concerned in the complaint. Not that it failed in the performance of its office from any imperfection in its form, but merely from the nature of its contents.

Before the time of *Cotunnus* this part of the ear was supposed to contain air. It was that fluid which was thought to be put into motion by sonorous bodies, and which, by pressing against the auditory nerve lining that cavity, produced the sense of hearing.

The investigations of this anatomist have placed that matter in a clear light, and have shewn that, instead of air, it contains water. In the year 1761 he published a treatise at Naples under the following title, *De aquæductibus auris humanæ internæ*; in which he proved that there is no air contained in the labyrinth, and that its natural content is water; but he does not seem to have had the clearest idea of the source of this fluid.

He

He imagined that the two canals which pass from the labyrinth to the inside of the cranium, called aquæductus vestibuli and aquæductus cochleæ, conveyed this fluid from the inside of the cranium into the labyrinth; but Dr. Meckel, the present professor of anatomy at *Halle*, has shewn, with more probability, that these canals serve as outlets, and that their true office is to prevent a surcharge. The labyrinth, besides being lined by an expansion of the auditory nerve, is likewise furnished with a very vascular membrane, probably for the purpose of secreting this water. But whatever opinions may be formed on this point, it is demonstrable that water is the proper fluid of this part, and that by its means the vibrations of sonorous bodies are conveyed with greater force to the auditory nerve than can possibly be done by the lighter fluid air; for although both air and water are from their fluidity capable of having a very perfect intestinal motion excited in them, yet the force with which these fluids strike against the nerve will be in proportion to their respective densities.

But in the present case there was no fluid of any kind; its place was supplied by a solid substance,

substance, which, being incapable of receiving so perfect a vibratory motion, was unable to produce its proper effect on the immediate organ.

In recording the appearances on dissection the diminished size of the auditory nerve was noticed. Is this to be considered as a cause of deafness, or as an effect? I should imagine the latter. For if it were the cause, we should naturally expect the effect to be in proportion; and instead of a total deafness, there should have been only a partial one. It is most probable that its connexion, in this case, is only an effect; for it is a law in the animal economy that parts increase in bulk from moderate use, and become diminished from the want of it. This is very evident in the muscles, where, from a diseased joint which prevents motion, the whole limb is observed to shrink.

I have known the same thing take place in the optic nerve, where there had been an accidental blindness. I should therefore consider this as the effect, and not the cause.



ARTICLE II.

A remarkable Instance of Recovery of Sight, by the Dispersion of a Cataract, which had occasioned Blindness in one Eye for Eleven Years. The Case described, with Hints grounded on it as to the Mode of Cure in similar Complaints:

BY JAMES WARE, SURGEON, F. M. S.

Read OCTOBER 27th, 1789,

A. L. a merchant at Quebec, in October 1776, when he was about twenty-nine years of age, received a blow on his left eye by a splinter of a rusty chissel, which started from it as he was striking it with a hammer. The only bad effect, which he at first felt from this accident, was a momentary pain in the eye, and which, though acute for the present, soon went off, without the aid of any medical application whatsoever. As the patient had

had then the same use of this eye as before, for all the common purposes of life, and was even able to read with it, he had not, at this time, the smallest apprehension of experiencing any further material injury from what had happened. It was not, however, long, before he became sensible of some degree of obscurity in the sight of it; and from that time the dimness gradually increased, till, in less than six months after, he found himself deprived of all further assistance from this eye, than to be capable of distinguishing the strong light of day from the darkness of night. In the progress of the disorder, the eye was examined by two gentlemen of the faculty at Quebec, Dr. M'Namara Hayes and Dr. Kennedy, neither of whom, at first, could perceive any opacity in the chrySTALLINE, though afterwards it became very evident to them both. At the first appearance of the complaint, these gentlemen advised the patient to take small doses of mercurius dulcis; but perceiving no good effects to be produced by the use of this medicine, it was soon laid aside. In the year 1777 he came to England, and here consulted the late Dr. Fothergill, who, on examining the eye, entirely concurred

concurred in opinion with the physicians before mentioned—that the chryſtalline humour was opaque;—but, as the ſight of the right eye continued quite perfect, the doctor’s advice was, not to meddle at all with the other for the preſent. He returned to Quebec in the year following, and there remained in the ſame ſtate of blindneſs, with the left eye, till the year 1787, when he again came to England. On the 7th of April, 1788, whilſt on this ſecond viſit here, he was attacked with a violent pain in his head, which particularly affected him acroſs his forehead. In the middle of the following night a pain ſeized him in the diſordered eye, which, when he roſe in the morning, appeared to be conſiderably inflamed; as was the other, alſo, though in a much leſs degree. The latter complaint, however, ſeemed gradually to abate of itſelf till the 14th, when it returned again with great violence in both eyes. At that time, the pain in the left eye was particularly ſevere, and extended over the temples and forehead. The following remedies were now uſed. The patient was let blood in the arm; bliſters were put behind his ears; a fomentation of chamomile flowers,

flowers, mixed with laudanum, was applied two hours every day to the eyes; and laudanum draughts were given to procure him rest at night. But these means, however proper in themselves, and useful in their tendency, did not, for the present, meet with the success which might have been expected from them. For, notwithstanding all, the inflammation and pain continued to rage with violence a week longer. Then it was that the patient, for the first time, perceived the light with the left eye stronger than before; and in a day or two after, to his great surprise, the sight of this eye improved so much as to render him capable of distinguishing with it several large objects that were near him. The inflammation, at that time, though it had in part subsided, was still considerable in both eyes; but, continuing gradually to abate, in three weeks it went off entirely; when, not only, the sight of the right eye became as perfect as ever, but that of the other, which had been quite lost eleven years, was so much further recovered, that the patient was able to distinguish all large objects; even those which were at some distance, as well as those which were near,

The great progress made in the cure of this eye was also very discernible in its appearance. For the chrySTALLINE humour, instead of being opaque as it before was, now resumed its natural clearness and transparency; and, in this respect, it was not to be distinguished from that of the eye which had always remained sound. There were yet, however, those remaining defects in the left eye, which made the patient very desirous of taking further advice, to see if any thing more could be done towards restoring the full use of it. Accordingly in the month following I was desired to examine it. I found, notwithstanding the chrySTALLINE humour of this eye had recovered its transparency, that the pupil was still larger than its natural size; and though it regularly performed the office of contraction and dilatation, according as the light acted upon it, yet the iris had constantly, besides this, a tremulous motion, similar to that which I have not unfrequently observed it to acquire, after the operation of extracting the cataract. In cases of the latter kind, it seems to be occasioned by the loss of support which the posterior part of the iris sustains, in consequence of the
removal

removal of the chryſtalline humour; and though in the caſe I am now deſcribing, no ſuch operation had been performed, yet no other account is I think to be given of this ſimilar motion in the iris, but that it is owing to the weak ſupport it derives, from the parts ſituated behind it. As to the uſe which the patient had of this eye, I found on inquiry, that though he had ſome diſcernment of all large objects, and of not a few a tolerably diſtinct one, yet he was far from ſeeing them, with the ſame degree of perfection, as with the other eye; and, with the diſordered one, he was not yet able to diſtinguiſh, to any degree of precision, even large letters in a book. Having attended to every point of information which I had gained, both from the patient's account and my own examination, it appeared to me more than probable that the chryſtalline humour was completely diſſolved; and this I believed to be the occaſion, not only of the tremulous motion in the iris before noticed, but likewiſe of that defect in ſight, of which the patient ſtill complained. I was clearly of opinion, alſo, that this defect could be no otherwiſe remedied, than by the uſe of a proper glaſs, to act as a

substitute for the dissolved humour. In this judgment of the case, I was soon fully confirmed; for, upon desiring the patient to make the experiment, with a convex glass of five inches focus, on looking through it, he immediately distinguished distant objects equally well with the affected as with the sound eye. I then made a further experiment, with a convex glass of only two inches and a half focus; on the use of which, he received so much additional assistance, that he could read with ease a common newspaper*. Soon after this time he returned to Quebec, the place of his residence; since which I have received no particular information with regard to his sight; but there is good reason to believe, he still retains it, in the same degree of perfection, as when he left England.

Having stated the leading particulars of Mr. L's case, I beg leave to subjoin one or two remarks upon it. The immediate cause of the blindness in consequence of the blow

* I was led to the trial of the convex glasses above described, from their having been found to suit most eyes, after the removal of the chrySTALLINE, by either of the usual operations. The glass with the larger focus for more distant objects, and the smaller for such as were near.

on the eye, as above mentioned, was, undoubtedly, that of an opacity in the chrystalline humour. This is now universally understood to constitute the true cataract. And I persuade myself, most gentlemen of the faculty would have pronounced the sight of an eye, in such a state of blindness, to have been altogether irrecoverable, but by one or other of the usual operations, of couching, or extraction. But in the case I have been describing, no operation was ever performed, or intended. In restoring the use of the eye, which for so many years Mr. L. had totally lost, Nature herself seems to have done the chief part of the business by the inflammation, brought on, in consequence, as was supposed, of a cold, which the patient caught. For, by means of the several remedies, already mentioned in describing the case, and which are commonly made use of under similar inflammatory complaints, aided by the state of action, into which the eye was thrown by the inflammation itself, not only this inflammation was subdued, but the opacity of the chrystalline humour was gradually dissipated; till, with the restoration of transparency in appearance, the sight of the eye was also re-

covered. This remarkable change which took place in Mr. L's eye, and the great utility of the inflammation, toward promoting so desirable an event, suggested the thought of an inquiry, both into the safety, and expediency, of employing art, to raise an inflammation, as the first step to a cure in similar cases of blindness; and, supposing it a safe measure, what means would be best adapted for this end. These were the two points, which I had all along in view, by the recital of the case; and to these I would principally direct the attention of the several members of this Society. Could the experiment be tried, without incurring further danger to the patient, it might issue in the establishment of a mode of cure, which, whilst it was equally efficacious, would undoubtedly appear less formidable, than the operation now commonly advised under complaints of this nature.

A SUPPLEMENT to the preceding Paper:

By the same AUTHOR.

Read JUNE 7th, 1790.

SINCE the preceding paper was read before the society, I have seen two other cases of cataracts, similar to that above described, in both of which the opacity was dissipated, and the patients recovered their sight, without submitting to any chirurgical operation.

One of these was that of a woman, fifty nine years of age, the sight of whose left eye had gradually decreased for ten years; and, during the last twelve months, a cataract had been completely formed, and she had been unable to distinguish, with this eye, any thing more than the difference between day and night. Notwithstanding this extreme degree of blindness, and the strong probability of her recovering sight by having the cataract extracted, I always thought it my duty to discourage her from submitting to the operation; because, though the chrySTALLINE of the

right eye was also manifestly affected, yet it still retained sufficient transparency, to admit of an useful sight. In February last this woman was struck by a splinter of wood on the upper lid of the left eye, with such force, that it nearly pierced through it, and occasioned a considerable hemorrhage. The eye was almost instantly made sensible of an uncommon and unpleasant bright light; and, the following day, when I examined it, the pupil was become quite clear. It regularly dilated and contracted, according to the degree of light to which the eye was exposed; and the iris had, likewise, the same sort of tremulous motion, which I have described in the preceding case. The patient had suffered no pain since the accident, and the tunica conjunctiva was scarcely at all inflamed. I desired her to look through the convex glasses, that are commonly found useful, after the removal of the chrystalline humour; and by the assistance of these, she distinguished both near and distant objects equally as well as before the sight was at all affected.

The other case was that of a lady, seventy-six years of age, whose right eye, in consequence of an opacity in the chrystalline humour,

humour, had been incapable of distinguishing objects more than six years; and the left eye, from the same cause, more than three. In July 1789 I extracted a cataract of a very firm consistence from her left eye, in the usual manner, without any particular difficulty; immediately after which, she perceived a number of objects placed before her. I intended, at the same time, to have performed a similar operation on the right eye, but the patient's extreme agitation rendered this improper. The usual compresses and bandage were therefore now applied, and she was removed to her bed. No accident afterwards occurred, during her confinement, that merits a recital; and at the end of ten days, on taking off the applications, and opening the lids, the patient, to my great surprize, not only perceived all objects before her, with the left eye, from which the cataract had been removed, but also with the right eye, upon which no operation of any kind had yet been performed. She now informed me, that, almost immediately after my first examination of her eyes, three days previous to the operation on the left, the right eye became sensible, of a very great difference in

the strength of the light ; and, though I had not then done any thing more to it, than to open and shut the lids, a few times in quick succession, in order thereby to learn the state of the pupil, yet the alteration in the sight of the eye, even the same day, was so great, that she could scarcely persuade herself, I had not performed an operation upon it. After the operation on the left eye, both eyes gradually gained strength ; they equally received benefit from the use of convex glasses ; and the only difference which the patient perceived, between the sight of the right eye, and that of the left, was this, that objects, viewed with the right, appeared tinged with a yellow colour ; whereas, when looked at with the left, they preserved their usual appearance. This difference in the sight did not go off ; and at the end of some months, on examining the right eye, I found that, notwithstanding the upper part of the pupil appeared perfectly clear, the lower part, comprehending nearly half of this aperture, was still obscured, by a considerable opacity ; the situation of which, whether it was in the chrySTALLINE, or in its capsule, I am not at present able to determine.

ARTICLE III.

Influenzæ Descriptio, Auctore Gulielmo Falconer, M. D. F. R. S. et C. M. S. uti nuper comparebat in Urbe Bathoniæ Mens. Julio, Augusto, Septembri, Ann. Domin. 1788.

Perlecta DEC. I, 1788.

INCEPIT sensu frigoris, horroris, rigoris, cephalalgia, præsertim in Vertice capitis, cum teneritudine œsophagi. Huic successit excreatio difficilis sputi, visceri, crassi cum tumore gutturis et faucium, et difficili deglutitione, vix tamen ullâ teneritate per deglutiendum. Lingua, brevi arida et rubra facta est, quasi ficcâ et crassâ cuticulâ tecta, et tumida valde, ita ut vix extendi ultra labia posset. Obstructio deglutiendi videbatur locum ejus habere infra radicem linguæ, et ultra gargarismatis contactum. Fauces inspectæ colorem coccineum dedere, nullæ autem apthæ aut maculæ apparuere. Elocutio impedita ob tumorem linguæ, nulla autem virium muscutorum, qui voci inserviunt, jacturâ.

Pulsus

Pulsus celer, ad 120 in sing. minut. aut amplius, et si venæsectio omiſſa fuerit per dies paucos morbi initio, intermittens fiebat. Calor cutis magnus, haud autem ad tactum pungens, uti in febribus malignis. Cutis arida dum morbus prævalebat, cedente autem morbo diaphoresis supervenit. Vires corporis haud tantum diminutæ quantum alia symptomata minari videbantur. Delirium et cephalalgia nulla, somnus autem valde interruptus, et in nonnullis vigilatio integra. Appetitus ad cibum quamvis diminutus, non autem deletus, si cibum assumere permisisset difficultas deglutiendi, quæ nihil nisi liquida, et illa non nisi labore multo, transire per œsophagum admisit. Oculi vix affecti. Alvus stricta potius, sed catharticis facile cedens. Urina turbida per acmen morbi, et sine sedimento ullo; ad finem autem, sedimento largo griseo. Tussis in nonnullis, sed non vehemens, excretio mucii, aut potius conatus ad excreandum, sæpiſſime repetitus, et fere constans, dyspnæa nulla.

CURATIO.

C U R A T I O.

Antimonialia uti pulv. Antim. Lond. et Tartarum emeticum in hoc morbo imprimis experta fuere; fateor autem quod spem meam haud adæquarent, quamvis sæpe repetita, et dosi fatis magnâ. Alvi dejectiones modice excitabant, sed levamine morbi parvo. Exhibui pulv. Antim. Lond. gr. vi, tart. emetic gr. $\frac{1}{3}$ sextis horis per triduum sine ullo alio effectu quam prædicto, sudor nullus, et nausea vix ulla. Ipecacuanha autem cum tart. emetico mista magis valebat, et hæc medicamenta commista ausus sum dare ubi deglutitio voluntaria prorsus impedita fuit. Linguae enim super, imposita, in ventriculum gradatim descendere et vomitum excitaverunt, imprimis dolore magno, sensim autem diminuto, ita ut brevi, deglutiendi fatis facile, restituta potestas fuit.

Venæ Sectio apprime utilis et necessaria fuit, etiam repetita bis terve aut sæpius; crassamentum incurvum superficie tegulam exhibens flavo-albam, crassam, tenacem. Enemata maxime utilia et plus adjuvamenti adferre videbantur quam cathartica per os data. Scy-
bala

bala enim multa in intestinis inferioribus sæpe congesta fuere, hæcque educendo symptomata maxime urgentia mitigata fuere. Clysteres ex jusculo, vel decocto avenaceo aut lacte, cum oleo et saccharo rubro, votis respondere melius videbantur, quam magis stimulantibus. Gargarismata maximè necessaria fuere, hæc enim nisi usitata fuere, suffocationis periculum erat. Astringentia et Tonica huic intentioni respondere melius quam emollientia et insipida. Hoc consilio præscripsi tincturam rosarum cum melle rosarum commist. et non absque magno commodo. Brevi attamen apparuit vinum rubrum lusitanicum, aquâ dilutum, magis gustui placere et viribus æquipollere. Vapor aquæ bullientis cum aceto per tubulam in fauces receptus nonnihil profuit; spiritus nitri dulcis drachmæ unius, vel duor: scrupul. dosi assumptus, vires diaphoreticas nonnullas possidere videbatur. Vesicatoria experta fuere, sed spei nostræ parum respondebant, mali tamen nihil afferentia. Epispastica autem uti sp. sal. amm. cum calce viva cum oleo oliyar. commist. et cautè applicata panno laneo circa collum utilia fuere. Plus autem commodi creabant hirudines, sex vel octo, externe applicatæ

plicatæ gutturi et faucibus. Hæ cito deglutitionem faciliorem reddidere et symptomata maxime urgentia mitigavere. Pediluvium tepidum aut frigidiusculum potius, solamen haud parvum ægris ferebat, quietem, saltem, si non somnum promittens, præsertim si horâ somni utebatur. Opium, in morbis catarrhalibus laudatissimum remedium, in hoc spem meam fallere videbatur? Quietem, ut fateor, tulit, sed linguæ ariditas, excrescendi difficultas, calor externus, et pulsûs celeritas auctæ fuere. Imprimis in hoc morbo necessarium erat ad nutrientia respicere. Lac asininum et potus tenuis ex cacao confectus cochleatim sumpti non modo cibi sed etiam medicamentorum vicem supplere videbantur, laxando et emolliendo fauces siccas et linguam aridam. Aera cubiculi modicè frigidiusculum fervare utilissimum, et vestium, et stragularum mutatio frequens, haud minus commodi quam solatii ægris adtulit.

In nonnullis tumor sublingualis ad suppurationem pervenit, et magna copia puris, etiam ad uncias septem vel octo evacuata fuit cum magno levamine omnium symptomatum morbi.

ARTICLE IV.

An Account of the Epidemic Catarrh, (termed Influenza), as it appeared at Northampton, and in the adjacent Villages, in 1775; with a comparative View of a similar Disease, as it was observed in London, and its Environs, in 1782:

BY ANTHONY FOTHERGILL,
(of BATH.) M. D. F. R. S. and C. M. S.

Read APRIL 7th, 1788.

ABOUT the middle of November, 1775, it began to make its appearance at Northampton, and soon became more general than any other Epidemic within my remembrance. Those who were most exposed to the open air were generally first attacked.

This I experienced in my own person, and that to a considerable degree for several days; being at this time much abroad, and having neither leisure nor inclination to submit to confinement, the disease was imprudently left to run its course. The symptoms I felt in common with many other fellow sufferers, for whom I was concerned, were chiefly as follow:—A sense of lassitude and heaviness, accompanied

accompanied with a general chilness and increased sensibility over the whole surface, especially on the approach of cold air, or the contact of cold bodies; slight transient pains in the head and limbs; a watery discharge from the eyes and nose; an evident feverish habit, but no shivering nor intense heat; a slight nausea, but no vomiting nor aversion to food.

To these succeeded, on the second day from the attack, a severe cough, attended with hoarseness and some degree of sore throat; a sense of tightness and oppression in the chest; an accumulation of viscid phlegm, and difficulty of respiration; tongue moist and but little discoloured; pulse generally about ninety in a minute, full and somewhat unequal; those Practitioners, who had recourse to the lancet, often observed the blood to be covered with buff, but not very dense, or contracted on the surface; urine higher coloured than natural, often turbid and without separation; stools of a dusky brown hue. Some suffered considerable pain in the hypochondriac regions, attended with diarrhoea; others had a severe pain in one side of the face, affecting the teeth and ears, and returning periodically

riodically at a certain hour in the evening, or about midnight, attended with vertigo, delirium, and limpid urine, during the exacerbation. Some, whose cases were complicated with the above symptoms, had a general rash, but without its proving critical. But the most urgent symptom that distinguished this epidemic constitution, was the *cough*, which prevailed through the whole disease, and often remained obstinate after the other symptoms had entirely disappeared. Its attacks were extremely various in different habits; some persons pursued their daily employment, and speedily recovered without the assistance of medicine; others were obliged to use remedies, and even to keep their beds for several days.

People of sound habits, whose appetite was not impaired, who expectorated freely, and perspired moderately, or who had a critical diarrhœa, soon became well: on the other hand, asthmatic and hectic patients, and those of weak lungs, from whatever cause, were forced to submit to confinement at an early period; were very liable to relapse on taking the least cold; and, if far advanced in years, or had neglected the disease at the beginning, either
recovered

recovered very slowly or finally sunk under the disease.

Young children suffered considerably less than those of riper years, and generally recovered sooner than adults. Young persons of both sexes between eighteen and thirty-six, of irritable habits, were often brought into the most imminent danger from the vehemence of the cough. Some dropped down in the fit and lay for some minutes in a state of insensibility, or suffocation. Others had effusions of blood from the lungs; and some females of irritable habits have, during catamenia, undergone such violent fits of coughing as to be thrown into universal convulsions: of which I have seen more than one instance, where the convulsions were so vehement that four strong people were scarcely able to keep the patients in bed. But these at length recovered by the use of proper remedies. During this epidemic constitution, there have been many instances of palsies and sudden deaths; rheumatisms have also been very frequent, and other chronic diseases aggravated. Many of those who escaped the catarrh have been more or less sensible of giddiness, or pains in the head or face.

Among the cases of this kind, that have fallen under my observation, I have remarked that the urinary and alvine discharges have had the same appearance as among those who laboured under the catarrh. In young plethoric habits, the treatment of this epidemic, which appeared to answer best, consisted of moderate bleeding and mild laxatives, where the strength of the patient and state of the pulse would permit. But, in general, mild diluents with gentle diaphoretics and demulcents; the keeping the body warm and allaying the cough by paregoric elixir, were alone sufficient to the cure without having recourse to the lancet. In cases abounding with glutinous and viscid phlegm, emetics, followed by the use of asafoetida, ammoniacum, oxymel of quills, attenuating pectoral fumigations, and epispastics, contributed not a little to expedite the cure. It ought to have been mentioned, that this distemper prevailed some time among horses before it attacked the human species. The cough harassed them severely, and rendered them unfit for work, though few died. About the same time it also infested the canine species, and with greater fatality,

fatality, especially hounds. An experienced huntsman informed me that it ran through whole packs in many parts of England, and that several dogs died.

Were we to attempt to investigate the cause of this epidemic, it would perhaps be very difficult to fix on any single circumstance sufficient to explain it. The season preceding the appearance of this disease, and during its course, was remarkably mild and steady, the barometer and thermometer remaining for several weeks almost stationary. The corn harvest was plentiful, the autumnal fruits and farinaceous and esculent plants were in great abundance, but of moderate quality, and more prone to decay than usual. A similar epidemic in the autumn of the year 1758 prevailed in Scotland, of which there is an account drawn up by several gentlemen of the faculty, and recorded in the third volume of the Medical Inquiries. It began about a month earlier than the present disease; was preceded by a similar state of weather, was attended with the same symptoms, and was relieved by the same method of treatment. Like this, it made its first attack on quadrupeds, before

it invaded the human species. Both these epidemics seized whole families on the same day, often remote from one another, and without any intercourse. Hence it was generally supposed to originate from some secret influence of the atmosphere, though there were not wanting instances wherein it appeared to be propagated by contagion. For it could in no wise, like a common catarrh, be attributed to cold moisture, or sudden changes of temperature, seeing that both epidemics began and increased during an uncommonly mild and steady season; and the latter, I observed, was at the worst when the weather was the mildest, nor did it wholly disappear till after the frost commenced. Neither can we subscribe to the opinion of those who attributed the disease to insects in the air. In support of this doctrine, they relate an experiment of a paper kite besmeared with treacle, which, after floating in the air, on its descent, was found covered with minute animalcules. But, admitting the fact, it only proves that the air, in a mild autumn, abounds with insects, of which no one, I believe, ever entertained a doubt.

Were

Were insects really productive of the disease, we might naturally expect a return of the influenza every autumn. Besides, had it originated from this cause, it would rather, one would imagine, have been of the putrid kind; whereas, instead of a putrid, it had evident marks of an inflammatory diathesis, and was treated most successfully by the cooling antiphlogistic regimen. As the disease, then, cannot fairly be ascribed to cold, or any sensible property of the air, much less to insects, I fear we must content ourselves, at least for the present, with referring it to certain *miasmata* generated in the air, whose nature is wholly unknown, and concerning whose qualities we must be obliged to suspend our judgment, till the history of the atmosphere is better understood. The researches which have lately been carrying on with so much success concerning ærial fluids, encourage us to hope that the subtile principles of miasmata and contagion may, perhaps, one day be developed.

Having thus sketched out the leading features of the influenza of 1775, it may not be improper to contrast it with that

of 1782, from whence it will more clearly appear wherein these two epidemics agreed, and wherein they seemed to differ.

The influenza of 1775, as we have seen, was preceded by a mild serene autumn; that of 1782, by a cold wet spring. The former commenced about the middle of November, the latter about the middle of May. Both of these epidemics broke out at various remote places nearly about the same time, and pervaded whole families, attacking a greater proportion of grown persons than children. Both had reached China, and other Eastern countries, though their origin could not be traced to any particular district, nor did they appear to have observed any regular course in their progress. They seized some persons at sea, while others were attacked on shore, and that without any perceptible communication. In some instances they seemed to be propagated by contagion, in others not the smallest suspicion of contagion could be entertained. Whatever district they invaded they seized persons of different ages, sexes, and constitutions, but generally finished their career in about six weeks. Their attack commenced with slight rigors, or alternate chills and heats,

heats, incessant cough, pain and constriction of the forehead, sense of heat and excoriation in the windpipe, attended with a peculiar languor and depression. These were the characteristics of both, however the symptoms might differ in degree. In the influenza of 1775, the cough seldom was troublesome till the second day of the disease, whereas in that of 1782 it commenced at the onset, and was generally accompanied by sneezing. The pain of the forehead and general languor seemed also more distressing. The cough in both epidemics continued long after the febrile symptoms had ceased, and sometimes terminated in a fatal phthisis. Medical reports indeed assure us that this event very rarely, if ever, happened, except in old asthmatic cases, or worn out constitutions; the bills of mortality, however, under the head of fevers, seem to speak a different language; and the increase of funerals both in town and country, during these periods, and particularly in 1782, evidently proves that the influenza, or its consequences, occasioned greater fatality than practitioners were aware of, or disposed to allow. Nor is this to be wondered at, seeing that the faculty

were so greatly divided in their opinions concerning the nature and treatment of the disease. The inflammatory and putrid diathesis were often so nicely blended, that the ablest practitioners sometimes doubted where to draw the line. Accordingly we find that those who inclined to the former idea, considered it as an inflammatory catarrh, whereas those who adopted the latter opinion, conceived it to be a putrid, or contagious fever. Hence while the former enjoined bleeding and evacuants, the latter insisted on the use of wine and cordials.

If we look back to the annals of physic, we shall find that an epidemic catarrh has visited this country, at different periods, through a long succession of ages. It is recorded to have made its appearance in the years 1510, 1557, 1580, 1587, 1591, 1657, 1709, 1733, 1743, 1762, 1767, 1775, and, lastly, in 1782*. Whence it seems that the disease has returned at uncertain intervals, but much more frequently of late than formerly. For during the first long period of two hundred and fifty-two years, it is said to

* Transactions of the Royal College of Physicians of London, Vol. III. p. 54.

have recurred only eight times, which on an average is only about once in thirty-one years, whereas during the last twenty years it has revisited us four times, which amounts to once every five years. As seven years have already elapsed since its last visit, we may probably expect to see it again at no very distant period. Hence it becomes an object extremely worthy the attention of the faculty; and it is much to be regretted that, till within these twenty years, we have had no accurate history of this disease, whose origin is probably of very high antiquity. It is doubtless one and the same malady at all times and in all places, though liable to variations in consequence of the state of the animal juices, and other concomitant circumstances. Thus the epidemic of 1775 seems to have been of the same species with that of 1782, only its symptoms ran higher, and the cough affected the nervous system with greater severity; this could not be attributed to the inclemency of the season, which proved uncommonly mild and temperate, to the utter confusion of our wonted meteorological conclusions.

It

It is truly remarkable with what obstinacy and perseverance epidemic diseases in general run their course, and pursue their characteristic phenomena through all the varieties of climate and vicissitudes of season. This perhaps may be accounted for from their originating from a specific poison imbibed from the atmosphere, or generated in the body, which is probably always the same independent of heat and cold, or other sensible qualities of the air.

The particular state of the system into which the poison is received appears to me to determine its operation, and to diversify its effects on individuals in a much higher degree than the weather or any other external circumstance. Thus suppose two children born of the same parents, and nearly of the same age, are inoculated at the same time with the same variolous matter, and treated exactly in the same way; one shall have a distinct benign small pox, terminating in the most favourable manner; the other an ill conditioned sort, ending in a fatal empyema. Such a case not long ago actually fell under my own observation, and the only difference

difference that could be perceived, previous to the disease, was that the former child was healthy and *clear-skinned*; the latter weakly and liable to slight *eruptions*. Yet sometimes children whose skin is almost covered with eruptions undergo inoculation with remarkable success, or even pass through the natural small pox as happily as those who never shewed any visible sign of acrimony. Hence it appears that our knowledge of the animal fluids is almost as limited as it is concerning the atmospheric influence causing the influenza and other epidemic diseases.

ARTICLE V.

History and Dissection of a fatal Case, attended with a painful Affection of the Head. By J. C. LETTSOM, M. D. &c. with the Dissection, by J. WARE, Surgeon, and F. M. S.

Read AUGUST 3, 1789.

DEPUTY H***, the gentleman who is the subject of this history, early in the year 1789, had a troublesome cough, which had frequently attended him in former winters, and disappeared on the approach of warm weather. At this time, however, he had also a slight head-ach, and occasionally a sickness and vomiting.

The usual remedies for a cough were employed with relief, but the head-ach, sickness, and vomiting, were not mitigated. On the 26th of January he took an emetic, which evacuated much bilious matter; and afterwards a laxative was administered. Some feverish heat supervening, six ounces of

of blood were taken from the arm; a saline mixture was ordered, and at night an anodyne draught.

On the 27th a physician was consulted, who prescribed the tincture of castor and volatile spirit to be taken every four hours. This medicine having been vomited, and the physician not attending, the apothecary gave an alkaline draught with lemon juice in the act of effervescence, and at night an anodyne medicine, which the patient afterwards always asked for, as the only remedy from which he sensibly experienced any relief.

On the 30th of January I met the apothecary, and found the patient, from gradually increasing debility, confined to his bed, complaining of an heavy dull pain of the head, the seat of which he pointed out by placing his hand on the posterior extremity of the os frontis; on turning in bed, sickness always ensued, and sometimes vomiting of thin mucus, rarely of bilious matter; by pressing my hand on the region of the liver, he complained of no pain, nor did there appear the least turgescence of this viscus; the tunica albuginea was reddish or ferrety; light gave uneasiness; the pupils seemed to be in a natural

tural state; the pulse was regular, rather full, and did not exceed fifty strokes in a minute. This slowness of the pulse, joined to the sickness, which did not seem dependent on the hepatic system, and the pale, limpid state of the urine, induced me to suspect that the head-ach originated from local affection of the brain, and that the sickness was symptomatic of it; upon mentioning my opinion, I found that the apothecary had not been without the same doubts, and he hinted also the circumstance of a fall which happened to the patient three weeks before, who, in attempting to get into a coach, slipped down on his seat, but afterwards got into the carriage without noticing any indisposition or inconvenience.

I ordered him to lie in bed with the head elevated, to have a blister applied inter scapulas, to take an infusion of colombo, and at night a calomel pill with the opiate.

On the 31st Dr. Saunders was also consulted, who confirmed the suspicion of pressure on the brain; and we agreed to have the head shaved and embrocated with camphorated spirits of wine; to apply four leeches to each temple, and to repeat the anodyne bolus

at

at bedtime, and through the day to give a saline laxative draught every four hours: the pulse on this day was as quick as sixty, fuller and harder.

February 1. The pulse was seventy-six, and less full. A purgative draught was ordered, with half a scruple of the pulvis e scammonio compositus. He took also the infusum rosæ every four hours; and at night a bolus of half a scruple of confectio Damocratis. A blister was applied to the head.

Feb. 2. He had many copious stools, and seemed much debilitated; but the pulse beat eighty-two strokes in a minute, without increased heat or fever; the head-ach and sickness, however, continued much the same, as well as the ferrety look of the eyes, and their sensibility to light. He was so restless at night, that the apothecary, upon being called up, gave an opiate: the senses were perfect, but recollection was dull and slow. A saline draught was ordered with a scruple of confectio Damocratis every four hours.

Feb. 3. He had a restless night, the pulse was about the same degree of quickness, but much weaker: dulness of apprehension was greater, and some degree of rambling came on,

on. A mixture with *confectio aromatica* was occasionally given, and the same draught continued with the addition of thirty drops of thebaic tincture at bedtime.

Feb. 4. Delirium and frequent incoherent muttering prevailed; with *subfultus tendinum*; and a slight *strabismus*, but no dilatation of the pupils. The same medicines were continued with the addition of a clyster.

Feb. 5. All the symptoms were augmented: the pulse was irregular and fluttering, and stupor and low muttering were increased. Blisters were applied to the legs; and the musk julep, and a solution of myrrh, ordered to be taken frequently.

Feb. 6. Upon repeating our visits on this morning, the patient appeared to be in *articulo mortis*, and we expressed as much to the family. It was, throughout the attendance, our anxious wish, should the disease prove fatal, to examine the contents of the cranium; and the following incident rendered it immediately requisite:

The affectionate wife, disconsolate and almost frantick with anxiety, was prevailed upon to send the urine of the patient to a

noted quack, who pretends to ascertain and cure diseases by inspecting the patient's urine; and who, on the present occasion, declared that the disease was in the kidney; an assertion so contrary to the opinion of two physicians, afforded an impression on the mind, that the seat of the disease had been mistaken, and the empiric was desired to visit the patient; which he did, and repeated his former assertion, and that the disease of the kidneys caused the pain of the head by sympathy; adding, at the same time, that he would restore the patient to health.

What he administered I know not: our prognostic, however, was confirmed by the fatal event of the day: but the impeachment of our judgment demanded anatomical investigation, and this was liberally permitted us by the family; some of whose friends, and several respectable professional men, attended, as well as Dr. Saunders and myself; and the following is the relation of Mr. Ware, who performed the dissection.

“ On opening the body of Mr. H. on the
“ 7th of February, 1789, the following ap-
“ pearances were observed:

“ In the abdomen, the stomach and in-
“ testines appeared slightly inflamed; and
“ the intestines were much distended with
“ air. The liver, spleen, and kidneys, were
“ perfectly found.

“ In the thorax, the right lobe of the
“ lungs intimately adhered to the pleura.
“ The left lobe likewise adhered, but the
“ adhesion was less extensive.

“ In the head, the dura mater appeared
“ inflamed; and in the duplicature of its
“ falciform process, nearly midway between
“ the os frontis and occiput, and almost as
“ low as the corpus callosum, two hard
“ bony substances were found enveloped.
“ The largest of these, which was about the
“ size of the nail of the little finger, was
“ flattened and irregular in shape, and had
“ sharp serrated or jagged edges; its weight
“ when dry was four grains. One of its
“ sides was nearly smooth, having only one
“ or two small furrows in it, similar to those
“ which are made by the pressure of the
“ vessels of the dura mater on the inside of
“ the cranium. Its other side was rough
“ and uneven, and a little marked with
“ blood.

“ blood. The smallest of the bony sub-
“ stances was long and slender, resembling
“ a portion of a fine needle, and having its
“ extremities terminated in sharp points.
“ In the ventricles the quantity of water
“ was greater than is usually found.
“ The other parts of the brain were un-
“ diseased.

“ The appearance of the bony substances
“ abovementioned did not answer to the
“ idea usually entertained of a morbid ossi-
“ fication of a soft part; but they rather re-
“ sembled portions of the cranium forced by
“ accident from their natural position. It
“ is not easy to explain the manner in which
“ these bones could make their way from
“ the cranium to the part in which they
“ were found; nor on examining the cra-
“ nium, which was done with the greatest
“ care, could the smallest mark of injury be
“ perceived *.”

In original depositions of bony matter, or soft membranes, the substance is usually of a

* The accident which happened to the deputy at an early period of his life, was unknown when this history and the subsequent remarks were first drawn up for the inspection of the surviving family.

loose friable texture ; the bones found in the present instance were as hard as the surface of the tibia ; in shape not very dissimilar to a gun flint with jagged edges.

The interior surface of the cranium was smooth, and the periostium in a sound state ; and, considering the hard texture of the bony fragments, it was difficult to account for their admission within the cranium, till an explanation was afforded by the family of the deceased.

From the injudicious insinuation of the empiric, who was ultimately employed, I was more desirous of relating the case with impartial punctuality, and after a sketch was drawn up, it was conveyed to the family for their concurrence, in which the difficulty above mentioned was stated. With their confirmation of the facts I was then informed, and not before, that about twenty years ago the patient had had a violent fall off horseback, which it was then supposed had fractured the skull, and it was some months before he was restored to health, without undergoing any operation on the cranium. Hence may it not be suggested that these hard pieces of bone had been fractured

tured from the internal lamina of the cranium at the period of this distant accident?

The slight inflammation of the intestines and stomach, might arise from frequent vomiting and long inanition, the inflammation and adhesion of the lungs and pleura appeared to be chronic affections, as he had long been troubled with a cough, and during the last illness it was less violent than usual, though more noticed from the concomitant head-ach and sickness.

I conceive, therefore, that the immediate cause of death was in the head. In adults the ventricles of the brain never greatly dilate, and, for the period of the patient's age, the quantity of water in them was considerable. Probably, however, the irritation from the preternatural bony substances gave rise to inflammation, and the consequent collection of water in the ventricles.

From the frequency and fatality of accidents of the head, occasions have been afforded of communicating the result of ample experience; but I do not recollect any case that exactly corresponds with the preceding. In general, acute inflammation has succeeded accidents affecting parts within the

cranium, which have either required surgical operation, or ended fatally; though some exceptions indeed are recorded.

Most accidents any way resembling the present case, may be arranged under the following heads, to which I have annexed references most correspondent to each, that the reader may be acquainted with the authorities I have consulted.

DISEASES WITHIN THE CRANIUM.

I. From accidents or blows on the head, separating bony fragments off the internal or external lamina of the cranium, and inducing acute inflammation of the brain.

Hippocrat. de cap. vuln. cap. x. Chart. T. xii. p. 119.

Johannes de Vigo in Practica, lib. iii.

Jacobus Berengarius de fractura Calvariaë.

Ambrose Parè, Maniere de traiter les playes, &c.

Nicolaus Tulpius in observationibus, &c.

Conrad. Victor Schneider de offe occipitis ejusdem vitiis et vulneribus 1653.

John

John Schultetus, in armamentario, &c.
ob. xvii. p. 214.

Petrus de Marchettis in Observation. &c.

J. Jacob Wepfer de locis affectis, &c.

Henr. Franc. le Dran, Observations de
Chirurgie, &c. And Traité des Operations.

J. Wilh. Albrecht, in Comm. Nor. 1735.
p. 41.

H. Ravaton en Chirurgie Armeè, &c.

Morgagni de Cauf. et Sed. Morb. lib. iv.
let. 41. art. 30, 34.

II. From similar causes, where the bony
fragments have remained for a consider-
able time, producing chronic inflam-
mation or suppuration.

Heliodorus de Capitis vulneribus.

Lanfrancus in Practica, &c. Tract. ii.
cap. 1. de cura percussionis capitis.

Lud. Franc. Manne, Observations de
Chirurgie au sujet d'une playe a la tete, &c.
1729.

Joseph Warner, Esq. Cases of Surgery.

Boneti Sepulchr. Anatom. tom. i. l. i.
§ 1. ob. 105.

III. From bony substances within the cranium proving fatal, but unsuspected, and discovered only by dissection after death.

Cattierus Obs. Med. xv.

Borellus, Cent. 4. Obs. xcix.

Boneti Sepulchr. Anat. t. 1. l. i. §. 1. obs. 108.

IV. From bony substances lodged within the cranium, not proving fatal; but discovered by dissection, after the death of the patient by some other disease.

Boneti Sepulchr. Anatom. tom. 1. lib. i. sect. i. obs. 106, 107, 108, 113.

Barthol. in Anatom. Reform. l. iii. c. 2.

J. Rhodius, cent. i. obs. 32.

Neander in Tobaccalogia.

Lieutaud, Hist. Anat. Med. p. 160. obs. 65.

V. From bony or stony concretions, spontaneously formed, and from various ossifications within the cranium, and extraneous substances lodged in the brain.

Tho. Bartholinus, Hist. Anat. cent. iii. iv.
Act. Haffniens, vol. ii. obs. 132.

Cummenus, Miscel. cur. anni 3. obs. 329.

Fabricius Hildanus, cent. i. obs. ii. et
cent. v. obs. i. ex Kentmanno.

Hollerius, lib. i. cap. 48. in Scholio.

Halleri Phys. in variis locis. tom. iv. v.

Lieutaud, Hist. Anat. Med. obs. 552, 553,
554, 555.

ARTICLE VI.

A Case of an extraordinary irritable Sympathetic Tumor.

BY C. BISSET, M. D. AND F. M. S.

Read DECEMBER 19, 1788.

ON the 27th of September, 1785, Jane Wood, the wife of a day-labourer in Newby-wisk, aged twenty-nine, of a middle stature, rather thin, florid, and very healthy, desired my advice for a very uncommon local disease, which made her very unhappy, though it was free from danger, and did not in any wise impair her health: it originated from a small, smooth, and somewhat hard tumor, of the colour of the skin, of an irregular oval form, and about the size of a filbert, on the outside of her left leg, six inches above the malleolus externus, and about half an inch from the anterior ridge of the tibia, to which its long diameter was nearly parallel: it was scarcely moveable, as it seemed to adhere to the tibialis anticus, or to its aponeurosis.

She

She had been married seven years, had three children, and was then pregnant with the fourth. She gave the following account of the little tumor :

It began sixteen years ago by a small pimple of the colour of the skin, which was preceded by itching in that part: yet the pimple was not at any time affected with itching, or any degree of pain or inflammation: but the party usually had some little uneasiness in and about it immediately before a great fall of rain or snow, and in very windy weather.

What is extraordinary in this case is, that in a short time after this young wife had first conceived, the abovesaid pimple increased to the size of a large filbert, and became in the highest degree irritable; and the party began to be affected with a violent periodical pain in it, which made its onset daily, and recurred twice or three times, and sometimes oftener, in twenty-four hours, at unequal and uncertain intervals; the duration of each paroxysm often varying a little, and never exceeding one hour.

The excruciating periodical pain was not preceded by any rigor or chilliness, and for
several

several minutes it was intolerable ; after that it decreased gradually till it quite ceased. The party said that the pain, when most vehement, resembled that which she supposed would be excited by darting a sharp-pointed knife repeatedly into the tumor.

The pain was not always confined to that part, for being doubtless spasmodic, it darted, when most violent, to the origin of the tibialis anticus, and from thence often upward to the spine of the ilium ; and from thence it descended sometimes into the left side of the hypogastrium ; and sometimes, but seldom, it darted upward to the stomach : nay, so great was the irritability of this little, and, to appearance, frivolous, tumor during pregnancy, that, on being somewhat rudely touched with a finger, or with the skirts of her petticoat, the spasmodic pain was instantly excited ; but such accidental paroxysms were always of short duration.

As soon as the patient was delivered of her first child, the little tumor became at once exempt from any uncommon irritability ; and the periodical paroxysms of acute pain quite

quite ceased: and in this state it continued during the space of thirteen months; except that some little uneasiness was perceptible in it before the falling of much rain or snow. In the end of that period, the party having again conceived, the tumor acquired its former irritability, and she was affected precisely in the same manner as she had been during her first pregnancy: and as she now entertained no hope of relief during her second pregnancy, without medical aid, she applied to Mr. Whitehead, an eminent surgeon in Thirsk; who, after administering the bark without effect, made a crucial incision into the little tumor, with a view of promoting a suppuration, and destroying its irritability: but as this resource also failed of success, he had recourse to excision, which proved effectual, and happily freed the party from that excruciating sympathetic affection; and the cicatrix, after the wound was healed, was exempt from any uncommon degree of irritability; and so continued till she conceived the third time, which happened in fourteen months after she was delivered of her second child.

It

It was remarkable that, almost immediately after her third conception, the little tumor was reproduced, but did not increase quite to its former size; and the paroxysms of excessive pain commenced and returned two or three times daily, as they had formerly done during a state of pregnancy; and the tumor was as irritable as it had been in either of the two former periods of gestation. Yet, as the former cure was but temporary, and being, perhaps, afraid of cutting, she bore the excruciating periodical local disease with great fortitude till she was delivered of her third child, when the tumor became at once perfectly indolent as it had formerly done.

In June, 1785, the patient having again conceived, the irritability of the little tumor commenced as usual, and the periodical spasmodic pain, she said, was more violent than it had been at any former period; and she now often disturbed the neighbours with loud crying, from intolerable pain under each paroxysm. Her patience being at length exhausted, she came to Knayton, towards the end of September following, imploring

my

my advice. I directed the application of the caustic commune fort. which being bruised and well moistened with water, and applied upon the tumor on lint that was also moistened, produced its effect, with the aid of compression, in twenty minutes. The pain, chiefly from the compression of the very irritable tumor, was in the highest degree excruciating during fifteen minutes; after that it began to abate, and in a few minutes more quite ceased.

After the separation of the eschar some small remains of the tumor were destroyed by touching with the caustic; together with a small portion of the aponeurosis, where the bottom of the tumor seemed to be blended with it. She called on me again in the forepart of December following, and shewed me the cicatrix, which was perfectly free from any uncommon degree of irritability. She was then pregnant with twins, a boy and a girl, who are now living, and very fine healthy children.

In October, 1787, being informed that Jane Wood was again pregnant, I sent for her, being desirous to know whether the

cure effected by the caustic had proved radical; and I rejoiced to find that it had so proved; that the tumor had not been reproduced on her last conception, and that the cicatrix had remained totally free from any uncommon degree of irritability ever since the tumor had been wholly eradicated by the caustic.

ARTICLE VII.

Case of violent Pains in the Penis, and neighbouring Parts.

BY JAMES BUREAU, SURGEON, AND F.M.S.

Read DECEMBER 15, 1788.

A Gentleman of about thirty years of age, of a stout robust make, and apparently of a healthy constitution, applied to me in October, 1787, on account of a violent pain in his penis, particularly round the corona glandis, but which extended to the bulb of the urethra, up to the inguina, frequently across the pubes, and often affected the testes.

He told me, that having had a connexion with a woman of suspicious character a few nights before he applied to me, he was the very next morning attacked with the symptoms above described.

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I found

I found he had no gonorrhœal discharge, or ardor urinæ; nor had he any priapism.

I hardly supposed that such violent symptoms, coming on so suddenly and quickly after a connexion, could be the effect of venereal virus, as that generally takes a much longer time before it shews the peculiar symptoms attending it.

He had no fever, nor had he any other pains in other parts of the body, nor were these pains unremitting; they would frequently go off, and as frequently return, several times in a day.

I first ordered him a bolus with extr. thebaic gr. ii. and camph. gr. v. to be taken at bed-time, and a purging draught the next morning, advising also an immersion of the penis in warm water. As he slept during the night he felt no pain, but in the morning, and through the next day, the pains returned as usual. I now ordered him to repeat the same bolus every time the pains returned; I also advised a bladder of hot water to be applied to the perinæum, his scrotum and penis to be fomented with an anodyne fodus, and a cataplasm, made with the farina
lini

lini and a solution of opium in hot water, to be applied round the penis.

This plan was continued twice a day for several days, with little or no abatement of the symptoms; excepting that the frequent and large opiates made him so faint and weak that sometimes he could scarcely stand; and then the pain was not so violent: on this account, and finding that opiates did not relieve him, I discontinued them.

Upon proper examination, I did not find reason to suppose that there was any disease of the prostate gland, and upon passing a pretty large bougie, did not find the least stricture in the urethra.

I next thought I would try what the loss of some blood from the part by leeches would effect; I accordingly directed several to be applied round the corona glandis, and all along the urethra as far back as the perinæum; the orifices bled very plentifully for several hours, but the pain was not relieved. The following day I took twenty ounces of blood from the arm, which caused fainting; the blood was not at all fizy, and in a few hours, when the patient was thoroughly re-

F 2

covered,

covered, the pains returned, but not quite so violent as before.

I next proposed a course of bougies, with intent to produce a urethral discharge, which I thought a very probable means of relieving the pain, as what had been before tried proved ineffectual: this plan was entered upon and continued some weeks; the discharge it produced was very trifling, and no benefit was received: this also failing, I was determined to put him upon a full mercurial course, and see what that would do: I accordingly recommended him to go to the warm bath, and use mercurial frictions with the ungu. cœrul. fortius every night, beginning at the ancles and going upwards till he reached the inguina; I also ordered him a solution of the ungu. cœrul. fort. in ol. olivar, with opium as an injection, and a cataplasm with the farina lini and ungu. cœrul. fort. to be wrapped round the penis. This plan was continued till a copious ptialism was produced, and his face very much swelled; during the continuance of the spitting the pains were very much abated, and he had long intervals (some days) of perfect freedom
from

from pain; but in proportion as the spitting diminished the pains returned as formerly, and when the effects of the mercury were entirely gone off, the pains in every part returned with their former violence.

The disorder not yielding to this full course of mercury, satisfied me that my original idea of its not being venereal was well founded. I did not however put him upon a mercurial course from a suspicion of venereal infection, but from its well-known efficacy in removing the most obstinate deep-seated pains from other causes; but whatever good effect it may have, and often certainly has, in some painful diseases, in this it was not attended with that success.

My patient, as well as myself, was by this time quite tired of the business, having gone through so much with little or no apparent relief. Several weeks elapsed without my seeing him (as he chose to call upon me, rather than me upon him), and I concluded that he had either given it up as a hopeless case, or that he had applied to some other surgeon. At length, however, he paid me a visit, and told me that, not having found relief from my prescriptions, he had applied

to an eminent practitioner at the west end of the town, but was sorry to say that he had not found the least benefit, and apologized for applying to any one else without acquainting me first.

He told me he had been with women several times since he saw me last, and was surprised to find that he never had the least pain during any connexion. Considering the powerful antispasmodic and antiphlogistic course he had been such a long time pursuing, and its total inefficacy, it was plain the disorder could not arise from any stimulus that had the least inflammatory tendency; and that therefore it might probably be produced from an opposite state of the nerves; as happens in old chronic rheumatisms, attended with coldness of the parts and violent pain, and such as are frequently relieved both by topical and internal stimuli; and, in favour of this idea, the circumstance of his having no pain at all upon an erection was a powerful argument.

I thought, however, I would try the effect of another antispasmodic before I ordered stimulants, and this was the extractum cicutaë. I directed the plain extract to be
made

made up in middling sized pills, to take one or two every two or three hours in the day, according as he found his stomach or his head could bear them; in this way he took some ounces of the extract, which often made him very giddy, but had no effect in removing the pain.

I was now determined to alter my plan; but, before I ventured on absolute stimulants, I was resolved to try what the bark would do. I therefore directed him to take from an ounce to an ounce and an half of the best Jesuit's bark in powder (which he got from the Apothecaries hall) in the course of the day, and to continue it every day; which he did for, I think, about a fortnight; but this, like all the other remedies, proved inefficacious.

I now thought I should be vindicated in using more stimulating medicines; and recommended the tinct. guaiac, volat. ℥ii. four times a day. This was continued some days without any good effect; and I then joined with it some of the bals. traumat. but as unsuccessfully as before: besides the above, I ordered him to apply æther round the body of the penis, first dropping it in the palm of

his hand, and holding it on as long as he could bear; this also proved usefefs.

The next ftimulant that I tried was a blister round the penis, which reached from the pubes to the prepuce; this caufed great forenefs, but did not remove the pain. I muft own I had great expectations from the blister, but that failing, I thought probably electricity might at laft prove his cure: I therefore put him upon a courfe of electricity for about a fortnight, taking fparks from all the parts, and gentle fhocks through from the lumbar vertebræ and facrum: but the pains mocked the powers of the electrical fluid as much as they did every other means that had been tried.

I now told my patient that I was much afraid he muft not expect a cure from medicine; but that I thought it probable that a virulent gonorrhœa might cure him, as the inflammation and fpecific action attending that difeafe might prove a very different ftimulus from any that I had made ufe of; and, as two different actions cannot take place at one and the fame time, I conjectured that the venereal action might fupersede, as it were, that difpofition which was the caufe
of

of the particular pain he had. I did not, however, advise him to get injured for experiment sake; but only threw out my ideas as merely hypothetical.

I was very desirous of having a consultation with one of the most eminent surgeons in London, and my patient wished to see Mr. John Hunter; that gentleman accordingly met us, and having given him the whole detail of the case, he declared it as his opinion that the complaint was incurable; and thoroughly agreed with me, that it *was not*, nor ever had been, venereal. Mr. Hunter said that he had lately been consulted for a similar malady in a gentleman, who had been afflicted with it, I think he said, for three years; and who had consulted many very eminent medical people without any benefit; and that he told that gentleman, as he did my patient, that he looked upon it to be incurable by medical aid; that he considered it as one of those disorders which a man must make up his mind about, and bear with patience, as we must many other evils in life; being satisfied that it had no dangerous tendency, and that perhaps by habit he would at length disregard it,

it, or that, in process of time, it might possibly wear off: observing also, that in this, as in some nervous affections, the constant anxiety of mind, and continually thinking upon the complaint, and fretting, were very likely means of rendering the malady more inveterate. This was but poor consolation to the afflicted: Mr. Hunter, however, recommended him to take very large doses of the powder of valerian to an ounce in the day. This the patient complied with for several days, but found no benefit at all from it. In this state I gave up my patient to time and patience, not having any thing else to recommend.

Several months elapsed before I saw him again; when he called upon me, I instantly asked him how his complaint was; and he told me that he had had it upon him, better and worse, ever since he saw me last, till within a few days, when he found he had contracted a virulent gonorrhœa, attended with considerable ardor urinæ, priapism, and a very copious discharge; since which he had not experienced the *least return* of his former complaint. This circumstance afforded me, as well as him, great pleasure,
more

more particularly, as it proved that my former conjecture was not ill founded. I treated him for this disorder in the usual way; but avoided injections, determined that the discharge should have no check, but take its course. In due time all the painful symptoms attending the gonorrhœa went off, though the discharge continued very copiously, but appeared more of the nature of gleet; at this time, however, he had some slight return of pain about the penis, but very little about the inguina, and none at all in the testes; and in this state he has now continued some time; and I do not think it unlikely; but that as the complaint has begun to give way, in course of time he may get perfectly well.

I must now apologize for taking up so much of the Society's valuable time, by this account of a disorder that has baffled every medicinal effort to relieve it; but I am happy to observe that what medicine could not effect, the virulence of another painful disorder supervening entirely accomplished, for a considerable time, during the inflammatory stage of that disorder. But, as it is not every one that would choose to contract

tract one bad disorder for a chance only of getting rid of another, I hope the learned and ingenious, knowing by the above narrative what means have failed of success, may be fortunate enough to discover some other mode of treatment that may insure a cure with more safety, and certainly with much more satisfaction, than that of contracting a virulent gonorrhœa.

ARTICLE VIII.

On the Effects of Compression of the Arteries in various Diseases, and particularly in those of the Head; with Hints towards a new Mode of treating Nervous Disorders:

By CALEB HILLIER PARRY, M.D. C.M.S. (Bath.)

Read JANUARY 19, 1789.

BETWEEN two and three years ago I was engaged in an assiduous attendance on a young lady of a thin habit and pale complexion, who, from sudden and violent agitation of spirits, had been in an instant seized with a great variety of those complaints which are called nervous. The symptoms were of the following kind: palpitation of the heart, head-ach, coldness of the feet, occasional shivering, alternating with extreme heat, particularly about the face and head, together with convulsive contractions
of

of the sterno-mastoidæi and recti abdominis muscles; in consequence of which the head and body were bent forward with a force which could not be overcome by the strongest efforts of the will, and not without great difficulty by the united pressure of two or three assistants on the thorax and abdomen. Each convulsive contraction was immediately followed by a relaxation of the muscles, and produced a violent and sonorous expiration, like an extremely loud hiccup; though I could not perceive that the diaphragm was on these occasions at all affected. Sometimes, instead of these symptoms, she was seized with a difficulty of breathing, which evidently arose from the larynx being drawn violently upwards and retained in that situation; the muscles about the pharynx, glottis, and forepart of the throat, being all the time rigidly contracted, and respiration so impeded, that for several hours she was not able to take one perfect breath. Both the convulsive emprostotonos and this orthopnoea varied as to their duration, often continuing several hours, and never existing together, but the former generally increasing,

if

if not removed by opiates, till it was succeeded by the latter.

Both were also frequently interrupted by a state which the attendants called fainting, but which was very different from the true syncope cardiaca. The power of voluntary motion, as well as the spasms and convulsions which I have described, very suddenly ceased; and all the senses, except sometimes that of hearing, were also suspended. But no coldness came on the extremities, the face retained its colour, and the motion of the heart was not perceptibly changed.

This sort of stupor was of various duration, from a few minutes to an hour and a half. Sometimes, during this state, there was a degree of trismus, in which the temporal and masseter muscles were contracted, and the lower jaw firmly fixed, or the teeth strongly grated together. Now and then there was a tendency to an interruption of the stupor by slight returns of the convulsions about the throat and abdomen; but these would frequently go off without proceeding so far as to rouse her. After some time, however, they would by degrees increase so as at length to bring her to herself, when she would suddenly

denly start up with the emprosthotonos or orthopnoea before described.

The paroxysms of the emprosthotonos were extremely apt to be excited by the most trifling causes; as any sudden impression on the senses, though of the slightest kind, such as the falling of a pill box, or even a large black pin on the floor; various mental irritations; and any unexpected motion or considerable exertion of the body, more particularly the erect posture, and all attempts to support the body on the feet, or to draw the knees forwards and upwards.

The orthopnoea was constantly capable of being excited, and, when present, of being extremely aggravated, by the same causes when acting with violence; and by various smells, as those of æther, volatile alkali, ardent spirits, many essential oils, snuff, pepper-mint, southernwood, wormwood, valerian, asafœtida, and all smokes. It was also much increased by every effort to swallow, and by all stimulants taken internally.

From the great facility with which the emprosthotonos was induced, there was scarcely a day during which it did not frequently occur; but it was almost constantly and speedily

speedily removed by laudanum, much diluted with water. Sometimes, however, it appeared without any external cause of excitement. This was also the case with regard to the orthopnoea; and the attacks of both commenced, for the most part, about eight o'clock in the evening. The latter symptom seemed to admit of little relief from medicine, but, after having been frequently interrupted by the stupor, gradually declined till about four or five in the morning, when it generally disappeared, leaving the patient extremely fatigued, and much disposed to the stupor, but not at all to sleep.

I have before remarked that the sense of hearing was not always perfectly suspended during this stupor. Thus, when the latter was slight, she could hear the common conversation which passed around her, and a considerable noise would at any time make her start up in a state either of emprosthotonos or orthopnoea.

After she had remained in this state some months, a paroxysm of convulsions, more than usually violent, on a sudden ceased, and was instantly followed by delirium, which continued to recur, at intervals, during many

succeeding months: the tendency to this state was generally evident from certain feelings of pain or heat about the head, and an unusual sensibility with regard to light and sound. When it came on she was sometimes, for a considerable time, silent, sometimes violent, sometimes pensive, and at other times extremely cheerful. The state of violence arose from an apprehension of danger from those about her; but she never attempted any serious mischief against herself or others. The temper of mind during the fit of delirium was often connected with the cause which excited it. Frequently, however, the delirium interrupted the train of thought immediately preceding; and when it subsided, she had never any recollection of any thing which had passed during the paroxysm, though it was always accompanied with that sort of consistency, both of reasoning and conduct, which seemed particularly well calculated to attain the end proposed. The first attack lasted several days; but few subsequent ones continued many hours; and, as the complaints declined, the duration of the fit was often only a few minutes. Paroxysms were apt to be excited by many of the causes of
irritation

irritation which I have before mentioned, when they acted with extreme violence. They also frequently succeeded both the orthopnoea and emprosthotonos, when either was in a very great degree; and the patient often suddenly awoke into a fit of delirium from a state of profound stupor.

The delirium never subsisted with any of the convulsive complaints, except both were in a very slight degree; but they frequently alternated with each other and with the stupor; and I scarcely remember an instance in which the delirium went off without being succeeded by violent convulsions. The attendants were indeed always sensible when it was receding by some slight appearance of the convulsive twitchings about the throat or abdomen.

During this state she had regular returns of the catamenia in a quantity rather more profuse than usual. Her appetite was good; her bowels habitually bound, except when opened by medicine; her urine often in large quantity, particularly during the convulsive attacks; and the pulse was somewhat quicker and fuller than in health, although still far from what could be called a

full pulse. The period of sleep seldom amounted to two hours in the twenty-four; and the little which she obtained was towards the morning, and disturbed both by uneasy dreams and frequent startings.

The many months which these complaints continued afforded me an opportunity of fairly trying all the measures which experience had pointed out for the relief of disorders denominated nervous. Almost all of them, however, were at least inefficacious, if not injurious: of the latter class, as I have before remarked, were those of the stimulating kind, as fœtids, aromatics, volatiles, ardent spirits of ether. In one word, upwards of a year consumed in the trial of remedies, which procured not even the smallest temporary relief, exhausted my patience, and only served to establish in my mind a conviction how little was known on the subject of nervous diseases. The origin of the complaint was evidently too great a sensibility of the nervous system; but what the source of that undue sensibility was I often reflected in vain. If it depended on a morbid constitution of the medullary substance of the brain, there could be little hope of

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changing

changing that state; nor was I acquainted with any indications which comprehended the measures necessary to change it. All the sorts of medicines called tonics, such as bark and steel, together with the bitters and astringents, as cascarilla, quassia, colombo, gentian, centaury, wormwood, camomile, kino, alum, &c. I had before tried, and from all, but the two last, had found a manifest aggravation of the symptoms.

Reflections like these were constantly recurring to my mind till an observation of the order of the symptoms, by degrees, furnished me with the conclusions which I had so long sought in vain.

I had remarked that the fits of delirium were preceded by a sense of fulness and throbbing pain in the head (what the common people in this country call opening and shutting), accompanied with a great degree of heat and flushing about the head and neck, and a sense of bursting in the throat and upper part of the thorax. These symptoms appeared to me evident marks of too great a quantity of blood forced through the carotid arteries into the brain, and to the outside of the head. It followed that if the cause

were removed the effect would cease. Under the pretence therefore of feeling the pulse in the neck, I took the opportunity of the first attack of delirium, when the brow was contracted into an immovable frown, to press strongly with my thumb on the right carotid artery a little below the larynx. I do not remember having experienced a philosophical pleasure in any degree comparable to that which this experiment afforded me. No sooner was the pressure made than the austerity of the countenance disappeared, and the patient was restored to the perfect use of her senses and powers of reasoning. At the same time the headach, and the undue sensibility with regard to light and sound, which had always taken place in the intervals of the paroxysms, were altogether wanting, and the patient declared that in every respect she was free from complaint. After having fully satisfied myself as to the effect of this pressure, I gradually removed my hand. The frown in an instant returned on the countenance, and every mark of delirium immediately succeeded. In the course of many subsequent months I was able to repeat this experiment some hundreds of times, and to exhibit

exhibit it to the attendants with the utmost certainty of success.

I was now persuaded that the cause of the morbid sensibility, so far as respected the delirium, consisted in too violent a determination of blood to the brain; and as the emprostotonos and orthopnoea so constantly alternated with the delirium, it might be supposed that I should naturally have concluded them also to be different degrees of the same morbid affection of the brain. But no such reflection presented itself to my mind.

It has been before remarked that my patient had frequent fits of stupor, from which she would often start up in a state either of delirium or convulsions; and that the more violent convulsive contractions, which were sufficient to rouse her, were often preceded by slighter ones about the throat and abdomen, which did not entirely interrupt the stupor. It appeared to me worth while to try whether compression of the carotid artery, before the instant of her waking, might not prevent the delirium which often followed. The event constantly answered my expectations. During one experiment of this kind,

which happened to be made while there was some appearance of the slight convulsions which I have just mentioned, I thought I observed that they ceased while I compressed the artery, and returned as soon as the pressure was removed. In a few minutes an opportunity was afforded me of prosecuting the experiment after the stupor had ceased; and I found that this pressure as certainly stopped the difficulty of breathing and convulsions as it had before removed the head-ach and delirium.

The same effect was produced by the same operation with regard to the locked jaw, or contraction of the temporal and masseter muscles, which sometimes, though rarely, occurred during the stupor.

Besides the complaints which I have described, my patient had been for several years liable, particularly about the periods of menstruation, to a true spasmodic hiccup, or contraction of the diaphragm, which much exceeded in violence any disorder of the same kind which I had before seen. This hiccup yielded, like the other complaints, to the compression of the carotid artery.

Since

Since the period of this discovery, which is now more than a year and a half, I have made the experiment, in a great variety of instances, with the following success. It nearly or totally removes the hemicrania of the side on which the compression is made; the headach which is called nervous; that also which is instituted bilious, and which evidently arises from a disorder in the alimentary canal; vertigo; noises in the head; the sense of heat in the same part, and the mental agitation of nervous patients. In one patient, who was affected with a violent inflammatory fever, it immediately removed the headach and tendency to delirium. It produced no sensible effect in another who was delirious in a typhus, and afterwards died. It quieted the symptoms in two cases of chronic mania, which had subsisted several weeks; and in one example of the true phrenitis, which proved fatal in four days. It immediately removed the maniacal symptoms in the recent case of a young female patient, and the hysteric convulsions in that of another who had been several days ill.

I have at this time a patient, of between thirty and forty years of age, of a florid complexion

plexion and full habit, who, in consequence of an occupation which obliged him to sit up late and rise frequently in the night, was seized more than two years ago with epileptic fits, which he has scarcely ever escaped a single day, and which have generally attacked him from thrice to eight or nine times in the twenty-four hours. They usually take away his senses for an instant, so that, unless supported, he falls down, but soon recovers himself. Sometimes, however, they have been known to continue half an hour. When they are of any length, they are accompanied with convulsive twitchings of the right arm and leg, and the right side of the face; and convulsions sometimes occur in the latter, when the fits do not take away his senses. I had long wished in vain for an opportunity of seeing him in a fit. The paroxysms were considerably abated as to frequency and force, when one afternoon, about the middle of September last, he called on me. He told me that he had that morning had five fits, in most or all of which he had lost his senses. While he was speaking I observed an appearance about his face as though a paroxysm was approaching. His
eyes

eyes began to assume a vacant stare, and convulsions were coming on about the throat. Under the usual pretence of feeling the pulse in the neck, I immediately made a strong compression of the right carotid artery. The convulsions ceased, and the fit proceeded no farther. He had one fit more that afternoon. I instructed him as to the nature and method of the operation, and he assures me that, when he has had sufficient warning, he has frequently been able to prevent the epileptic paroxysm.

I have very lately had an opportunity of trying compression of the carotid artery in two instances of what is commonly called the nervous rigor. In one case this rigor affected the jaws and whole body, and was the consequence of some of the first parturient pains in a lady lying-in of her seventh child. The second case is that of a lady, who, as I have reason to suspect, labours under a congestion, and, perhaps, a degree of inflammation in the psoas muscles of the right side, and some of the adjacent parts within the pelvis. The rigors which have occurred this afternoon, after a severe fit of pain, are such as she has been accustomed to suffer.

They

They affect principally the left side, and are neither accompanied with any coldness, nor succeeded by any preternatural heat. In both these examples they were almost instantaneously removed by the compression in several different trials; and, for the most part, did not return till some time after it was discontinued.

As soon as I had found the means of removing the headach, delirium, and convulsions, in the female patient, whose case I have at large related, and from thence concluded that they were owing to an undue determination of blood to the brain, I was naturally led to inquire from what source this determination was derived. This I soon found to consist in a palpitation of the heart, which invariably followed the remote causes which I have specified, and as invariably preceded the delirium and convulsions. I have since extended my inquiries to a great variety of other cases, and conclude, that too violent or too quick an action of the heart is the common cause of the nervous and bilious headachs, the nervous agitation of spirits, want of sleep, uneasy dreams, giddiness, sudden maniacal fits, hysterics, epilepsy, and all kinds of convulsions.

convulsions. The epileptic patient whom I am now attending assures me that in every attack of his fits, in which he has time to make the observation, he finds them preceded by a palpitation of the heart; and this was certainly the case with regard to the paroxysm of the approach of which I was a witness.

It may be necessary here to obviate some mistakes into which persons may be apt to fall on the subject of palpitation of the heart. Dr. Cullen has defined this disease, "*Motus cordis vehemens, abnormis.*" The term *abnormis*, however, cannot always imply irregularity with regard to time, as shewn by the pulse: for I have often known palpitation exist, while at the same time the pulsations of the radial artery have been perfectly regular. It often happens that each systole of the heart seems to be more vehement, and, as it were, bounding, than in the natural course of circulation. In such cases it is performed in a shorter time than usual, and the interval between the beginnings of any one systole and that immediately following, is longer than usual. As each interval may, however, have the same length, there

there will then often be little or no evidence of such a palpitation in the pulsation of an artery so distant from the heart as that which we usually examine. In the carotid arteries the case is widely different; for there we can always readily perceive the distinction between the violent and sudden distention which arises from palpitation, and that more slow and undulating dilatation of the artery which accompanies the usual healthy systole.

As during a state of palpitation the heart contracts vehemently, and throws an unusual quantity of blood to the head in a given time, it might be supposed that the impetus of the blood, in the arterial system in general, would also be increased. Yet the contrary is often true in fact; for not only the branches of the aorta descendens are often robbed of their blood, and the lower limbs are therefore cold and shrunk, while the pulsation of the carotids are much too strong, but even some of the branches of the aorta ascendens itself are reduced to the same state, and the hands are sometimes cold, and the pulse weak and small. This is an extremely curious fact, of which I cannot here offer an explanation.

But

But while I am pointing out the effects of palpitation, I do not by any means affirm that the diseases, or symptoms which I have mentioned, always arise from an increased action of the heart. I am, however, persuaded that they almost * constantly depend on a stimulus of the brain, which is generally an accumulation or excessive momentum of blood in its vessels. Of this congestion, or increased impetus, an undue action of the heart, either in the way of palpitation or unusual velocity, though one, and certainly the most common, may not be the only cause. Many examples illustrating this point occur in the animal economy. That fulness of the uterine arteries which accompanies menstruation is not always preceded by any increased action of the heart; nor do many boils, sore throats, catarrhs, and other topical inflammatory diseases spring from any affection of that organ. We may hence easily perceive why compression of the carotid arteries should have

* Partial muscular spasms or convulsions often arise from increased determination of blood to the muscle affected; as in the croup, gouty cramp, &c.

little immediate effect in removing, though it actually alleviates the symptoms of inflammation of the brain and of chronic mania*: for those disorders may either be originally altogether topical, and arise from an affection of the arteries of the part, or, if they spring from an excessive action of the heart, may continue as local diseases after that action has ceased. The common curable mania is an example of the latter kind, beginning, in every case which I have seen, with an unusually quick or strong motion of the heart, and often subsisting as a topical affection of the brain after the pulse is reduced to its natural state.

The frequent experiments which I have made of the compression of the carotid arteries have led me to a knowledge of various circumstances relating to it, which I shall here mention.

I have seen it on one occasion almost immediately bring on a sound sleep.

* It will not, perhaps, be expected that any means can remove or alleviate the symptoms of mania when it arises, either primarily or ultimately, from wrong organization, as in the cases of exostoses and indurations of the cerebrum or cerebellum.

In the patient on whom I first tried the pressure, it frequently produced fits of the stupor, which I have above described, and lengthened those which were already begun.

Its good effects, in the far greater number of examples in which I have made the experiment, cease as soon as it has been removed: but then I have rarely continued it more than a minute or two. I have, however, seen some instances in which the nervous and bilious headaches have been for a considerable time, and even permanently, relieved. In my first patient a certain degree of compression removed the delirious symptoms, and left the headach. A more complete pressure removed the headach also. Sometimes, in the case of the same patient, it has happened that when the delirium has been thus taken away, it has not returned when the compression has been withdrawn; but the headach has always remained, or either the stupor or convulsions immediately followed. I do not remember ever to have seen her freed from the convulsions any longer than while the pressure was continued, except it brought on the stupor.

It sometimes occasions a kind of sickness like that which accompanies the beginning of the syncope; and this is particularly the case after excessive determination to the brain has continued a considerable time. In examples of this kind, though the compression may remove the peculiar symptoms of the disease, the patient is not restored to health and vigour, but reduced to the same state of torpor as that which naturally succeeds such disorders when they spontaneously cease.

It often produces a great degree of anxiety about the heart, especially in plethoric persons, or those in whom the circulation has been by any cause previously quickened. The patient attempts to relieve this anxiety by unusually deep inspirations or sighing. In some instances it arises to an almost intolerable degree, and seems exactly similar to the oppression of the heart which occurs in the angina pectoris. These symptoms are evidently owing to an accumulation of blood in the arch of the aorta, and the left ventricle of the heart. The sense of anxiety which I have described, is often followed by immediate palpitations of the heart.

In the case of one lady, who had long laboured under violent nervous headaches, and in whom the carotid arteries appeared extremely dilated and hard during each systole of the heart, the compression of the right carotid immediately relieved the pain in the head, but brought on a violent pain in the course of the subclavian and brachial artery as far as to the elbow. It is scarcely necessary to mention that this effect was owing to the diversion of the blood from the carotid to the subclavian artery.

It has been sufficient on most occasions to employ pressure on one carotid, and I have generally chosen the right, as being most convenient for my right hand. But I have sometimes applied the compression to both carotids; and the effect has been proportionably conspicuous.

To make a complete pressure on the carotid artery is often attended with considerable difficulty. Some timid persons, alarmed at the novelty of the operation, will not admit of its being performed effectually; and, if you inquire with regard to their feelings, before you have in reality performed it at all, immediately assert that they are much

worse. In men the largeness of the muscles and the thickness of the intervening integuments often much impede the operation, Compression of both carotids at once is still more difficult, because the force applied on one side in some measure displaces the trachea, which is easily moveable, and causes it to cover the carotid on the other side. During a state of convulsions too the sternomastoidœi muscles, in almost all the instances which I have seen, are contracted in various ways, and the pharynx and larynx protruded, so that it is not easy either to reach the artery, or to distinguish when you have reached it. In women, however, who have generally longer and slenderer necks than men, one can often, without difficulty, produce a complete compression of the artery against the vertebræ of the neck, so as entirely to obliterate its cavity; especially if the patient be lying down, the chin raised, and the head bent somewhat backwards. The part where I have best succeeded is the common trunk of the external and internal carotid, a little below the larynx.

It is evident that the effect of the operation must very much depend on the accuracy

curacy with which it is performed. For if the compressing surface be large, so as to comprehend the internal jugular vein, and more especially if the pressure on the artery be slight, and that on the vein strong, no good, and even much harm may result from the operation. In the former case the quantity of blood accumulated in the brain is scarcely diminished, in the latter case it is evidently increased.

Some of my Gloucestershire medical friends and myself have attempted to apply this operation in various other diseases besides those which I have specified. My ingenious friend Mr. Daniel Ludlow, jun. surgeon, of Sodbury*, furnishes me with the following very curious experiment, which he made on his brother, who is also in the profession of physic. The latter had been affected with a gouty inflammation in the foot, which had nearly ceased on the coming on of a pain in his head. Compression of both temporal arteries immediately relieved the pain in the head; but it returned in an instant with violence to the foot. He then

* Now, (1790), of Bath.

compressed the popliteal artery, and the pain in the foot was in a moment diminished.

I have found the pain accompanying inflammations in the jaws, ears, and eyes, in myself and others, greatly alleviated by pressure on various branches of the carotid arteries. The pain of the wrists, arising from a palpitation of the heart, was also, in the only instance in which I have made the experiment, removed by compressing the brachial artery.

It has naturally occurred to me to reflect how far the application of a tourniquet might be useful or safe in various diseases which owe their origin to excessive arterial impetus. I have already thought of a construction adapted to that purpose. The only danger to be apprehended from its long continued use near the heart, might be dilations of that organ, and of the arch of the aorta, and perhaps even the beginning of an aneurysm. Reasoning a priori one might indeed at first sight infer, that the subclavian arteries, and the other carotid, together with the aorta descendens itself, would readily carry off all the blood which should be thrown out at each systole of the heart.

Yet

Yet experience shews the contrary; for, as I have before remarked, a total obliteration of the cavity of the right carotid artery almost constantly produces an oppression about the heart and frequent sighing, and in many instances violent palpitation; all evident marks of an accumulation of blood in the arch of the aorta and left ventricle. Yet in some particular cases of diseases of the head, depending on increased impetus of blood, whether primarily in the vessels of the brain alone, or from an undue action of the heart, such as phrenitis, violent epilepsy, sanguineous apoplexy, and many cases of hydrocephalus internus, it might probably be well worth while to employ a tourniquet on one or both of the carotid arteries by way of prevention or cure. For the disorders which I have mentioned are certainly of the most dangerous tendency, while the accumulation of blood produced by the tourniquet might only be temporary, and lead to no organic disease of the heart or aorta. Less objection may probably arise against its use, where the compression would be employed with regard to arteries, which are either small or distant from the heart; as in the case of various in-

inflammations in the limbs, derived from causes acting mechanically, chemically, or medically; of this kind are burns, wounds, fractures, bruises, and cutaneous, cellular, membranous, articular, and glandular inflammations. How far removing some of these disorders may always be safe with respect to the general constitution, is another question. But should the means proposed be found effectual, it is evident that the compression may be regulated both as to duration and force, as the prudence of the attending physician or surgeon may direct.

It would be exceeding the due bounds of this paper, as well as anticipating what I mean hereafter to consider largely, were I to give a detail of a system which this discovery has suggested to me. If excessive determinations of blood to the brain are cured by the appearance of various inflammatory disorders and congestions in the viscera, extremities, and on the skin; by discharges of different kinds, and by various depositions out of the course of circulation, as even oedema itself; and if these disorders often alternate with each other, any one of them freeing the patient from all the rest; does it not follow
that

that they all equally arise from excessive determinations of blood to the parts respectively affected? This conclusion I think I can render in the highest degree probable; from a great variety of evidences, deduced from the symptoms themselves, from the constitutions which they affect, their predisposing and exciting causes, spontaneous terminations, prevention and cure. This system comprehends a most extensive field, and endeavours to explain those disorders which have usually been considered as the opprobria of physic.

The view which I have given of excessive determinations of blood to different parts, points out the mode of practice generally to be employed in such cases. It consists in the use,

1st, Of those means which diminish the undue action of the heart and arteries in general.

2dly, Those which repress the excessive action of the arteries of the affected part: And,

3dly, Those which excite or restore determinations to other parts of the arterial system.

Under

Under the first head we may rank the avoiding of all general stimuli, whether external or internal; a low diet; general blood-letting; many evacuants, which will be mentioned under the third head; saline refrigerants; and a set of remedies, many of which evidently, and all probably, have an immediate power in the greater number of cases * of diminishing arterial irritability; such as medicines producing nausea, opium, henbane, aconite, hemlock, tobacco, fox-glove, lead, and perhaps arsenic, zinc, and copper.

Of the second class are topical bleeding and other evacuants, and cold.

Of the third are rubefacients, friction, vesicatories, electricity, heat, cold, purgatives, diuretics, diaphoretics, sialogogues, and sometimes, though rarely and with the utmost caution, stimuli taken into the stomach.

This system of practice I have tried, and with a success much greater than that which I had long experienced from the remedies commonly employed. As my time has

* Probably they would in all, could we ascertain the dose.

chanced to permit, I have collected numerous facts, which not only support the general principles which I have formed, but point out the particular modifications of those principles. These observations will, I think, explain the important influence which the stomach has on the arterial system; and how a great variety of causes, some of which are in their own nature opposite, come through different roads to the same point, and produce the same ultimate effects in the animal economy.

Should my life be spared, I trust I shall be able to give these subjects an ample discussion.

In the mean time I flatter myself that those who by anticipation would treat my system as hypothetical, will suspend their decision, when they are informed that it is nothing more than an attempt to describe the invariable order of phænomena.

S U P P L E M E N T

TO THE ABOVE.

Read Nov. 30.

WHEN I last wrote I was not without hopes that I should have been able, before this time, to have sent you many additional facts relative to the subject of arterial compression, collected from the observation of various medical friends in Gloucestershire. But though they are in possession of such facts, their professional engagements have not hitherto permitted them to give me a detail of them in writing.

I may however select the three following examples out of many others which have fallen within my own notice.

EXAMPLE

EXAMPLE I.

A lady who was affected with a whitloe on one of her fingers, attended with excruciating pain, felt almost instantaneous relief from my compressing the arteries on each side of the finger affected.

EXAMPLE II.

The lady, whose case I described at length in my former letter, soon after that was written, being much surpris'd by an unexpected visit, was suddenly affected with a return of her convulsive complaints in a degree much more violent and general than ever. Her teeth were strongly grated together; her features and limbs were forced into various contortions; her head was often suddenly raised from the pillow, and again immediately drawn back with the utmost velocity and force, and every muscle throughout the body seem'd in its turn to partake of the convulsions. Two or three persons exerting themselves at once were scarcely sufficient

sufficient to counteract the violence of these contractions.

In this state I thought of having recourse to the compression of the carotid arteries, which in a few seconds had the usual sedative effect, to the new astonishment of all who were present. No sooner, however, was the pressure removed than the symptoms returned with their former violence. Mr. Atwood, eminent as a surgeon in this city, was a witness of the consequences of this operation, which he repeated himself with a similar effect.

EXAMPLE III.

The third case was that of a young lady who came to Bath by the recommendation of Dr. Reynolds, on account of a great variety of complaints, and more especially a chronic pain towards the lower part of the sternum, which was much aggravated by the horizontal posture, eating, any attempts to use exercise, and all strong emotions of the mind. I was first called to visit her in the middle of the night. She had arrived in Bath late the preceding afternoon, after too
hasty

hasty a journey, which had much fatigued her, and produced a violent pain in her stomach and bowels, attended with great flatulency. These symptoms had not been relieved by seven grains of the storax pill, and ten drops of tincture of opium; but had afterwards been somewhat alleviated by a draught of warm spirits and water, and a fomentation of brandy. She had had no stool the preceding day; but was free from fever and headach.

As the pain was extremely urgent, I ordered the fomentation to be repeated as occasion might require; and a tea spoonful of the following mixture to be given every half hour in a glass of warm water, till the pain should abate.

℞. spiritus ammoniæ compositi, ʒvjss.

Tincturæ croci.

————— lavendulæ compositæ singularum, ʒfs.

————— opii, guttas xl.

I saw her early the next morning, when she had taken two doses of the drops, which seemed to have agreed well. She had slept a good deal before they came, but was then in considerable pain in her stomach and bowels,

without any alvine discharge. She was free from sickness and fever. She was directed to take immediately a large spoonful of castor oil, and to repeat the fomentation and drops, as the circumstances of pain might require.

At four o'clock in the afternoon I again visited her. The castor oil had not operated. She had taken about seven drachms of the cordial drops, and had slept at intervals, but waked in great pain. About an hour before she had been suddenly seized with a fit of alienation of mind, attended with heat of the forehead, unusual sensibility with regard to external impressions, and the most anxious agitation. Some vomiting had occurred at various times after the beginning of the attack, though without affording her any relief. Her pulse was quick and fluttering.

In this state of the symptoms I made the usual compression on one of the carotid arteries. By degrees she became calm, and after ten minutes the delirium totally disappeared, and never returned. A glyster and an aperient draught produced a copious stool in less than an hour, which immediately relieved the pain in her bowels.

When

When I saw her three hours afterwards, she told me that her head had been affected with great confusion, as if every thing was turning round; but that it was then totally free from every sensation of that nature.

My own experience has continued uniformly to verify the observations I before sent you; convincing me that nervous disorders are in reality nothing more than examples of undue determination of blood; or, at least, vascular congestions, either general or topical.

After all, it is only the applicableness of a theory to practice which can ascertain its truth, or establish its value; and I can with the most perfect regard to veracity declare, that, guided by the theory which I have mentioned, I have in many instances succeeded in eradicating nervous diseases after all others of the most approved remedies had either entirely failed, or, at best, afforded only a temporary mitigation.

ARTICLE IX.

A Case of an obstinate Quartan Ague, of five Months continuance, cured by Electricity; in a Letter to the Medical Society of London,

By THOMAS FOWLER, of Stafford, M. D. C. M. S.
and Member of the Royal Medical and Physical Societies of Edinburgh.

Read APRIL 16, 1789.

IN the Medical Reports, which I lately published, on the use of arsenic in the cure of agues, I have given many strong proofs of its febrifuge virtues, and have recommended it as equivalent to the Peruvian bark in point of real efficacy. But as the efficacy of the most important remedies will fail in some cases, I shall consider it as no disparagement to the virtues of either bark or arsenic, to give you an account of a most obstinate case

of ague, wherein not only these medicines, but every other probable remedy I could think of, proved ineffectual until the powers of electricity were tried.

April 12, 1787, Elizabeth Mafon, a servant, from the parish of Stone, aged twenty-seven, an in-patient at the Stafford Infirmary. She has been in the house a considerable time, and has been afflicted with a very inveterate quartan ague for upwards of five months past. The cold, hot, and sweating stages were regular, unless when slightly interrupted by the use of medicines, of which she has taken a large number.

She had the mineral solution administered in a regular manner, for a longer time than usual, by which the fits were rendered milder, but not suspended. Several attempts were made to exhibit the Peruvian bark, both in powder and decoction, but it always occasioned sickness, griping, and purging, even when combined with opiates and aromatics, so that a proper quantity, adequate to her relief, could not be taken. She had then eleven clysters of the bark given, and bark poultices applied to the wrists; by which means the fits were suspended for the space of a

week at two different periods. She took also several doses of Dover's powder (containing a scruple in each) about an hour before the expected accession of the fit, assisted by repeated draughts of warm diluents in bed, by which means she sweated freely, and once or twice missed the fit entirely; at other times she only missed the cold stage, experiencing both the hot and sweating stages, although in a milder degree.

She took also nauseating doses of antimonial wine for a week, but without relief, and then tried the same for several days combined with liquid laudanum, and took also a number of antimonial emetics, but with no better effect.

Several other medicines were exhibited, which have been known sometimes to cure very inveterate agues, after the common remedies have failed; in particular, volatile alkali, crude sal ammoniac, allum, and aromatics; by which the fits were several times rendered milder, but not suspended.

It was at this period of the disease when I recollected that in the early part of my practice I had known a number of agues cured by the application of electricity, in different
parts

parts of the country, under the direction of persons no way connected with the faculty. I observed that the chief cures were performed by a number of smart shocks being given, by which the patients were impressed with a strong sensation of fear, and frequently thrown into a copious sweat.

In consequence of these remarks I resolved to make trial of the same means in the present case. Accordingly I ordered the patient, as soon as she perceived the least symptom of the accession of the fit, to receive ten or more smart shocks through her arms and thorax, from a ten ounce vial, until she was seized with fear and began to sweat, and then to go immediately into a warm bed, and promote the sudorific effect for some hours, by taking frequent draughts of tepid small wine whey.

April 15. At the approach of the fit on the twelfth, the electrical apparatus being applied, the patient was soon impressed with fear, and, after receiving ten shocks, was thrown into a sweat, which, being assisted by the prescribed regimen, continued copious for several hours, and the remainder of the fit was extremely slight.

Ordered to repeat the electrical operation with the regimen at the approach of each fit.

April 20. She underwent the electrical operation on the fifteenth, but did not begin to sweat till she had received sixteen shocks, when, with the assistance of the former regimen, she sweated freely for several hours, had no more of the fit, and was alert and in good spirits after. On the eighteenth by mistake was not electrified, and had a very slight fit.

Ordered to continue the electrical operation and regimen.

April 23. The electrical shocks and regimen were repeated on the twenty-first exactly as on the fifteenth, and with the same salutary effects.

Ordered to continue the operation and regimen whenever she perceives the approach of a fit.

May 11. She has not had the least sign of any return of ague, and therefore has had no occasion to repeat the operation.

Dismissed free from complaints.

August 10. She has continued quite well until a fortnight ago, when she had a relapse of
of

of her quartan ague, which proceeding in the same manner as before, she was this day admitted again into the Infirmary.

Ordered to repeat the electrical shocks and regimen, on the approach of each fit, in the same manner as before.

August 24. She underwent the operation at the approach of the next fit, sweated freely in bed for several hours after, had no more of the fit, and has remained quite well ever since.

Dismissed cured.

OBSERVATIONS.

That this was a remarkable case for its obstinacy and difficulty in being relieved, is fully evinced by the history of the disease, and therefore the means by which a cure was at last obtained deserves the more attention.

The ague was of the quartan type, of long continuance, and resisted the influence of numerous and efficacious remedies, until (as I have already observed) the powers of electricity were tried. It was observable that when the paroxysm was nearly subdued by

the means used on the fifteenth, that on the eighteenth, when they were unluckily omitted, the disease shewed a strong disposition to return, which, however, by the next electrical operation was satisfactorily removed. It also merits particular notice, that when the patient, after having enjoyed a good state of health for fourteen weeks, had had a relapse for a fortnight, that the disease was again immediately removed by a single application of the same means.

We find that many obstinate agues have been suspended and even cured by the use of sudorifics, administered just before the accession of the fit; and that many others have been effectually removed by the vulgar, on an empirical plan, by exciting an impression of fear, which we know has been considered as an antispasmodic; but as the previous sudorific operations in this case had failed, it is reasonable to conclude that the influence of fear had the most considerable share in the present cure. Be that as it may, it is a pointed example (under numerous unpromising circumstances) of the operative effects of electricity on the mental and corporal parts of the animal frame, being attended

tended with success, and therefore deserves to be repeated in a sufficient number of cases, in order to ascertain, with some degree of precision, the real merits of electricity as a remedy for the cure of obstinate agues. It may also be worth while to try the effects of fear, from the application of electricity, without allowing the patient to sweat, with a view of determining whether the sudorific operation materially assists its curative influence or not.

I beg leave, however, to recommend some caution in this mode of applying electricity (especially with respect to hysteric females), lest in patients of a delicate and irritable constitution, the nervous system should be too much deranged by the effects of the operation, which certainly ought not to be persisted in whenever that circumstance takes place. I would recommend, therefore, that on the first signs of an approaching fit, the operator begin with moderate shocks, and gradually increase them both in strength and quickness (even if the numbers found requisite for the purpose should extend from ten to thirty) until an incipient sweat be perceptible. This point being obtained, let the
sudorific

sudorific operation be kept up for several hours, by adopting the regimen that has been used in the preceding case; and if the fits should continue to recur, let this process be repeated for at least two or three times, as a reasonable trial of the effects of the remedy.

ARTICLE X.

Case of an Abscess of the Breast successfully treated,

BY W. FARQUHARSON, OF EDINBURGH,
M.D. AND C.M.S.

Read JULY 14th, 1788.

Mr. WILLIAM LOWNDES, aged eight, a young gentleman of a strong constitution and very active disposition, on the evening of the 9th of June, 1786, while overheated at play, fell from a considerable height into a deep river, about two hundred yards from his father's house. He struggled much, and was twice under water. In about five minutes he was taken out, carried home, stripped, put to bed, rubbed dry, and drank some brandy and water.

He

He slept well that night, was in perfect health next day, and eat his dinner with uncommon appetite. About seven o'clock in the evening he complained of being very drowsy, went to bed, and slept some hours. On waking he was seized with slight shiverings and sickness at stomach, followed by severe retching and vomiting, which continued during the night, and increased in the morning.

June 11th, about eight o'clock in the morning, Mr. White, surgeon, and I were called to see him. He complained of great nausea and headach; but he had little thirst: his tongue was not furred, nor was his skin much hotter than ordinary; his pulse was soft and regular, and beat 120 in the minute.

We ordered him a vomit immediately, a large dose of saline mixture every two hours, and a diaphoretic-anodyne draught at bedtime. Next morning we found him considerably easier; the vomiting had ceased, and his pulse had fallen to 90. However, for the three following days he grew worse; his pulse rose to 126, and was feeble and unsteady; his thirst increased; his skin became hot and dry; his vomiting returned; he
passed

passed a great quantity of urine, mostly thin and pale, though sometimes thick and high coloured; and he had a great degree of sub-sultus tendinum.

We ordered the saline draughts to be more frequently repeated; diluting drinks to be used in great quantity; the diaphoretic draughts to be exhibited at bed-time, and proper laxatives to be given occasionally.

June 15th, he began to recover, and his pulse again fell to 90, when he was seized with a violent pain in the left breast immediately under the nipple. This lasted only half an hour the first day, but returned with greater violence the day after; his pulse rose to 120, and he breathed with great difficulty; he likewise complained of his belly, which was sometimes considerably swelled.

These complaints yielded in some degree to bleeding, fomentations, blisters, diaphoretics, and laxatives; but there still remained such quickness of pulse, such pain in the left side, such difficulty of breathing, and such anxiety, as indicated some dangerous affection of the breast. To remove this the saline mixture, saline laxatives, worm medicines, antimonials, the warm bath, milk-diet,

diet, country air, and gentle exercise, were tried in vain.

July 15th. All the symptoms now indicating the presence of some fluid in the thorax, Dr. Stevenson of Glasgow was consulted. On examining our young patient we perceived a considerable swelling on the left side of his breast, which pointed between the sixth and seventh ribs, about half way between the sternum and spine. The pulsation of his heart could be distinctly felt on his right side; his pulse was at 146; his skin was hot and remarkably dry, and he was much afflicted with a hard tickling and almost constant cough. He likewise complained of violent pain in the left side of his neck and left arm. The muscles of that side of his neck were very rigid, and the veins turgid. He also leaned so much to the left side that he had the appearance of being deformed.

As his urine was scanty, his belly swelled, and his thirst considerable, there was reason to suspect a complication of hydrothorax with ascites, and with a view to this Dr. Stevenson ordered small doses of calomel at proper intervals, with a sufficient quantity
of

of chrystals of tartar, to give him two or three stools a-day; at the same time an anodyne embrocation was ordered for his neck and arm.

By persisting in this course for some time he became easier; his urine increased in quantity, depositing a great deal of brawny sediment; and the swelling of his belly disappeared. But as the quickness of pulse; the cough and difficulty of breathing still continued; as the pulsation of the heart on the right side had become more perceptible, while he could not lie, even for a moment on that side, without danger of immediate suffocation; and as the tumor between the ribs had increased, an operation was determined upon, and a poultice ordered, that the integuments might become thinner.

August 7th. Mr. White made an opening into the cavity of the thorax through the most depending part of the tumor. A pound of pure bland pus was discharged immediately, and in about three hours as much more. A small linen tent was introduced to serve as a conductor to the matter; and his side was dressed in the ordinary manner.

Every

Every symptom was now much relieved; his pulse came down to 116; the pulsation of his heart on the right side disappeared; he slept three hours on that side the second night after the operation; the cough left him; he breathed without difficulty, and the pain of his neck and arm became moderate. A small silver canula was introduced into the wound to give the matter free vent; his belly was ordered to be kept open by occasional doses of crystals of tartar, and a milk diet was strictly enjoined.

Things now wore a promising aspect; the matter, though discharged in great quantity, was perfectly mild and free from air; and he seemed to be gaining strength very fast, when, on the fifth day from the operation, he became feverish, hot and restless; his cough and difficulty of breathing returned; the matter acquired an offensive smell, and his pulse rose to 140. He now felt the silver canula so uneasy that we were obliged to withdraw it, and use only a bit of bougie. However, after taking a dose of salts, and increasing the quantity of the crystals of tartar, so as to keep his belly very open, the matter became more mild, his pulse fell to 120,

and the fever abated much. He was now ordered afs's milk, which however could not be procured for him in sufficient quantity.

Although his pulse was seldom under 120, yet he mended slowly till about the sixth of September, when he began to complain of shivering fits and an aggravation of all his former symptoms. There now appeared a considerably inflamed tumor, about two inches higher than the wound, which was disscussed in a few days by poultices and occasional laxatives; and all the symptoms were much relieved by a great discharge of matter from the wound after a violent fit of coughing.

He continued to recover till the 22d, when the shiverings returned, and a second tumor appeared in the same spot as the first. Every precaution was taken to disscuss it as formerly, but without effect, as, on the 27th, it burst and discharged a considerable quantity of matter, and he again became easier.

He was now ordered the bark with proper laxatives; demulcents for his cough; the milk and vegetable diet were continued, and he drank afs's milk in plenty. This course

agreed with him for some time; he became stronger, could walk with more freedom, and even bear the motion of a carriage; but about the beginning of October the matter became fœtid, although there was a considerable discharge from both wounds; his pulse continued at 120 in the morning, and he had a hectic paroxysm every afternoon, when his pulse rose to 130.

At this time Dr. Lettsom and Mr. John Hunter, of London, were consulted. Dr. Lettsom approved of the bark, but wished it to be conjoined with a saline effervescing draught to prevent it from increasing the fever. He ordered cicuta to be exhibited in as large doses as the patient's stomach would bear. At the same time he recommended a trial of a tepid bath of sea water, heated to 85 or 90 degrees, every other day, or as often as the patient's strength could bear it. He wished some light animal food to be given as soon as the state of the fever would admit of it.

Mr. John Hunter was of opinion that Nature should be as little interfered with as possible; and that neither linen tent nor cannula was necessary, if the matter passed off
freely;

freely; he approved of these, however, if at any time the matter was in danger of being confined for want of a proper outlet. In case of formation of new abscesses he recommended poultices.

At first the effervescing draught disagreed with the patient's stomach and puked him in the night, but afterwards he felt no inconvenience from them. He was now allowed some weak broth and a little light animal food at dinner; at the same time the strictest attention was paid to the regulation of his diet.

About this time he was put into a tepid bath of sea water, heated to 88 degrees, every other night; this brought off a great quantity of matter, lowered his pulse, and procured rest.

He now became so much stronger that he could walk about a great deal without difficulty. The matter, however, at last became so thick that very little of it was discharged unless he either coughed, sneezed, or cried; this occasioned the formation of another abscess which burst about an inch above the second opening.

Nov. 4th. Mr. Bell of Edinburgh was consulted. He was decidedly of opinion that the principal symptoms arose from the matter being pent up; and therefore advised that an opening should be made large enough to admit of the matter being discharged with freedom; and he thought this would be easiest done by laying the three openings into one. However, if the matter still appeared to be confined, he thought it expedient to make a new opening between two of the inferior ribs in order to procure as depending a drain as possible. If every other method failed he advised a canula to be introduced of sufficient length to reach the bottom of the cyst. He approved of the bark being continued, and thought a little more animal food might prove serviceable.

Nov. 7th. Mr. White laid the three openings into one; a good deal of matter and some blood came off immediately, and for several days a free discharge was kept up, which brought down his pulse from 136 to 112. He was now put on a fuller diet, and it agreed with him better than formerly; he gained strength and flesh daily; but the heal-

ing process now went on so fast, that, notwithstanding escharotics were applied daily to the wound, it was almost constantly in danger of being choked up by the fresh granulations; and every five or six days an accumulation of matter raised his pulse to 140, and gave him great uneasiness, till a fit of coughing, sneezing, or crying, forced it off.

Dec. 3d. Mr. White enlarged the opening considerably, which, by giving vent to the pent-up matter, relieved all the symptoms for several weeks, and brought down the pulse to 104 in the morning, yet he still had an evening exacerbation which raised the pulse to 120.

About the beginning of the year 1787 our patient caught cold by standing some hours on the ice; this, however, yielded to the common remedies, and produced no bad effects; on the contrary, the cough brought off a great quantity of matter, and assisted in keeping the external wound open.

From time to time we had the benefit of Dr. Lettsom's and Dr. Stevenson's advice, and their prescriptions were applied as far as the circumstances of the case would admit. The medicines, diet, warm bath, and exercise,

ercise, were regulated according to our patient's situation; and every thing that depended on the physician's art succeeded according to our wishes; he now recovered his strength and flesh surprisingly; his appetite returned; he grew straighter; slept well and could bear the motion of a carriage, walk or ride without any inconvenience; yet all our industry in applying escharotics and using other methods, could not prevent the matter from accumulating frequently and producing the usual train of bad symptoms. There was now an absolute necessity of either making a new opening between two of the inferior ribs, or of introducing a canula of sufficient length to reach the bottom of the cyst, that there might be a constant free discharge of the matter so as that the cyst might contract and the sides of it adhere.

As Mr. Bell had formerly advised these measures in very strong terms, he was called to see our patient on the 28th of May. On examining his side with a probe he found the cyst, though narrow, near five inches deep, and had reason to suspect that one of the ribs was carious. He ordered a long leaden canula to be introduced into the
wound;

wound; and, while it was preparing, ordered a bougie to be used, which was to be frequently withdrawn to allow the matter to be freely discharged.

In a few weeks after the introduction of the tube a surprising change took place; the hectic symptoms disappeared; his pulse fell to 100; he recovered his shape perfectly; his appetite increased so much that we were obliged to lower the quality of his food; he could use the most violent exercise, and could lie in bed on either side, and his head off the pillow, without difficulty. In short the discharge lessened rapidly, and by shortening the canula gradually the sore healed from the bottom without any exfoliation of the carious rib, or any accident whatever, except our patient's catching cold on his return from Edinburgh, whither he had gone to wait on Mr. Bell about the middle of August. Although the cold increased the discharge for a few days, yet it yielded to the common remedies, and the cure went on without interruption. By the end of September the canula was withdrawn, and the wound completely cicatrized.

Since that time he has continued in perfect health; has regained his lost growth, and takes as great a share of the most active diversions, such as dancing, leaping, running, and wrestling, with as much ease to himself as any boy of his age.

I must here remark that, during the whole course of this tedious case, our prescriptions were completely fulfilled, and our directions punctually obeyed by the patient's parents, particularly by his excellent mother, who, with a self-denial and perseverance highly worthy of imitation, nobly sacrificed every pleasure that a sociable disposition and wealth could procure, and dedicated every moment that could be spared from the care of the younger part of her family to the melancholy task of nursing her sick son; and she has now the pleasure of reflecting, that she has contributed in so great a degree to rescue, from almost certain death, a child who promises to be a comfort to his family, and a valuable member of society.

ARTICLE XI.

Case of diseased Liver.

BY ABRAHAM LUDLOW, M. D. C. M. S.
OF BRISTOL.

Read DECEMBER 7, 1789.

MR. YEATMAN, an eminent apothecary of this city, aged fifty-nine, and of a bilious habit, in the spring of the year 1787 had a slight jaundice, which soon seemed to pass off: in the July following it returned in a more considerable degree, and, became obstinate. It however gave way to the usual methods of treatment; and, about the beginning of September, he returned from the country (to which he had retired for the purpose of recruiting himself) better than he had been since his attack in the spring; and so well

well as to enter upon the duties of his profession. About the 6th or 7th of October he was suddenly seized with a most excruciating pain in his right side, attended with violent vomitings and frequent rigors succeeded by much fever, and a considerable tension over the whole hepatic and epigastric regions. Immediately upon the seizure he had recourse to the saline aperient medicines he had been accustomed to; but none of these remaining upon his stomach, he sent for his son Mr. Morgan Yeatman (a surgeon of eminence), who apprehending his complaints to arise from an obstruction of bile, gave him small doses of antimonium tartarizatum, with frequent draughts of warm water; hoping by the action of vomiting, and by dilution, to remove the obstruction; but no relief being procured, and his father being much exhausted by the pain and vomiting, he gave him two grains of opium purificatum with ten grains of calomel; which procured some ease, and enabled the stomach to retain repeated doses of his opening medicines, by which two or three lax stools were obtained: notwithstanding this, as the influence of the opium declined so
the

the pains returned. He then applied a large blister over the part affected, and continued the occasional use of opium and calomel with saline and aperient medicines; by all which the violence of the painful affections was mitigated. The obstructions of bile and the tension, however, still continued; the fœces were clay-coloured, and the urine highly loaded with bile. In this situation, with a pulse at 116, and very weak, I first saw him, when I recommended a perseverance in the same plan which had been adopted; under which, with some small occasional variations, the painful affections, with the tension, entirely subsided, and the obstruction of bile was wholly removed; the pulse, however, was still too frequent, and every evening there was a marked exacerbation of fever, succeeded by considerable perspiration, which at length ended in a perfect intermission. The cortex was then advised, and in a few days the febrile paroxysm became slighter, the strength increased, and things appeared so favourable that I desisted from visiting. But in less than a week his son informed me his father was much worse, and that he had not been free from fever for the last three days.

Upon

Upon visiting him I found his skin dry and hot, his tongue brown and parched, and his pulse exceedingly languid, fluctuating from 126 to 130; there was no appearance, however, of obstructed bile, his stools being of a natural colour, and the urine crude and limpid. In this apparently sinking state the necessity of supporting him was evident, of course the warmest cordials were ordered, and a generous diet adopted: notwithstanding which his languor increased, his throat became aphthous; a considerable degree of subfultus and singultus attended; he wandered much, and had frequent chills, with such faintness, that it was expected he would survive but a short time. He was still, however, able to swallow, nor did he refuse any thing which was offered to him; the powers of his cordial plan were therefore increased as much as possible, brandy being substituted for wine, and the cortex peruvianus added to the strongest aromatics; a free use was also made of æther, ol. cinnamomi, camphora, et opium. In this method we proceeded for seven or eight days, expecting every day would be his last; when, there having been fewer of the irregular chills during

during the last twenty-four hours, he was attacked with a most violent rigor, attended with such a degree of languor and coldness in the extremities that the family thought him dying: supplying him well, however, with the hottest and strongest things they could get down, they prevented his sinking, and at length a most intense heat came on; which was followed by a slight perspiration and some small remission of fever; as soon as the heat was established, the cortex, which I had directed to be omitted under any chill, and *at that time only*, was again added to the cordials, and given in the fullest quantity possible until the next rigor; which came on the next night about the same time, and was treated in the same manner, with the addition of a large dose of *confectio opiata*. In short, not to trouble you with a longer detail, by supporting him in the most generous manner, and losing no time in the exhibition of the cortex, except under the cold fit, when a warm opiate was constantly given (a practice I have with great success followed under such apparent circumstances of fever), he began to amend, and went on so fast to recover, that in less than a month he was able
to

to dine out at a friend's house, and appeared so well that I took my leave, much pleased with so extraordinary a recovery: nor had I seen him for more than a week, when, being in the neighbourhood on Sunday, 15th December, I called upon him, and found that he had been suddenly seized about four o'clock that morning with a most violent cough; which he considered as a return of what he called his old winter cough. As he had no fever, nor increased fulness of his pulse, I directed him to take a dose of tinct. opii camphorat. which soon allayed the violence of his cough; and by repeating it at bed-time he procured a good night, and felt so easy the next morning, that I did not visit him the following day; but on Wednesday his son informed me his father's cough was worse than ever. I went immediately to see him, when I found he had spat up a considerable quantity of thickened pus, and a yellow fluid which, upon examination, was evidently bile: this last, as it was intermixed with curdled milk, I concluded was discharged from the stomach from the irritation of the cough; but his daughter assured me that this yellow fluid was not vomited
up

up with the curdled milk, and produced more than half a pint with scarcely any thing intermixed, all of which had been coughed up. This induced me to wait that I might observe the manner in which it was raised; and I was soon convinced that it came up the trachea in the manner she had described. From this time the cough continued almost incessantly until Saturday morning; when, after taking at his own request some warm brandy and water, he desired he might be left alone, being much disposed to sleep; but it proved the sleep of death; for upon the return of his attendant (which was in less than half an hour) he was found breathless; nor did a person who was in a closet adjoining hear the least struggle or groan.

The particularity of the case naturally led me to request an examination of the body, which was complied with; and on the next day it was opened by Mr. Lowe, in the presence of his son, another gentleman, and myself, when the following appearances presented themselves:

In the thorax, the heart, blood vessels, and the pericardium were in a natural state.

The

The left lung in a tolerably healthy condition.

The right lung adhered by all its inferior surface to the diaphragm, which was pressed firmly up to it by a prominence in the liver; it also adhered for a considerable extent posteriorly to the pleura; on its anterior part there was a considerable fulness, in which a fluctuation was discoverable.

In the abdomen every thing had a sound appearance but the liver; this was of too dark a hue, and enlarged on its upper and convex part; the concave and inferior part, together with the gall bladder and the ducts, were in a sound unobstructed state; it adhered by all its convex parts to the diaphragm, which it had pushed up against, and almost into, the inferior part of the right lung; so that a firm adhesion had taken place between the superior part of the liver, the intervening diaphragm, and the inferior surface of the lung.

Concluding, as well from these appearances, as from the nature of the patient's complaints, that these parts were the seat of disease, we judged it best to take out the liver, diaphragm, and lungs together, that

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we might have a more distinct view of the whole; which being done, we found by pressing upon the anterior part of the right lung, where the fluctuation was discoverable, that the same kind of fluid which had been spitten up, issued in great abundance from the trachea, where it had been divided. This cavity was then laid open, when we discovered an aperture through the diaphragm into the upper and convex part of the liver; which was excavated so as to contain a pint and half of this vitiated fluid; with which neither pus nor any of the paronchymatous substance of the liver were intermixed; the surface of the cavity was smooth; and in it were many perforations which appeared not unlike sections of the pori biliarii, from which probably this fluid was deposited. The cavity in the lung was unequal because a part of its substance had been destroyed; and it contained, together with this bilious fluid, a quantity of thickened mucus and pus; from this cavity several communications were traced into the branches of the trachea, by which no doubt the fluid described was conveyed.

In the Edinburgh Medical Essays, Art. 26, a case somewhat similar was published by Dr. Edward Barry, where the disease began in the lung; here I should judge it originated in the liver. The very particular account of circumstances previous to the attack of the cough may appear tedious; but I thought it necessary to be thus circumstantial, not only to point out the origin of the disease, but to shew under what internal accumulation of fluid in the substance of the liver, and destruction of part of the right lung, this patient put on the appearance of convalescence; and from thence to infer, how cautiously, after violent internal affections, a practitioner should give or even entertain assurances of a patient's perfect safety.

ARTICLE XII.

Of Tetanus and of Convulsive Disorders.

BY JAMES CURRIE, M. D. OF LIVERPOOL.

Read MAY 10, 1790.

THE various objects which engage your attention will not admit of much of your time being employed on a single paper, and I have undertaken to write on a subject of some importance. It will be proper for me therefore to come directly to the point, and to avoid as much as possible every thing that is superfluous. What I have to offer shall be confined to the treatment of convulsive disorders, and especially of tetanus.

For this disease, so terrible in its progress, and so generally fatal in its issue, several new remedies have been proposed within the last thirty years, and each in its turn has had some share of public confidence. But opium,

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mercury,

mercury, the cold bath, and wine, are those only which seem entitled to any reputation, and of each, it has been my fortune to have had some experience. This experience I proceed to give you with all the clearness and faithfulness in my power.

In the course of nine years practice I have seen seven cases of this disease; of which two were idiopathic, and five the consequence of wounds. Of these in order.

1. George Gardner, a soldier in the Staffordshire militia, was put under my care by his officers, on the 20th of February, 1781. About a fortnight before, after severe dancing and hard drinking at a country wedding, in which he had been employed two days and nights, he fell suddenly into a fit which lasted an hour and a half, during which his consciousness was abolished. On recovery he was affected with slight twitchings which gradually increased, and were followed by fixed spasmodic contractions in different parts of the body, but more affecting the left side than the right. He had, when I saw him, all the symptoms of tetanus. The head was pulled towards the left shoulder, the left corner of the mouth was drawn upwards, the

the eyes were hollow, the countenance pale and ghastly, the face and neck bedewed with a cold sweat; but his most distressing symptom was a violent pain under the ensiform cartilage, with a sudden interruption of his breathing every fourth or fifth inspiration by a convulsive hiccup, accompanied by a violent contraction of the muscles of the abdomen and lower extremities. He felt on this occasion as if he had received an unexpected blow on the scrobiculus cordis. Before I saw him he had been bled and vomited repeatedly, and had used the warm bath, not only without alleviation, but with aggravation, of his complaints. The three first remedies mentioned were used here in succession, viz. opium, mercury, and the cold bath.

He first took a grain of opium every other hour, afterwards a grain every hour, and at last two grains every hour; but he grew worse and worse during the two days on which this course was continued. The spasms extended to the back and shoulders, the head was at times retracted, and the muscles of the abdomen partook of the general affection. Being no longer able to swallow the pills, he took no medicine of

any kind on the night of the 22d, in the course of which general convulsions came on and returned once or twice in every hour. The tincture of opium (liquid laudanum) was now directed to be given, and an ounce of the quick-silver ointment to be rubbed in on each thigh. In twenty-four hours he took two ounces and a half of the tincture without sleep or alleviation of pain. The dose being increased in the next twenty-six hours, he swallowed *five ounces and a half* of the laudanum, a quantity which, at that time, was I believe unexampled. He lay now in a state of torpor. The rigidity of the spasms was indeed much lessened, and the general convulsions nearly gone; but the debility was extreme; a complete hemiplegia had supervened; the patient's eyes were fixed, and his speech faltering and unintelligible.

As this young soldier appeared on the utmost verge of life, it seemed no longer safe to continue the laudanum, which had relieved spasm only in so far as it had brought on general paralysis. Intermitting this medicine therefore, small doses of camphor were occasionally given in a liquid form, but the chief attention was directed to supporting
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the strength by such nourishment as could be swallowed. Gruel, with a small quantity of wine, was ordered for him, though with much caution; for at that time I was not instructed with what safety and efficacy this last article might have been administered. For the next six days he seemed to revive: the general convulsions kept off, though the twitchings and convulsive hiccup continued. But on the night of the first of March he was seized, during sleep, with a convulsion as severe as ever, and this was followed by a return of all his symptoms with their former violence. The jaws were indeed more completely locked than before, deglutition was become impossible, and the pain under the ensiform cartilage was so extreme as to force from the patient the most piercing cries. At this time the effects of the quicksilver ointment were apparent in the fœtor of the breath and in a considerable salivation.

Had poor Gardner been a man of any rank, or indeed had he been surrounded by his family, it is most probable that we must now have abandoned him to his fate. But our proceedings being neither obstructed by the prejudices of ignorance nor the weak-

ness of affection, another, and a last, effort for his life was resolved on. Having heard that the cold bath had been employed with success in tetanus in the West Indies, particularly by Dr. Wright of Jamaica, and Mr. Cochrane of Nevis, and this practice corresponding with certain speculations of my own, I had recourse to it on this occasion with some little confidence. With the consent of his officers, Gardner was carried to the public salt-water baths of this town, then of temperature of 36° Fahrenheit, and thrown headlong into it. The good effects were instantaneous. As he rose from the first plunge, and lay struggling on the surface of the water supported by two of his fellow-soldiers, we observed that he stretched out his left leg, which had for some time been retracted to the ham. But his head did not immediately recover the same freedom of motion, and therefore he was plunged down and raised to the surface successively for upwards of a minute longer, the muscles of the neck relaxing more and more after every plunge. When taken out, we felt some alarm: a general tremor was the only indication of life, the pulse and the respiration being

being nearly, if not entirely, suspended. Warm blankets had however been prepared, and general friction was diligently employed. The respiration and the pulse became regular, the vital heat returned, the muscles continued free of constriction, and the patient fell into a quiet and profound sleep. In this he continued upwards of two hours, and when he awaked, to the astonishment of every one, he got up and walked across the room, complaining of nothing but hunger and debility. The convulsive hiccup indeed returned, but in a slight degree, and gave way to the use of the cold bath, which he continued daily a fortnight longer; and in less than a month we had the satisfaction of seeing our patient under arms, able and willing for the service of his country.

That the opium, though it failed in effecting a cure, had considerable influence in mitigating the disease, and prolonging life, is, I think, apparent.

That the mercury had little effect is clear from the second convulsions coming on soon after the salivation appeared.

The success of the cold bath in circumstances so apparently desperate, was not lessened by bad effects of any kind. Though
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the patient was in a salivation when thrown into it, yet this was not stopped suddenly; it lessened indeed immediately and soon disappeared, but without any of those bad consequences so well described by Sir John Sylvester and Dr. Dobson. Subsequent experience has taught me to attribute some part of the suddenness of the benefit obtained in this instance to a circumstance that distressed me much at the moment. The very instant that we were about to immerse poor Gardner he was seized with a general convulsion. We hesitated, but kept our purpose, and happily plunged him into the water with the convulsion upon him. I am also inclined to think that our success is in part to be ascribed to the powerful, general, and sudden application of the remedy, and under this opinion I should prefer immersion in water, to its affusion, the method employed by Dr. Wright.

2. Soon after this I was sent for by a poor woman, who, in consequence of difficult labour, and, as she imagined, of local injury in some part of the uterus, was seized with the spasmus cynicus, locked jaw, and other symptoms of tetanus. She was immediately
taken

taken to the cold bath, and thrown into it in the same manner as the former patient, and with similar good effects. The spasms disappeared, and though they afterwards returned in a slight degree, they gave way entirely to a second immersion.

In the first of these cases I was assisted by Mr. Walker, surgeon's mate of the Staffordshire militia; and in the second case the effects of the cold bath were witnessed by him and my friend Mr. Park.

So far of the idiopathic tetanus; my experience of the effects of the cold bath in the disease originating in wounds is neither so satisfactory nor so complete.

3. The first case of this kind that occurred to me was that of a master of a vessel returning from sea in the year 1784. The injury had been received on the leg, but the wound had little inflammation on it, though the patient was so far advanced in the disease as to go off in a general convulsion, before any remedy could be tried.

4. The second case seemed rather an instance of locked jaw, properly so called, than of tetanus. The injury having been
received

received on the jaw itself, the affection was confined to the muscles of that part, and the disease seemed to be the trismus inflammatoria of Sauvages. It gradually yielded to bleeding and the topical application of warm vapour, the cold bath producing no good effect.

5. In the third case we contented ourselves with pouring cold water in successive buckets on the patient's head, partly, because this was the most convenient method, and partly, because it is that employed by Dr. Wright, whose paper on the subject, in the sixth volume of the London Medical Observations and Inquiries, had by this time appeared. While we were busy in this way, and flattering ourselves with some appearance of success, the unhappy patient suddenly threw himself on his back, and a quantity of water entered his mouth. The effects were highly distressing. The muscles of deglutition were unable either to carry down or to expel the fluid, and such convulsions took place as led us to expect instant death. He recovered, however, so far as to regain his former situation, but the effects of his sufferings on the
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bye-standers prevented our continuing this practice, and he was carried off a few hours after.

6. A fourth instance of this disease I saw about two years and a half ago. There was no room for new practice, for the patient was too far advanced. He had been treated with opium and mercury as usual, and as usual died.

These cases afford little inference either in favour of or against the use of the cold bath in tetanus arising from wounds, but they are stated shortly that the account of my experience in this disease may be fair and complete.

It does not appear from Dr. Blane's History of the Diseases of the Fleet, that this remedy was used in any of the cases of tetanus that occurred among the seamen in the late war. In speaking of this disease Dr. Blane indeed mentions, that though Dr. Wright and Dr. Cochrane had found the cold bath successful in cases without local injury, they had acknowledged the practice to be ineffectual in the disease when arising from wounds. Dr. Blane may perhaps be accurate respecting Dr. Cochrane, whose publication on this subject

subject I have not been able to procure, but he is mistaken respecting Dr. Wright. This gentleman, in the paper already quoted, informs us that since he employed the cold bath he has not failed in effecting a cure in a single instance of tetanus, without distinction or reservation; and of the six cases which he has detailed, in three the disease appears to have arisen from local injury. This point is of high importance, and a mistake respecting it in a work like that of Dr. Blane, which will no doubt be much consulted in the future practice of the fleet, may, if passed unnoticed, have serious consequences.

It is worthy of remark, that the use of the cold bath in tetanus is a practice of very ancient date. Dr. Wright, whose precision and candour are exemplary, mentions that he received the first hint of it from Dr. Lind of Haflar. Hippocrates, however, was acquainted with it, as appears by Aphor. 21. lib. 5. It is also noticed by Avicenna, lib. 3. cap. 7. and in the collection of Schenkius, p. 120; an account of the success of this practice in two cases of tetanus is quoted from *Jason*, cap. 21. *De morbis cerebri, ex*

Valesco. Hippocrates indeed, and after him Avicenna, restrict the use of this remedy to the young and corpulent, and to the summer season. They also confine it to cases in which the disease has not originated in local injury, for it appears, by another of his aphorisms, that the father of physic thought convulsions supervening to a wound always fatal*. The experience of Dr. Wright encourages us to extend this remedy to tetanus originating in wounds, but if it should fail we are still not to despair, as the following case will testify.

7. In July, 1787, a labouring man was brought into our Infirmary with a wound in his hand. He was under my friend Mr. Park's care, and the sore was nearly healed up when an alarming rigidity appeared in the motion of the jaw. Opium and mercury were immediately prescribed, with which were conjoined first the cold and afterwards the warm bath. Mr. Park, however, finding the disease to proceed with most unfavourable omens, called a consultation, at which, in the absence of the rest of

* Hippoc. Aph. lib: iv. sect. v. aph. 2.

our colleagues, we agreed to make a trial of bark and wine on the authority of Dr. ~~Buff~~ *Rush* of Philadelphia, whose excellent paper on this subject, in the second volume of the American Philosophical Transactions, had just appeared. We had, however, little or no hope, for the disease was far advanced, and its progress had been very rapid. At this time the jaw was not only rigidly contracted, but the spasms had extended to the neck and back, the pain under the ensiform cartilage was most acute, and twice or thrice in every hour he was seized with general convulsions, each of which lasted about half a minute.

The patient was, however, a man of a vigorous mind, and in his perfect senses; and his danger was not concealed from him. Death, he was told, must be the inevitable consequence, unless he swallowed wine in large quantity, but this we verily believed would save him. At first bark was infused in the wine, but he could not swallow the mixture, and therefore we trusted to wine alone. It was wonderful to see the exertions which this poor fellow made. If the liquid was offered to him at an improper time, the effort

effort of deglutition brought on a general convulsion; nay a general convulsion was the consequence of advancing it at such a time towards his head. But watching the remission of the spasms, he was able to swallow a table spoonful or more at once, he himself giving the signal when the wine should be administered*. In this way, through the opening made by the lapping of the upper jaw over the under one, he drew up and swallowed a quart of port wine in the course of two hours; at the end of which time he thought himself refreshed, and was encouraged to proceed. At the end of twenty-four hours he had finished his third bottle, and at this time it was evident that the downhill progress of the disease was checked. Though the pain under the ensiform cartilage (the most excruciating of all the symptoms of tetanus) was little abated, yet he felt himself more able to bear it; and the general

* This circumstance suggested to me the similarity between this case and hydrophobia. I noticed it to my respected friend Dr. Percival, who has mentioned it in his valuable essay on that disease. V. Percival's *Essays*, vol. II. p. 366. 4th edition.

convulsions were certainly less frequent and less severe. We continued our plan with patience and vigour, but for a long while life and death seemed to hang in equal scales. On the fifteenth day of this course he was affected with a slight nausea and vomiting which soon went off, and thenceforward his recovery seemed more apparent. It was not however till he had been forty-two days under this treatment that his safety could be ascertained, and during this time he swallowed a hundred and ten bottles of Port wine.

In this case bark was administered along with the wine towards the latter period of the complaint; and during the whole of it, gruel or milk in the quantity of a quart a day, or upwards, was given by way of nourishment. The milk, however, he preferred as agreeing better with the wine, and tending, as he conceived, to allay a burning sensation at his stomach, the effect of an acid ferment there.

Though the wine was given in such quantity, yet it never produced any symptom of ebriety—it soothed the irritation on his
nerves

nerves and comforted his mind, and, without increasing the frequency of his pulse, it augmented his strength.

Every night he took from sixty to a hundred and twenty drops of the tincture of opium, and, with the wine, this small dose seemed to have a more composing effect than thrice the quantity taken before he began it.

To allay the pain under the ensiform cartilage, cloths dipped in æther were applied externally with good effects. As I stood by him one day, pressing the doffils with my open hand to the scrobiculus cordis, he expressed himself relieved by the force which I applied. The same relief seemed to follow from a gentle and uniform pressure on other parts suffering from spasm. In consequence of this rollers were applied round each thigh where spasmodic twitchings had been very distressing, and afterwards, at his own request, a general pressure of the same kind was applied to the back and abdomen. These bandages he would not suffer to be removed, but we poured æther on them occasionally over the parts most affected by spasm, guarding in the usual way against the cold produced by too speedy an evaporation.

At length our patient recovered. He is now a watchman, and calls on me occasionally. He complains of a stiffness at times in the muscles of his back, and, though naturally a strong and healthy looking man, his features retain the indelible impressions of his disease. His eye appears hollow, his face sharp and pale, his cheeks and lips are skinny, and the masseter muscles hard and shrivelled.

I have lately had an account of a case of this kind which occurred in a sailor on the coast of Guinea, who recovered under the care of Mr. Robson, an ingenious surgeon in the African trade, from a state apparently desperate, by a very liberal use of bark and ardent spirits.

To conclude this part of my subject, I have known two instances of this disease in horses, both originating in wounds; the first of these was treated in the method first described. The cold bath was used repeatedly, and large doses of opium employed in the form of clysters; but the disease terminated fatally. The second of these occurred in a horse of my friend Dr. Camplin (whose assistance in the case of the watchman I ought

ought to have acknowledged), about a twelve-month ago on his journey to Bath. The doctor informs me that he gave him wine and opium, mixing sixty drops of laudanum with every pint of wine, and by this practice he had the pleasure of recovering him, though not till he had drank as much wine as he was worth; brandy or gin may perhaps be as successful in such cases.

It may be supposed that these instances of success in the use of the cold-bath and wine in tetanus would lead me to the employment of these remedies in other convulsive disorders. This has accordingly been the case; but of the use of wine I am not yet prepared to speak. Of the use of the cold-bath in such disorders I can speak with some confidence, as my experience of it is now of eight years duration.

In the convulsions of children I have found the cold bath a most useful remedy, whether the disorder originated in worms or other causes. I have seldom known it to fail in stopping the paroxysms, at least for some time, and thereby giving an opportunity of employing the means fitted to remove the particular irritation. I must however ob-

serve, that in early infancy I have used it with caution; sometimes tempering the water when the weather was cold, and sometimes pouring it on the patient, rather than immersing the patient in it. I have in general made the application of cold in this way sudden and transient, have employed means to secure re-action, and have avoided the remedy entirely in all cases where the vital energy seemed much exhausted. With these precautions I have seen great success attend this remedy in a variety of instances. Minutes of nine of these I have preserved, but I mean to give one only in detail.

John Slater, aged eight years, came under my care in the month of January, 1782. About two years before, while at play, he was seized suddenly with a convulsion which continued for half an hour, and had returned ever since at short intervals. Various means had been employed for his relief but without success; the fits were become more and more frequent, a hemiplegia had supervened, and the intellect was apparently lost. For twenty-four hours he had lain in a state of insensibility, motionless on the left side, and the muscles of the other side only agitated by convulsive

convulsive tremors. We put him immediately into a tub of cold water, which instantly stopped the paroxysm and threw him into a deep sleep, out of which he awaked after two hours with a shriek, and fell into convulsions as before. The cold bath was repeated, and afterwards continued daily, present relief being always obtained by it. The interval was employed in administering the tin powder, which was worked off with calomel, but no worms were observed to be discharged. After several days, the convulsions returning, though with considerable abatement, I became dissatisfied with the mode in which the bathing had been performed, the size of the tub employed never having admitted of sudden immersion. On this account we had the child conveyed to the public bath, into which he was thrown headlong, his father being stript in the water to receive him. The temperature of the bath was 43° Farenheit. He was repeatedly plunged down and taken up for half a minute; was taken out of the water free of convulsion, fell immediately into a profound sleep and awaked clear of complaint. In

these respects this case resembles that of Gardner first described. It resembles it also in this respect, that convulsion had taken place at the moment of immersion. The paralytic weakness of the side remained, however, for some time, but by the continued use of the bath it was at length entirely removed; and the powers of the mind, which had been totally suspended, gradually returning, at the end of three months were perfectly restored.

He continued well upwards of twenty months, was healthy and vigorous in body, and in the acquirement of knowledge remarkably acute. But on the 30th of December, 1783, his mother having struck him and frightened him much, he was seized in the night during sleep with general convulsion, in which he continued several hours without intermission. Being again called to him, I employed the same remedy, but at the time of immersion the convulsion was not on him. Sleep and refreshment followed as before, but the paroxysm returned in the evening though in a slighter degree. However, by perseverance in the daily use of the bath, and

and throwing him twice into the water with the *convulsions upon him*, in six days his health was restored.

I lament over the fate of this amiable boy. He continued from this time three years and a half in perfect health; grew strong and tall, and shewed great affection of temper and sensibility of mind. But being violently agitated with fear and grief, he fell again into convulsions in the month of July, 1787. I was sent for as usual, but was absent from town at a considerable distance. Having on former occasions launched him myself into the bath, his mother, a superstitious woman in a low walk of life, would not permit this remedy to be used till my return. He lay for thirty hours convulsed and senseless, and the first intelligence I had of his illness was accompanied by the account of his death.

This case differs materially from the convulsions of early infancy. I give it therefore not as an instance of these, but as a specimen of a disease affecting children from four to twelve years of age, and which, though not very uncommon as far as I can judge, has not yet found its place in any systematic
work

work that I know of. The nosology of convulsive diseases is indeed very imperfect, and the terms we employ in describing them are by no means precise. Those who have seen tetanus and the disease last mentioned, will know, that what is called convulsion in both instances, is in the one case and the other a very different affection. The convulsion of tetanus is a sudden and violent contraction of all the voluntary muscles, throwing the frame into strong contortions, but lasting only a minute at most, and seldom so long. The patient, where the case terminates fatally, dies in it at last, from the spasmodic affection extending to the heart, or sometimes, perhaps, from the suspension of respiration. The convulsion in the other case, though it begins with violence, soon subsides, leaving the body in a state approaching to coma; and though the separate fibres of many of the muscles keep in constant vibration, and the turbulence of general convulsion returns occasionally, yet in the intervals the respiration is natural and the pulse little disturbed; voluntary motion and consciousness are, however, completely suspended.

ed *. If this state continues long, the violent commotions return more frequently, the breathing becomes laborious, the strength is at length exhausted, and the patient dies with the symptoms of apoplexy.

I conclude this paper, already too long, with a few general remarks.

1. It appears to me that the efficacy of the cold bath in convulsive disorders is much promoted by its being employed during the presence of convulsion. How I came to be led into this opinion may be seen in the case of Gardner. Much experience is required to establish this as a general truth, and I give it as an opinion only. Yet it is an opinion so far confirmed in my own mind, that, where left to my own judgment, I should act upon it in all such cases as I have described; and, should occasion require, I should be anxious to have the experiment tried in my own person, and “to run the hazard of the die.” As madness is, I think, best combated in the height of the phrenzy, so I believe convulsive diseases are most ca-

* This species of convulsion has been denominated *clonic*, in opposition to *tonic*, but with little propriety. All convulsions may be said to be clonic.

pable of remedy in the agitation of convulsion. I seem to have a glimpse of a general principle in nature that connects these facts so apparently different; but the ground is not yet firm enough to lay the foundation of a theory.

2. It may however seem to strengthen the above remark, that in spasmodic diseases, which rise not to general convulsion, the cold bath seems to be of inferior efficacy. In chorea Sancti Viti I have tried it frequently, but never found it of any service. This is one of the few diseases in which electricity is of decided advantage.

3. In the hysteric paroxysm the cold bath, or indeed the plentiful affusion of cold water, is an infallible remedy. Those who suppose that the terror it occasions ought, in this case, to prevent our having recourse to it, are, in my opinion, mistaken. Though the hysteric paroxysm be the offspring of passion, it is never occasioned, I will venture to assert, by the passion of fear. A sense of danger will always, I believe, prevent it, or indeed a powerful dread of any kind. I have known a tub of cold water kept in readiness, with the certainty of being plunged into it on the recurrence

unsuccessful. To what circumstance it may be owing that a remedy, which has been so efficacious in the West Indies, should have failed in the East, does not appear; though if the circumstances under which it was employed were fully related the difficulty might perhaps be explained. It may, however, be observed, that in the sultry climate of India, where the human frame is greatly relaxed, it will not be safe to use the cold bath with the same freedom as in more northern regions. And it will undoubtedly be more safe, in any future trials of this remedy in that country, to use the method of affusion employed by Dr. Wright, and so successful in his practice in a similar climate, instead of immersion, which it appears was employed.

I present these facts and observations to you, Gentlemen, with the confidence of a man whose intentions are good. I have not spoken under the warmth of new conceptions, for my experience is, you see, of several years duration; and I anxiously hope that time will stamp my narration with the seal of truth. Be this as it may, I have
written

written under the strong impression of the folly, baseness, and guilt, of sacrificing the interests of science to a selfish purpose; and if I am in any respect instrumental in deceiving others, I solemnly declare it is because I myself am deceived.

ARTICLE XIII.

Case of extra Uterine Gestation, of the ventral Kind: including the Symptoms of the Patient from the earliest Period of Pregnancy to the Time of Death (fifteen Months); with the Appearances upon Dissection.

BY WILLIAM TURNBULL, A. M. F. M. S.
SURGEON.

Read JANUARY 10, 1791.

THE human body is originally stamp'd with a peculiar conformation, and also impressed with strong propensities and passions, principally in subservience to those two grand and first laws of creation—Self-preservation and the regeneration of the species; these are more especially distinguishable in the appetite of hunger, and the mutual attachment of the sexes. These laws are not only universal,

versal, but are also of a minutely extensive nature, for they pervade the whole living body, since in every part it is endowed with a power both to resist and to regenerate. The subject of the present history is an obvious illustration of the extent of this principle; for we have not merely an instance of nature's exertions for the renewal of the species, but likewise, on being counteracted, new resources found out by her to answer the same grand design; and we can venture to affirm, that no subject is better calculated to shew the accommodating powers of the animal machine than these changes which take place in the parts concerned with the various inexplicable processes of gestation. For when we consider, that the extremely small dimensions of the uterine cavity, the still smaller capacities of the ovaria and fallopian tubes, being capable of so great an expansion and dilatation as to admit the progressive evolutions of the fœtus, from its atomic state to the weight of several pounds, are circumstances of equal astonishment, yet, beyond dispute, are admitted as certain and necessary facts; and while these leave us in silent admiration at the stupendous effect, they lead us insensibly into a contemplation

of the great First Cause, whose incomprehensible power and wisdom preside universally over creation.

The veil of obscurity which nature has so wisely thrown over the mysterious work of conception has, at various periods, been productive of theories as complicated, systems as replete with intricacies, as the operations which they were intended to develop. However this deficiency of knowledge will appear, if not unimportant, at least not greatly to be regretted, when, on consideration, it is found, that, unless in the article of curiosity, mankind would be but little benefited, and diseases incident to them would receive, in all probability, no alleviation were we in possession of the secret; for which reason this subject has been regarded and treated more as an abstruse exercise for the imagination, affording an ample field for speculative and controversial disputations, than an useful or medical enquiry.

Nothing can give a stronger specimen of the extraordinary exertions and wonderful resources of nature, in the production and preservation of animals, than her operations in the occurrences of extra uterine impregnations.

These

These extra uterine cases may be considered as consisting of two kinds—1st, where the foetus is found within some part of the genital organs; 2dly, where the situation of the foetus is unconnected with them, or external, with regard to the organs of generation. The former of these cases, it is evident, may take place in the ovaria and fallopian tubes; the latter in the cavity of the abdomen. But those which happen in the former are not so remarkable, on many accounts, as those in the latter situation; because the foetus is abundantly supplied with the same blood-vessels as the uterus, and therefore it probably only requires a greater enlargement of these vessels already existing to effect a communication; but, in the pure ventral conception, parts intended for different purposes are made to supply this. Fallopian and ovarian cases only shew that parts intended for the purpose can perform it, but ventral demonstrate, that parts formed for different ends, will also succeed.

Although it is generally understood that the uterus is essentially necessary for the purposes of conception, yet these different foetations incline us to believe that it is not ab-

folutely fo, and that the principal or only advantages, which that organ poffeffes over other living parts, are derived from its fituation and dilatable powers, and from its being poffeffed of a muscular ftructure with an external opening; the former being admirably calculated for the purpofes of growth and evolution, without any interference with the vital parts, and the latter for the prevention of hæmorrhages, and the expulfion of the fœtus.

From a careful perufal and examination of the moft approved authors * upon this fubject, it appears by a variety of examples that impregnations in the ovaria and fallopian tubes are by no means to be confidered as uncommon †.

The

* Extra uterine foetations were not taken notice of before the beginning of the laft century.

† Vide The Philofophical Tranfactions of London. An. 1683. Vol. xiii. p. 285. An. 1698. Vol. xix. p. 314, 486, and 580. Vol. xx. p. 292. Vol. xxi. p. 121. An. 1700. Vol. xxii. p. 1000. An. 1704. Vol. xxiv. p. 2077. An. 1720. Vol. xxxi. p. 126. Vol. xxxii. p. 387. An. 1724. Vol. xxxiii. p. 171. An. 1727. Vol. xxxvi. p. 485. An. 1739. Vol. xli. p. 697. An. 1744. Vol. xliii. p. 304 and 529. An. 1746. Vol. xlv. p. 617. An. 1748. Vol. xlv. p. 121 and 131.
An.

The references in the preceding note are replete with histories of this kind, and of ruptures in the uterus. Many facts are ad-
duced

An. 1751. Vol. xlvii. p. 92. Miscellana. Natural. Curiosa; An. 1. Dec. 1. p. 255. An. 2. Dec. 11. p. 478. An. 4. Dec. 1. p. 76. — Dec. 3. p. 167. An. 8. Dec. 11. p. 293. Memoires de l'Acad. de Sciences, An. 1709. Journal de Medicine, No. 1. Journal de Scavans. Tom. i. p. 134. — Tom. v. p. 133. Ephemer. Act. Nat. Curios. Cent. 7. p. 24. Acta Erudit. Lips. An. 1706. p. 265. — An. 1716. p. 526. — An. 1718. p. 15. — An. 1719. p. 343. — An. 1720. p. 131. Acta Hoffminsia. Vol. v. p. 53. Zodiacus Medicus, Vol. i. Observat. 9. Commentar. Litterarum, Noremberg. An. 1732. Tho. Bartholine de Insolit. partus Humani Viis. — & Histor. Anatom. Cent. 6. Epistol. Med. Cent. 4. Epist. 368. Caspar. Bartholine de Ovar. Mulier. p. 36. Manget. Biblioth. Anatom. Andr. Ot. Goelicke Histor. Chirurg. p. 186. Dan. Hoffman Annot. ad Hyp. Groeyan. p. 69. Theod. Craanen de Homine, p. 709. Joh. Riolanus, Anthropol. p. 180. Nicol. Vinetta de la Generat. de l'Homme, p. 428. Petr. Dionis des Accouchement, p. 93. Belloste Chirurg. de l'Hospital. Dan. Men. Mathiæ. Observat. p. 106. Regn. de Graaf de Organis Mulier. p. 352. Isbrand, de Diemberbroeck. Op. Anat. p. 135. M. Ern. Etmuller Epist. ad Rufep de Ovar. &c. p. 4. Benj. Petermanus Observat. Medic. Cent. 2. p. 40. Ger. Blasius Observat. Med. p. 66. Joh. Frid. Ortlob. Histor. p. 275. Theoph. Bonetus Sepulchr. Anatom. p. 1367. Cyprianus de Histor. Fœtus Humani salva matre ex Tuba
N 3 excisi.

duced wherein the foetus having escaped from some of these parts into the cavity of the abdomen, has remained in that situation for a number of years, and, in some instances, been retained during a long life, without any other inconvenience to the mother than the weight arising from the size of the infant. These were sometimes extracted or

excisi. Stalp. Vander Wiel Obs. rar. p. 320. Arnold, Senguerdius de Ostento Dolano. Joh. Ben. Sinibald Geneanthropol. p. 1. Joh. Conr. Pyarus Exercitat. 16. ad Hardir. Medical Essays of Edinburgh. Smellie's Cases and Observations; and London Medical Journal, Vol. viii. Part iv. Art. 1. A case of extra uterine foetus, by Dr. Underwood. Art. 2. Observations on the same, and on ruptures of the uterus, by Dr. Garthshore.—In this sensible and judicious paper the Doctor has collected a number of histories of such cases, with references to the respective authors from whom they were taken; but does not produce any instance of a true ventral conception in the remarks alluded to. A case of an ovarian foetation has lately fell under the observation of Dr. Krohn at the Middlesex Hospital; this I have seen, but shall forbear taking any further notice of it, since I understand it is the Doctor's intention soon to bring it before the public.

In consulting the preceding authorities I acknowledge myself much indebted to Dr. James Sims, the present worthy and learned President of the Medical Society of London, for the use of his valuable library, which contains above 8000 volumes in medicine.

discharged in part, or entire, by abscesses forming in the integuments of the abdomen, or groin, and by the anus.

But the history of medicine furnishes us with hardly an instance of a true ventral case, well authenticated from dissection, wherein the impregnated ovum has been dropped, either from the ovary, or extremity of the fallopian tubes, into the belly of the female *, there procuring itself a residence and

* It has been a question—in what manner does the impregnated ovum find its way into the cavity of the belly? The general opinion is, that the ovum having been formed in the ovary, is afterwards detached from it in all viviparous animals in consequence of the fruitful coitus, at the same time the fimbriated extremity of the fallopian tubes embraces the ovary, and so catches the ovum at the moment of detachment; therefore if the fallopian tube should either not embrace it in the ovary, or, what is most probable, after having embraced, should loose its hold before the separation of the ovum takes place, this last will necessarily fall into the cavity of the abdomen, where it is most likely to adhere. There is no difficulty in supposing how it should adhere there, since we have reason to believe that the abdominal cavity is not more an extraneous one, with respect to the ovum, than the cavity of the uterus itself; or, perhaps, on the principle of two living parts coming together, they may unite in the same manner, as often occurs in various other parts of the body.

nourishment, and all this taking place without any other attachment to the uterus, or its appendages, than in common with the abdominal viscera. These last circumstances have occurred in the case which affords the following observations.

I shall, therefore, immediately proceed to lay before you the history of the symptoms from the earliest periods of pregnancy to the death of the patient, collected from the concurrent testimony of Mr. Fitch and Mr. Hancock, medical practitioners, who both occasionally attended the greatest part of the time; afterwards relate the appearances on dissection, and close with a few general observations.

HISTORY OF SYMPTOMS.

About the beginning of March, 1790, Mr. Fitch was sent for by Mrs. Calvert (a woman about thirty-seven years of age, who resided in the City Road), supposing that she was arrived at or near her full period of pregnancy, and with a view of engaging him to attend her.

On entering the room he could not refrain from expressing his astonishment at her appearance; she was extenuated almost to a perfect skeleton, and had a pallid sickly countenance. On examining the abdomen he found it distended to an enormous degree, the skin of which exhibited a very livid appearance, tinged with a yellow hue. Her breasts were of a painful hardness, and discharged a butyraceous fluid, which had a much nearer resemblance to pus than milk; her eyes were deeply sunk within their orbits, the pulse quick and feeble.

On making enquiries relative to the miserable and afflicted situation in which he found her, she informed him, that she had been four times pregnant, and supposed herself to be in the same state again ever since the beginning of July, 1789*. At this time violent pains began to attack her bowels, which increased with her pregnancy, and gradually affected her stomach; notwith-

* It is worth remarking here, that she never menstruated during her pregnancy, until between two and three months preceding her death, then in a very small quantity, and at irregular periods. This is a very uncommon event in extra uterine impregnations.

standing her recourse to various medical applications, with very short intervals of ease, her pain still continued. In February, about a month before he was called in, she had been seized with a most violent paroxysm of pain, attended with a flooding; this she supposed to be her labour, and sent for her midwife; but before she arrived something was expelled from the uterus, with the appearance of a placenta, and which the midwife, on examining, declared to be so. Before this occurrence she had felt the child very distinctly moving, but never to any great degree afterwards; she constantly complained, from the first time she perceived its motions, that it laid very high up, and that she had, in every respect, experienced very different sensations from those which she had usually in any former pregnancy.

The hæmorrhage continued about four weeks from the time of its first appearance until Mr. Fitch came, but not with the same violence.

On examining her he found the os tinæ so very much dilated, that with great ease he introduced his three fingers into the cavity of the uterus, the internal surface of which

was found very irregular. It is worthy of remark here, that the uterus took on a particular disposition for action, about the usual period of parturition.

The abdomen, particularly on the right side, discovered considerable hardness on touching it externally, and was much distended in the direction of the liver, particularly upwards, and much less towards the lower part. She was affected alternately with diarrhœa and constipation, accompanied with violent and frequent vomitings, and with a painful uneasiness on the right hypochondrium and region of the stomach, which last felt as if something was continually pushing it up. From these symptoms, and every circumstance which he could discover, he imagined that a deposition of coagulable lymph had taken place in the cavity of the abdomen, and that irritation had excited an extraordinary action in the vessels of the uterus, for this reason he considered that mass to be a coagulum of lymph, which the midwife had pronounced to be placenta.

From these ideas he acquainted the patient and her friends, that he did not imagine her to be pregnant; and communicated
his

his sentiments respecting her situation, and the means most likely to alleviate her sufferings:—with this view he employed such medicines as would tend to promote absorption, and began first by administering an emetic, and then in a day or two afterwards an active carthartic, which she bore very well, notwithstanding her emaciated state, and expressed herself considerably relieved by these evacuations.

After these remedies he proceeded to use gentle mercurial frictions, at the same time giving small doses of calomel and opium: after pursuing this plan about a fortnight, he had the happiness of seeing his patient very much recovered.

The abdomen on the left side was much lessened; the livid complexion greatly changed, the discharge of blood had entirely disappeared, and the pulse had become fuller, stronger, and more regular. From so considerable an amendment, and such a happy change in the symptoms, he flattered himself that the cause producing irritation was much diminished. Soon after this he was obliged to desist from the mercurial course, on account of a ptyalism supervening. She complained,

plained, at this period, of a painful tumour on the right breast, that afterwards suppurated and formed a very large abscess, which was opened and discharged a considerable quantity of matter. In every other respect his patient was astonishingly recovered; the abdomen on the left side was reduced nearly to its natural size, and the right also much diminished; the livid yellow complexion nearly removed, and a more healthy florid one succeeded; the stomach too was considerably relieved, the sickness as well as vomiting nearly subsided, and the appetite and strength very much restored.

Upon the whole, she was so far recovered as to discharge the nurse and follow her domestic employments, but still at times complained of a painful uneasiness on the right side; also frequently insisted upon her being pregnant, and that the child lay dead within her; and proposed questions relative to the possibility of opening her body, and removing the child.

Throughout the whole time of Mr. Fitch's attendance (which was between three and four months) he was compelled to have frequent recourse to warm aperients to obviate
that

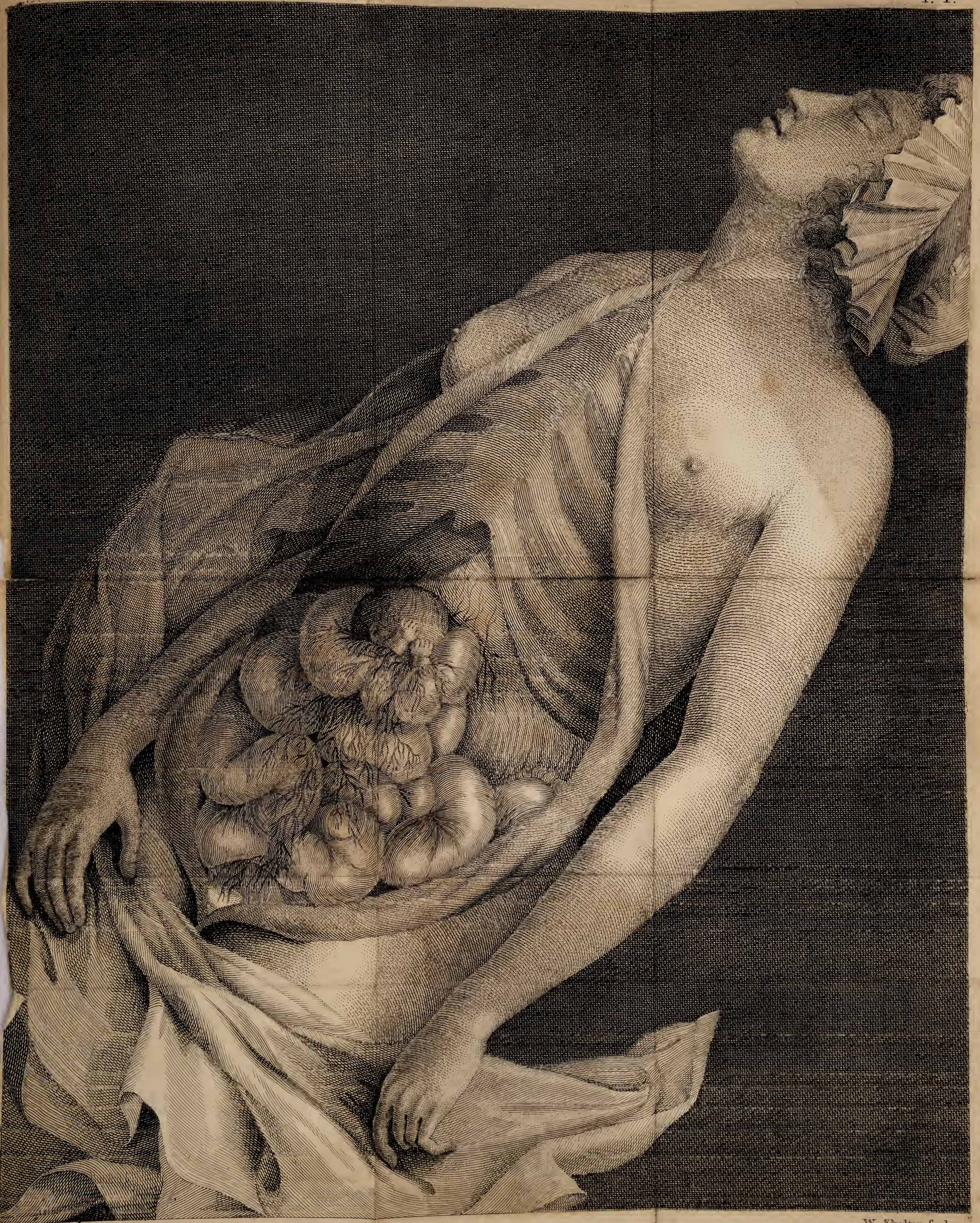
that costiveness and flatulency which had been exceedingly troublesome to her.

She had now so much recovered as to dispense with further medical attendance*, and continued in a state of convalescence for about six weeks, and till within a month of her dissolution, when all the symptoms returning, Mr. Hancock was sent for (who had occasionally seen her in the first periods of gestation); he coincided with Mr. Fitch in respect to her situation, pursued a similar treatment, and is acquainted with all the circumstances related in this history.

He informed me, that during the last ten days of her existence, the diarrhœa had entirely ceased, and was succeeded by such an obstinate constipation as to resist every remedy that was employed to remove it: she continued without any natural passage, and the excrements were voided by the mouth. She complained of much pain in the head and in the intestines extending to the left

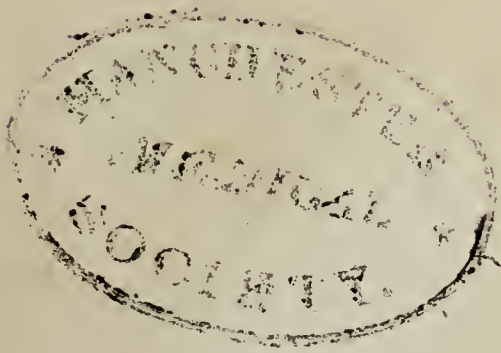
* In consequence of this considerable amendment, Mr. Fitch ceased from visiting her, after an attendance from March to the June following; and from the latter month until the middle of August she enjoyed, as it is observed, a tolerable good state of health.

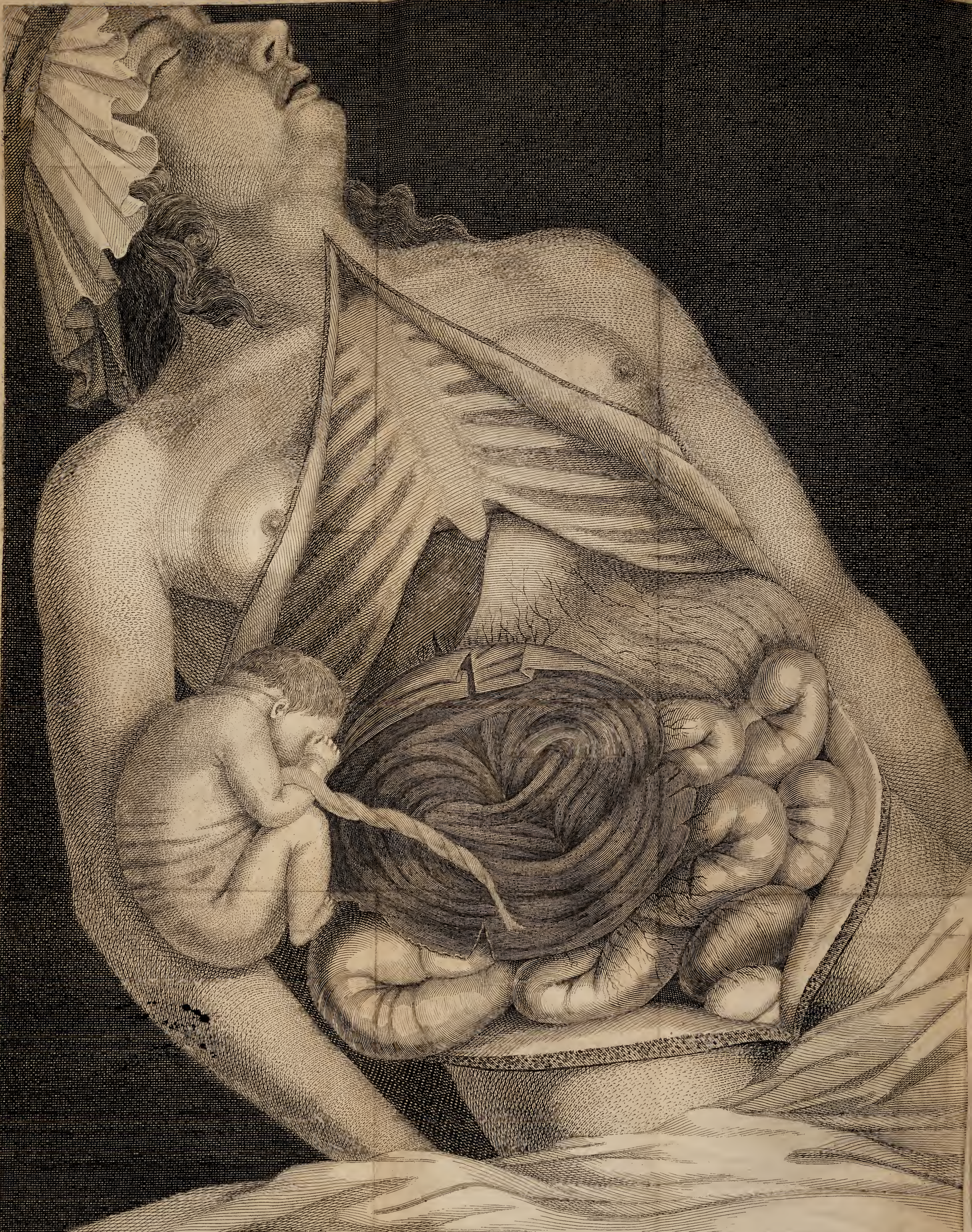
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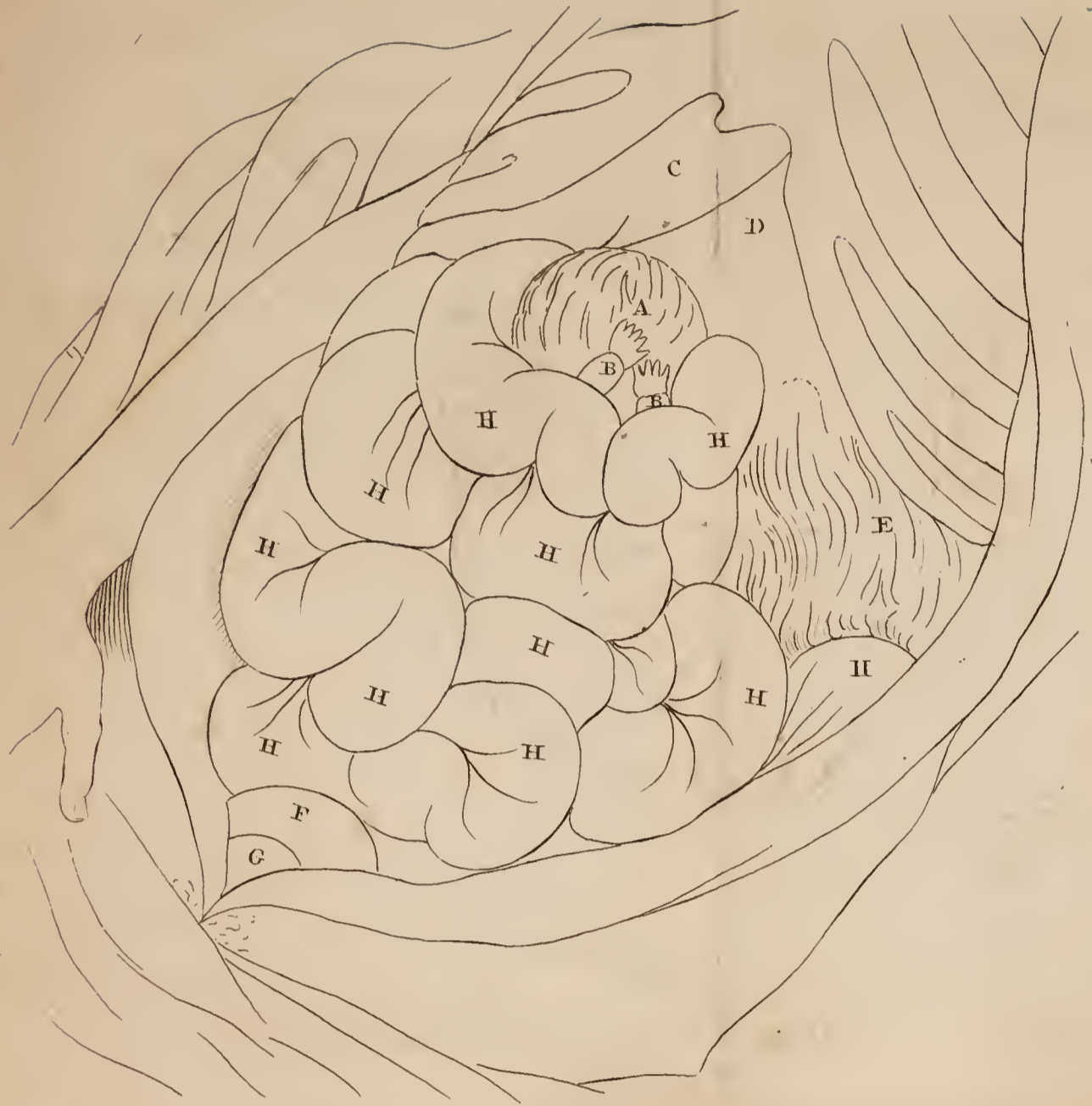




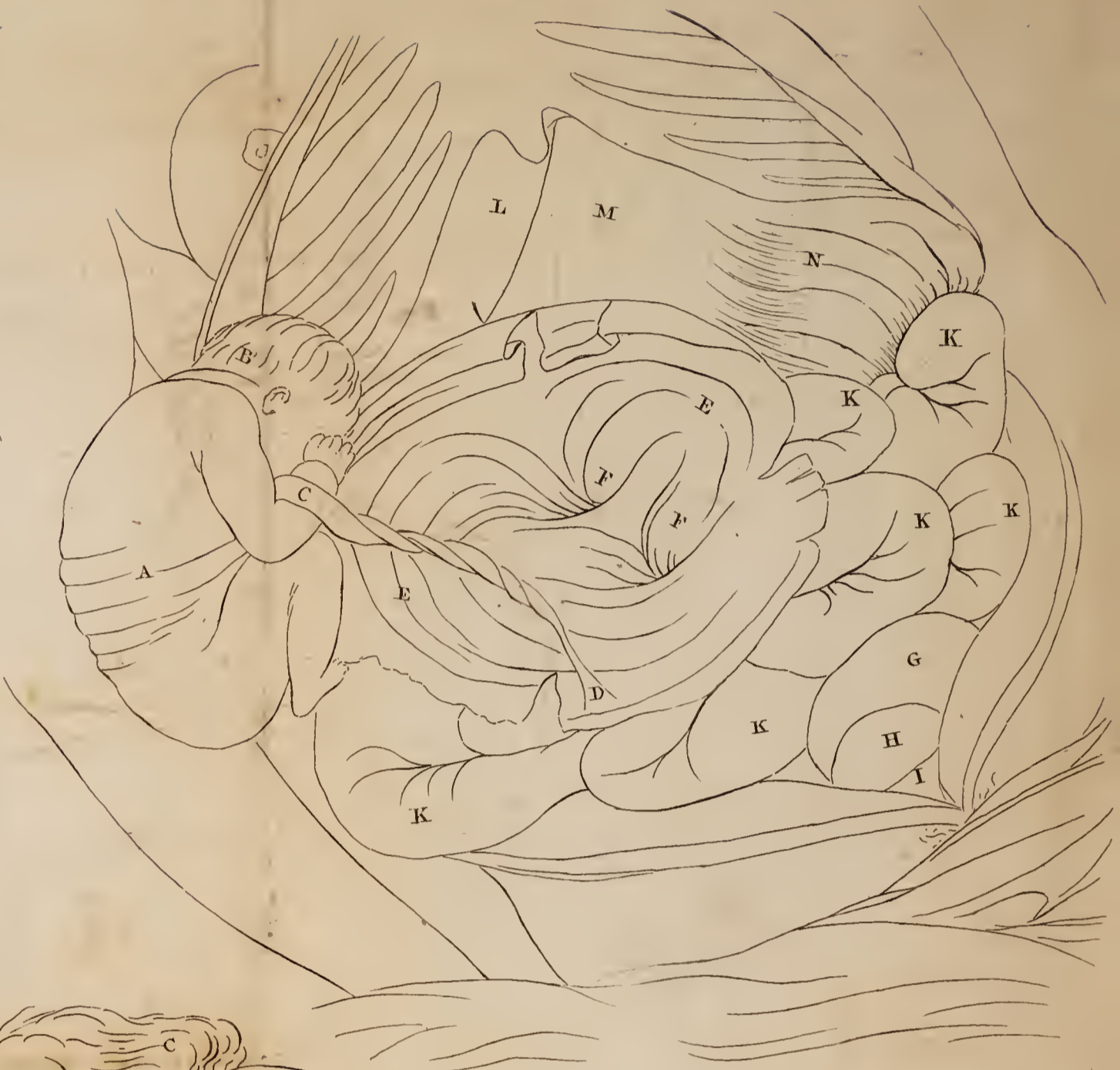




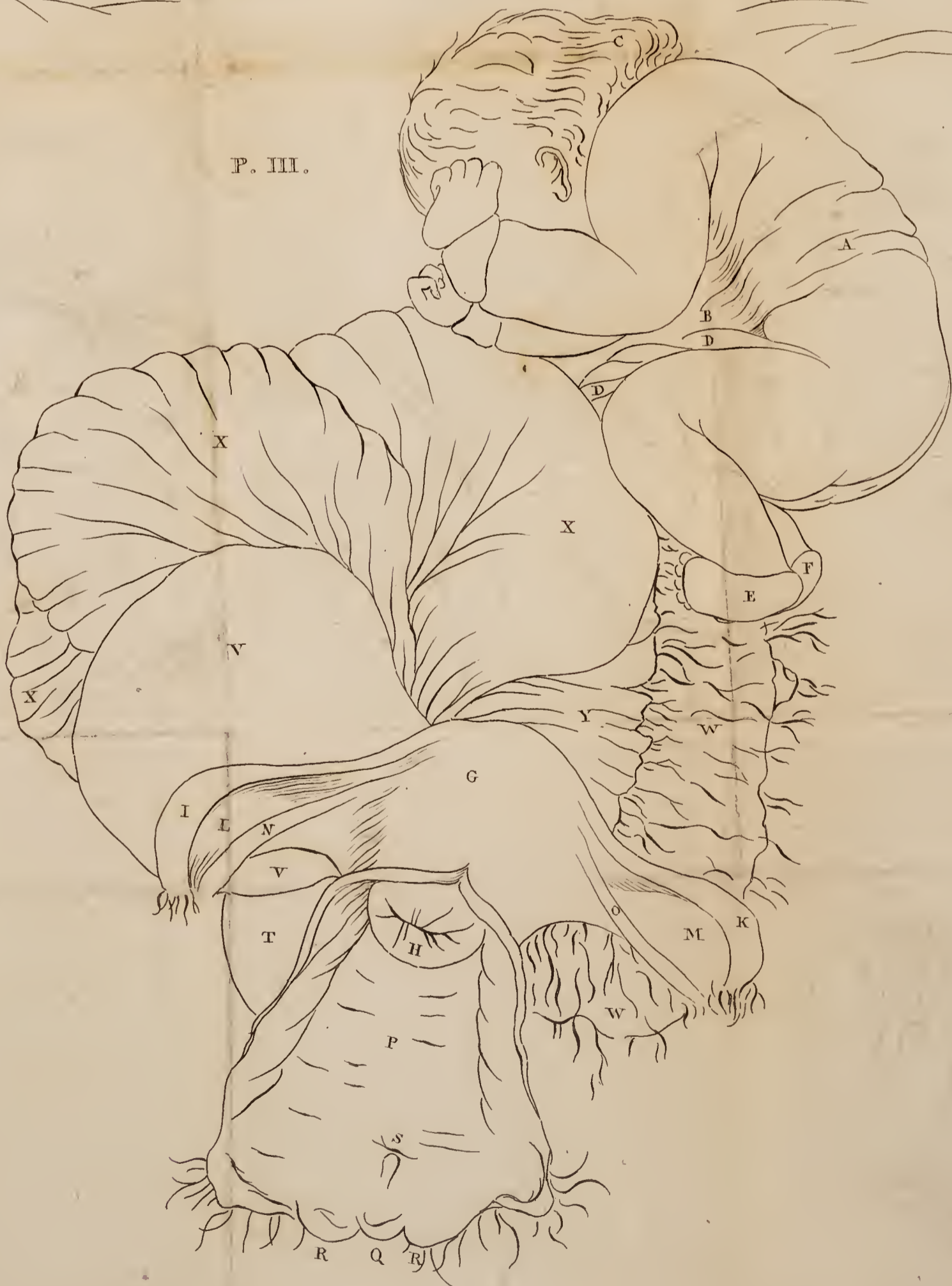
P. I.



P. II.



P. III.



EXPLANATION OF THE PLATES

ILLUSTRATING

MR. TURNBULL'S CASE OF UTERINE GESTATION.

[To be placed after Plate IV.]

PLATE I.

Representing, in nearly a side view, the appearances which presented upon first opening the body of the woman, with the child in situ.

- A The head of the child above the convolutions of the intestines.
- B B The hands of the child placed over its face.
- C A portion of the liver.
- D The stomach.
- E The omentum.
- F The tumour situated in the broad ligament on the left side of the womb.
- G The urinary bladder.
- HHHHHHHHHH various convolutions of the intestines.

- D The termination of the funis in the sacculus, near the part where it was ruptured.
- E E The sacculus, or placenta, which contained the foetus, and was ruptured previous to the body being opened.
- F F The blind pouches in the middle of the sacculus.
- G The tumour in the broad ligament on the left side, appearing like a contracted uterus after delivery.
- H The urinary bladder.
- I Symphysis pubis.
- KKKKKKK various convolutions of the intestines.
- L The liver.
- M The stomach.
- N The omentum.

PLATE II.

Nearly a front view of the body, showing the foetus removed from its natural situation, exhibiting the internal surface of the sacculus which contained it, &c.

- A The right side of the foetus, with large folds in the back and side, arising from pressure of the surrounding viscera.
- B The back part of the head, pressed into folds in the same manner as the back.
- C The funis.

PLATE III.

Shows (upon a larger scale) the left side of the foetus, with a posterior view of the organs of generation, and other parts concerned, as they are preserved in the museum of T. Pole.

- A The child compressed in numerous folds.
- B A large depression made by the child's arm.
- C A large projecting ridge in the scalp, occasioned by pressure.
- D D The funis.
- E The sole of the left foot turned outwards.

The

F The sole of the right foot
 turned toward the left.
G The womb of its natural
 size.
H The mouth of the womb
 rather enlarged.
I The right Fallopian tube.
K The left Fallopian tube.
L The right ovarium.
M The left ovarium.
N The right round ligament.
O The left round ligament.
P The vagina.
Q The clitoris.
RR Nymphæ.
S The orifice of the urethra.
T Part of the urinary bladder.
VV The large tumour in the
 broad ligament.

WW The posterior surface of
 the sac, or placenta,
 giving off vascular fila-
 ments to the abdominal
 viscera in general, as a
 medium of connection
 for the support of the
 child.

XXX Convolution of the co-
 lon, to which the sac,
 or placenta, was at-
 tached, together with
 the mesocolon.

Y A portion of the mesen-
 tery, from which the
 intestines are removed,
 in order to shew the
 posterior surface of the
 sacculus.

groin; the pulse became small, quick, and irregular, attended with singultus, vomitings, and other symptoms of excessive irritation, which continued to increase until Friday the tenth of September, when death happily relieved her from a complicated state of misery.

APPEARANCES ON DISSECTION.

On Sunday, the 12th of September (two days succeeding her dissolution), I was called in by Mr. Hancock, and Mr. Kannen, another medical practitioner, to examine the body. On applying my hand to the parietes of the abdomen, I perceived such a large hard, spherical body, situated contiguous to the liver, as made me conjecture that it was something more than a schirrosity of that viscus. This enlargement felt very regular and was incapable of compression.

On making an opening into the abdomen, by beginning an incision from the appendix ensiformis, continuing it in a straight line to the symphysis of the pubes; and thus laying open the abdomen, the situation and appearance

pearance of the fœtus and abdominal contents were as follow.—In the right hypochondrium the fœtus was seated nearly in an erect posture, the back part of its head covered by the edge of the concave side of the liver, pushing it up towards the diaphragm. The arms were bent upwards with the hands clinched and compressing the features of the face, which was directed obliquely towards the umbilicus of the mother. The fœtus was so completely immured among the intestines, that no other parts were perceptible but the head and hands. The convolutions of the small intestines surrounded the neck of the infant in such a manner as to form a kind of *ruff*. The placenta was so extremely delicate and possessed so little of its natural characteristics, that, at first view, I conceived it to be a thin membranous substance, formed by an exudation from the surface of the bowels in consequence of inflammation, an effect that not uncommonly happens from that cause. This membrane, in which the vessels were exceedingly small (so as to render the tracing of them with the knife impracticable), did not exceed in thickness one tenth of an inch, was ruptured at
that

that part where the child's head appeared, and sent off filaments from its reflected portions, to the peritoneum, stomach, liver, intestines, mesentery, meso-colon, and to the abdominal parietes.

At the inferior part of this membrane there were two pouches, about three inches distant from each other, which led to, and were superficially connected with, a tumour, of which I shall presently have occasion to take notice. The intestines, which exhibited rather a livid appearance, were exceedingly distended with air, and their blood-vessels turgid and full; in every respect they discovered the presence of much inflammation.

A tumour, the size of a large orange, of a flattened pyriform figure, was situated in the cavity of the pelvis immediately posterior to the bladder, occupying the seat of the uterus, and entirely covering and displacing it in such a manner as led us to conclude it was that organ, until farther inspection proved it to be neither the uterus, or a diseased ovarium, but a substance composed of innumerable cells, varying from the size of a pea

to that of a small hazel nut, attached to the broad ligament of the left side.

This body received also a few fibres of the placenta in common with other parts. Some who saw this preparation have suggested, that this parenchymatous tumour has been intended to answer the purpose of the maternal portion of the placenta, but I confess my difference of opinion from those who imagine so; if this had been the case, there would have been some particular vascular medium, or connection, between it and the funis umbilicalis, which we have not been able to discover.

Having represented to you the real appearances which the foetus and abdominal contents discovered on removing the integuments, I shall proceed to state what appeared upon a more minute examination of their relative situation and connexions.

I found a considerable difficulty on attempting to remove the child from the cavity which it had fortuitously formed among the intestines of the right side, which so completely fitted, and so closely applied to its body, as to occasion the great resistance
which

which I experienced in removing it from this situation.

This cavity contained no fluid of any kind, was lined by, and received a polish from, the sacculus or placenta, which seemed to originate from this part, and sent off fimbriated portions, in the manner before mentioned, to a great part of the visceral contents of the abdomen.

The foetus was a female, full grown, perfectly formed, and as well nourished as the healthiest child at that period; but, according to the first symptoms of pregnancy, it was supposed to have remained in this situation fifteen months.

The whole body was compressed into numerous large folds, and covered with a bilious incrustation, which it received from its proximity to the gall-bladder. The legs were bent backwards upon the nates and thighs, the latter drawn up towards its belly, and rested upon the arch of the colon, where it runs towards the liver and beneath the vesicula fellea, having displaced the other intestines, and pressing them in various directions. The funis umbilicalis, which mea-

O 2

fured

ured ten inches in length, was of the usual thickness, until it arrived within two inches or less of its attachment to the placenta, where it suddenly became so slender as not to exceed a small crow-quill in diameter, and passed between those convolutions of the colon and meso-colon which were contiguous to it; at this place the vessels of the funis were expanded and lost upon their surface*. The colon had several ruptures in that part where the infant was seated.

The stomach, kidneys, and liver, were nearly in a natural state; the cellular substance, however, of the latter and of the right kidney was in a small degree condensed by compression from the fœtus, which also had pushed the liver up towards the diaphragm, and the kidney of the same side towards the bladder.

Having now fully examined the parts, and with the greatest caution avoided deranging them, from a solicitude that my other medical friends might have an opportunity of

* The fœtus must have necessarily been supported by blood from the vessels of the meso-colon; for those of the umbilical cord ran into, and anastomosed with, the vessels of that part.

bearing testimony to this extraordinary and almost unequalled occurrence*, I now replaced them in their former situation; and
by

* The one which bears the strongest analogy to this, of any I have met with, fell under the care of the late Mr. Clarke, a practitioner of great eminence in Northamptonshire, the father of my worthy and ingenious friend Dr. Clarke, teacher of midwifery in London, who favoured me with the following history.

“ Some years ago my father was sent for to attend a
“ woman, who, after the usual time of nine months, was
“ seized with the pains of labour. She had passed through
“ her pregnancy without any remarkable symptoms which
“ might lead to a knowledge of her situation, and was of
“ the usual bulk of a woman at the full time. Upon ex-
“ amination he found the os uteri very high up, and not
“ in the smallest degree dilated, although there were al-
“ ternate attacks and remissions of pain; he therefore
“ considered they must be owing to some irritation, and,
“ having ordered for her what he thought proper, left her.
“ At this time the child could be felt through the parietes
“ of the abdomen. He was not called to her again until
“ after the space of eight days, during which time she had
“ constantly been in pain; the os uteri still continued in
“ the same rigid state. This led him to make a more
“ particular examination of the case than he had done be-
“ fore, when he could distinctly feel that the cervix was
“ of the same length as in an unimpregnated uterus, and
“ thought that he could distinguish the uterus not enlarged.
“ Laying all these things together he was persuaded that
“ the child must be extra uterine. He was induced from

by a request to the husband, who possessed a mind superior to common prejudice, I readily obtained leave to introduce on the following day

“ the importance of the case to have a consultation, and
 “ accordingly sent for a Mr. Mansfield, a very eminent
 “ surgeon and man-midwife at Thrapston in Northamp-
 “ tonshire.

“ The woman being considerably exhausted by the
 “ long continuance of the pains, and the child being pro-
 “ bably alive, it was determined to cut into the belly as
 “ the only means of delivering the child, or preserving
 “ the mother. An incision was accordingly made into
 “ the abdomen, on the side where the child lay, just
 “ enough to extract it. Unfortunately the child was found
 “ dead.

“ The child being taken away, the placenta was found
 “ adhering generally to the kidneys, intestines, &c. it was
 “ agreed that it should also be brought away, which was
 “ done.

“ The woman, who had already lost much blood during
 “ the operation, lost more on the delivery of the placenta,
 “ and, weakened by the discharge, she died in about four
 “ hours after the operation.

“ Indeed it seems hardly possible, that, under these cir-
 “ cumstances, a woman can recover, because, if the placenta
 “ be brought away, she must almost inevitably fall a sacri-
 “ fice to the consequent flooding; and, if the placenta be
 “ left behind, we are warranted by experience to expect
 “ that such a mass of dead matter remaining in the cavity
 “ of the abdomen can hardly fail to produce the worst
 “ effects.”

Several

day my friends Drs. Fox, Clarke, and Turnbull, Mr. Orange and Mr. Pole, with some other professional men. The last of those gentlemen, an ingenious sururgeon *, politely offered to take drawings of the parts, which he afterwards did in a variety of

Several other very useful remarks were sent me by the above gentleman on this case, but I am sorry that the length of these observations already prevents me from inserting them.

It is to be regretted that no opportunity was allowed after death of examining the body; upon this account it is difficult to ascertain whether the case was ventral, ovarial, tubal, or whether the foetus had escaped into the cavity from a rupture of the uterus. Of this dubitable nature may be ranked the case mentioned by Jean Joseph Courtial, in his *Nouvelles Observations Anatomiques sur les Os*. Obs. 10, p. 86; likewise that related by Dr. Denman †, and communicated to him by the late professor Hamilton of Glasgow.

* A gentleman well versed in anatomical pursuits, whose elegant collection of anatomical drawings, models, and preparations, evince an industry and ingenuity superior to the generality of men, engaged in that branch of science, and who has lately published a valuable work upon the art of preparing and preserving the different parts of the human body, and of quadrupeds, including a treatise on modelling from the dead and living subject, illustrated with a variety of copper plates. A work hitherto much wanted in the schools of anatomy, and upon which subjects nothing comprehensive nor systematic had been before published.

† *Vide* Denman's collection of engravings.

situations. And for this instance of friendship I presented him with the preparation, to add to his valuable and curious collection. In the presence of the before-mentioned gentlemen I proceeded to a second exposure of the abdomen, and, upon re-examination, the parts were found exactly to agree with the former description, both in respect to situation and connexion. On removing the contents of the cavity of the pelvis, the tumour which, on the first examination, was thought to be the uterus, by further inspection was found to be that cellular substance of which I have had repeated occasion to take notice.

The uterus was situated in the long axis of the superior aperture of the pelvis, immediately under, and covered by the tumour, with its fundus directed obliquely downwards to the sacro-sciatic ligaments, the ostinæ was raised towards the left side; the uterus laying across the pelvis in such a direction, that the left side of its body occupied the natural seat of the fundus, and was of its usual unimpregnated size. On making an opening into its cavity some days after, in the presence of Drs. Garthshore, Lowther, Bailie,

Bailie, and Coombe, and Mr. Cline, Haigh-ton, Pole, Cowper, &c. no tunica decidua could be discovered. The verge of the os tincaë was rather fuller and larger than common, although it was agreed by every one present not morbidly. The ovaria on both sides were very distinct, and the right one was pushed down considerably into the cavity of the pelvis by the obliquity of the uterus. The corpus luteum was found in the left ovarium, which, together with the fallopian tube of the same side, took a posterior direction along the surface of the tumour, to which they had but a very slight attachment.

OBSERVATIONS.

Having given as clear and accurate a relation of the history of the symptoms, as could be collected from the gentlemen who attended, together with the appearances on dissection, I shall beg leave to add a few remarks, and point out those phænomena that may assist in forming some distinguishing criteria to ascertain the uterine from extra uterine gestation.

The

The appearances on dissection furnish us with clear conceptions of the sufferings of the poor woman during her tedious and painful pregnancy. Some portions of the intestines being pushed down, and others pressed in different directions, account for those violent pains which attacked her bowels during the first stages of gestation, and which gradually affected the stomach, and produced the sensation of something continually pushing up that viscus, and likewise satisfactorily account for the alternate diarrhœas, and obstinate constipations, accompanied with violent and almost constant vomitings, of which she so often complained.

The distended and inflated state of the intestines, with general compression of the viscera, gradually increasing to a great degree, on parts so extremely sensible, and possessed of excited irritability, nothing less was to be expected than a derangement of their œconomy, and a perversion of their natural functions.

The hæmorrhagy from the uterus, which occurred in the eighth, and continued until the ninth month of her pregnancy, and also that organ being so much enlarged, and the

os tincae so greatly dilated as to admit the introduction of three fingers, are circumstances in this, as well as in every other species of extra uterine impregnations, that may be regarded as uncommon. For, admitting it to be the generally received opinion, that the uterus, in those cases, suffers an enlargement nearly in the same proportion as if the foetus and involucra were contained within it, yet commonly the os internum remains as close and contracted as in the unimpregnated state*.

The increased bulk of the uterus from direct communication and the natural sympathy of parts may therefore be expected in ovarian and tubal cases, but not so much in the ventral conception, although it happened in this instance. Since in the latter there

* There are several instances of this increased size of the uterus, without its containing the ovum, arising from the additional quantity of fluids transmitted to it. In the ovarian case at the Middlesex Hospital, the uterus was considerably enlarged. Boehmerus, in his *Observat. Anatom. Rarior.* was the first (and not Dr. Wm. Hunter, as has been erroneously conceived) who observed that although the foetus be extra uterine, yet the cavity of the uterus suffers those peculiar changes which render it fit for the reception of the ovum.

is no immediate connexion with the genital system, nor alteration in the structure of the womb to be expected, from a want of an immediate or particular connexion and natural sympathy, similar to the other cases.

It has been observed that the colon, near the part where the foetus was situated, had several ulcerated apertures.—Do not these ulcerations indicate that Nature was beginning a work for the removal of this extraneous body, and that the very operation to produce this effect (in which she failed) was the cause of the woman's death?

This suggestion is further strengthened by the considerable marks of inflammation that were apparent in the intestines and peritoneum. Had these ulcerations of the colon been subsequent to the dissolution of the foetus, Nature probably might have succeeded in her attempts, by removing the child piece meal through the medium of the rectum, or by abscesses forming in the abdomen; and although this operation might have taken up for its accomplishment a series of years, yet, at last, she might have survived a complete evacuation of the foetal parts.

Several

Several examples in illustration of this have been quoted in a former part of this history *; and many cases recorded where the infant has burst either from the ovaria, the fallopian tubes, or from ruptured uteri, has fallen into the cavity of the abdomen, and remained there for a number of years, being at last discharged by the intestines, or by abscesses.

The discoloured skin changing to a more natural and healthy appearance, the subsidence of the pain in the stomach and bowels, the return of strength and appetite, and the diminished volume of the abdomen, particularly the latter after the administration of mercury, incline us to believe, that there must have been a considerable quantity of fluid in the sacculus, containing the child, which by these means had been absorbed †. The collection of matter in the right breast, at the time of a ptyalism from the mercurial course, was subsequent to the formation of

* Vide Note, p. 180.

† While this circumstance proves that water had existed within the bag, at the same time it evinces the eminent and well known powers which mercury possesses in producing absorption, and exciting action in that system of vessels.

that

that purulent fluid which was discharged from the nipples of both breasts.

It were much to be wished that we could point out some leading criteria to enable us to distinguish accurately when the child is contained within the abdomen; although this is hardly to be expected from a single case, I shall mention what has occurred to me upon the diagnosis.

Notwithstanding there is supposed to be three different species of extra uterine conceptions, the symptoms and effects resulting from these are nearly similar to those which occur in ordinary pregnancy; hence it becomes a very difficult matter to distinguish between them; particularly before the fourth or fifth month, since the motions of the child are not commonly felt before these periods; afterward, it may be more readily discovered, especially if attended at the same time with symptoms which are not common in natural gestation.

We are informed by authors that, in conceptions of the ovaria and fallopian tubes, the menstrua are obstructed, but that in pure ventral cases they are not, but will rather appear at regular periods, as in the un-

impregnated state; and also that in the latter the stomach is not affected with sickness or vomiting, neither are the breasts excited by the natural sympathy to secrete milk; although in the former cases, that fluid is generally secreted in the same proportion as in the uterine impregnation.

If foetation occurs either in the ovaria, or in the fallopian tubes, I suspect a part of the abdomen only will be tumefied, that which inclines towards the ileum rather than the hypogastric region, and the swelling in such cases is most to be depended upon in the early months of pregnancy, since at that time it is confined to one side, and cannot possibly extend to the other. But, in the more advanced stages, this is not so evident, because of the ovaria and fallopian tubes being incapable of admitting of further dilatation after the fourth or sixth month *, the parts consequently give way to the bulk and pressure of the infant, and it falls thence into the cavity of the abdomen, where it soon

* Instances are recorded where the foetus has been contained in the ovaria and fallopian tubes, till the full period of gestation. But these are extremely uncommon. Vide Haller, Le-Roux observat; sur les Parties de Sang & Baudo-loque l'Art de Accouchment.

perishes,

perishes, and becomes hard or putrid. But if the child is formed and developed within the abdomen, the circumscribed elevation will be chiefly confined to the umbilical, or to one of the hypochondriac regions, as in the foregoing case it was laying in the right. In this situation of the fœtus, it will naturally follow, that the mother will complain of pain, an unusual weight, and general uneasiness throughout the whole abdomen.

These symptoms may be expected to succeed when its offices are impeded and disturbed by the presence of a foreign body, whose motions will be more extensive and less constrained than in ovarian and tubal cases, where the situation of the child, on the contrary, is considerably more limited and confined; and we shall likewise be able to judge by its limbs and parts being more readily distinguished through the abdominal covering. But the most certain diagnostic will be at the end of the period of natural gestation, when pains appear without being felt at the bottom of the loins, or bearing towards the anus, and without regularity or duration; the os tincæ most probably remaining undilated, and the membranes not presenting

presenting with the absence of the other usual symptoms of labour.

After having discovered that the child is lying in the cavity of the abdomen, would it be more advisable to leave the work solely to Nature, or to attempt delivery by incision, and extracting the fœtus before Nature has made efforts to relieve herself? Instances may occur where the former plan will be preferable, and others, where the mother would have no chance of surviving without an operation. It would always be improper to attempt an operation of this consequence whilst there are no dangerous symptoms, since cases are recorded, where patients have continued in that situation from twenty to forty years, without suffering much pain or inconvenience. On the other hand, when the pain is excessive, the pressure and gravitation of the infant become grievous; a small, quick, irregular pulse, restlessness, other signs of great irritation, and jaundice, supervening, there can be no hopes of recovery without an operation, which certainly is calculated to give a chance to both mother and child. The disagreeable,

and too often fatal effects, attending the Cæsarian section *, and the dread of a profuse hæmorrhagy following the separation of the placenta from parts not capable of contracting, has intimidated those, who have met with extra uterine cases, from performing the operation †.

For performing the operation there is a period of necessity, and another of election; the first of these I have just been adverting to, as being obliged to have recourse to when the symptoms assume an alarming appearance, and the latter applies to that period where Nature makes some efforts for the expulsion of the fœtal parts by abscesses form-

* Although the Cæsarian section is a dangerous operation, and has not been accompanied with the same fortunate issue in Great Britain as upon the continent, still a simple incision through the parietes of the abdomen is by no means of such serious consequence as when we are obliged to make another into the substance of the uterus, and exposing a second cavity to the action of the atmospheric air. It is more than probable, that greater mischief is produced in these operations from the admission of this fluid than the mere division of parts.

† Dr. Clarke's case, which I have related, is an instance of the great danger of those hæmorrhages.

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ing in the abdomen. These last generally preface favourable consequences to an operation, which is not much more than an anticipation of that wound which would be formed by an abscess.

It may be argued against extracting the after-birth, that the danger is by no means equal to the risk which the woman must be exposed to if it is permitted to remain and to detach itself. Since death must necessarily follow from suppuration and gangrene taking place upon the spontaneous separation, therefore its extraction along with the child ought always to be attempted. On the contrary, my firm opinion is, that the separation and expulsion of the placenta should always be left to Nature, for the extraction will be generally fatal from the hæmorrhagy following it, besides the firm and extensive adhesion which it frequently forms with a part, or the whole of the visceral contents (as happened in the case of Mrs. Calvert, where it adhered universally to the abdomen and almost every contained viscus), would render its removal totally impracticable to the operator, and highly dangerous to the patient.

When it is found necessary to have recourse to the operation, I should propose it to be performed after the following manner: viz. a longitudinal incision should be made in the direction of the abdominal tumor, beginning superiorly at the most prominent part, and not continuing it far until the situation of the child be discovered; because, as has occurred in the present case, the head may immediately present, and the child be readily extracted without a very large incision. It is hardly necessary to observe, that we would always divide the lateral or the muscular, in preference to the middle or tendinous part, of the abdominal covering. After having made a sufficient aperture, the child should be removed by slow and cautious means, afterwards dividing and tying the umbilical cord as in a natural labour, and leaving the maternal part of it hanging out of the wound, which may be daily pulled at, in a gentle manner, until the placenta shall be gradually separated, by which means the external wound will be prevented from healing until the time that the placenta, or every detached portion of it,

it,

it, can be removed *, and which also will afford an opportunity of using emollient and other injections, as relaxants, and to keep the cavity free from putrid and other extraneous matter.

Thus, while I have endeavoured to lay before you the history of this uncommon case, I am not insensible of the many inaccuracies with which it in every page abounds, yet I trust that same liberal conduct, that same candid disposition, which have always

* I have not as yet experienced any mischief from allowing the placenta to remain in uterine cases; but I have often been a witness to much injury being done, in precipitating its expulsion by the rash introduction of the hand for the purpose of tearing and extracting this substance from the extremely tender and irritable interior surface of the uterus. It is a standing and invariable rule with me, and a wish I expressed to the midwives employed in the EASTERN DISPENSARY, that they should use the gentlest efforts in delivering the after-birth; if these did not succeed, to leave its separation to nature. And in the course of the four years I have been surgeon to that institution there has not been a less number than 1500 women delivered, and I can honestly declare, during that period, neither in private nor public practice have I experienced any inconvenience from its retention; although in some instances it has been retained three, four, or even five days, before it has entirely been expelled.

in an eminent degree actuated the minds of those Gentlemen who compose the Medical Society of London, will now operate in framing an apology for these deficiencies, and accept it as a mark of esteem, and as a recital of facts authenticated by many of its members, and others of the first professional reputation *.

* Doctors Lettsome, James Sims, Saunders, Osborne, and Marshall, Messrs. Hunter, Cruikshanks, Blizard, &c.

ARTICLE XIV.

On the Submersion of Animals; its Effects on the Vital Organs; and the most probable Method of removing them.

By CHARLES KITE,

Member of the Corporation of Surgeons in London,
Corresponding Member of the London Medical Society,
and Surgeon at Gravesend in Kent.

Read JANUARY 10, 1790.

To improve the means of recovering persons apparently dead, a very particular and minute attention to the real state of the vital parts, after respiration has been suspended, seems necessary.

Much has already been said on this very interesting subject, but authors (even those who have written the most recently concerning it) differ so materially in their opinions,

that it is by no means easy to discriminate which may be preferable. The point therefore is not so perfectly and satisfactorily decided, or the subject so completely understood, as to preclude farther investigation.

Under these circumstances I venture to address the Society; my inducement for requesting their attention is a persuasion that it may be possible to throw considerable light on the subject by noticing some things not yet sufficiently adverted to, and placing others in a clearer point of view than has hitherto been done.

How far I have succeeded I leave to their judgment, whose opinion will be held universally decisive: but even if I fail in establishing what appears evident to me, I shall at all times have the satisfaction of knowing that my remarks will meet from them a candid reception.

It is unnecessary to prove, what scarce any one at this time doubts, that the suspension or abolition of life in drowned animals, is effected entirely by the operation of the water upon the lungs: I shall therefore proceed to enquire into the manner in which it operates so as to produce that effect.

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The only manner in which it appears to me possible, in these cases, for the water to operate, is either by entering the trachea, or by suspending the action of respiration.

In the experiments which I made some time since, and have again lately repeated, in order to determine this point, I have never been able to detect more than a very small quantity of the coloured liquor in which the animal was submersed, if examined when the animal had been only a short time under water; and commonly no appearance whatever of the liquor was to be discovered in the lungs.

But from the experiments of others, of very considerable respectability, particularly those of M. Louis, Dr. D'Haen, and Dr. Goodwyn, it appears that the liquor has sometimes been found in greater abundance. It must, however, be mentioned, that even with those gentlemen this was not a constant occurrence; it therefore still continues a question, how death was occasioned in the other instances.

Dr. Goodwyn has very much elucidated this part of the subject by a very ingenious and well conceived experiment: he first immersed a cat in quicksilver, and, on opening
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the body, found half an ounce of quicksilver in the lungs *, and an ounce of frothy fluid: having by these means found the quantity of fluid in the lungs of one drowned animal, he endeavoured to determine what effect the same, or a greater quantity of water, would have when introduced into the lungs of a similar animal: two ounces of water, therefore, were introduced into the trachea of another cat. It had immediately a difficulty of breathing, and a feeble pulse; but these symptoms were soon abated, and it lived several hours afterwards without much inconvenience. It was at length strangled, and two ounces and a half of water found in the lungs.

From what has been observed it appears, that although water may sometimes enter the lungs of drowned animals, yet

* This experiment was performed eight times, but in three instances out of that number no quicksilver was found in the lungs; now it is extremely probable that quicksilver would, on account of its greater specific gravity, be found in the lungs when water would not; which is a farther presumption that water is not often taken in, and never but in a very small quantity; for the quantity of water, equal to the bulk of half an ounce of quicksilver, is only seventeen grains.

not in a sufficient degree to occasion their death*.

It is evident, therefore, that the death of drowned animals is to be attributed entirely *to the water intercepting the action of respiration.*

* The uncertain occurrence of water in the lungs of animals that have long been in the water, may be thus accounted for: It appears to me that all animals in dying, and particularly in the act of drowning, make as perfect and complete an expiration of all the air in their lungs as they possibly can; in animals who die otherwise than by drowning, the diaphragm and intercostal muscles will contract to their natural state, as all the other muscles of the body do, after death has apparently taken place, and then the external air will necessarily rush in: but animals confined in water are under different circumstances; for if, after this complete expiration, the muscles are contracted, water instead of air will get into the lungs. I have, however, in another place shewn that water will not, at least in any quantity equal to the air displaced, enter the lungs, till the irritability of the parts about the glottis has entirely ceased, the opening into the lungs then becoming free: if the muscles concerned in respiration are stiff and rigid, that is, if they have really lost the vital principle, the vesicles of the lungs being firmly compressed, will admit scarcely any water; but if the muscles of the epiglottis lose their power before the respiratory muscles become fixed, the cavity of the thorax will be enlarged, and, in proportion as it is enlarged, water must necessarily enter into the lungs.

In this opinion I believe all parties are now very well agreed, but they differ extremely respecting the manner in which this suspended action operates.

Respiration being an indispensable requisite for the support of life in the more perfect animals, any material impediment to it occasions death. The stoppage of respiration acts powerfully on the system in two ways at the same time: i. e. if the lungs are quite empty of air, the chemical action of the air on the blood immediately ceases; and the blood is also prevented from passing through the lungs. If respiration be stopped at the end of a common expiration, both these circumstances may continue a short time, as there will be an hundred cubic inches of air in the lungs, in which quantity, it is said, there are about thirty cubic inches of pure air, which is sufficient to carry on the requisite change for a few seconds; with these hundred cubic inches of air in the lungs they must be considered as in a middle state of dilatation, and will consequently allow the circulation to be continued through them for a short time likewise. If a larger quantity

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tity of air be in the lungs, the chemical action may subsist for a longer time, and the blood vessels, being more enlarged, will allow the circulation to be longer carried on through them. But, in every state of the lungs, the two circumstances must be equal and reciprocal, that the chemical and mechanical action may continue together.

From this view of the subject it cannot be a matter of surprize, that writers should have differed as to which of these circumstances occasions death; without, therefore, adverting to all the other opinions on this subject, of which I have already treated sufficiently in another place, I shall confine myself to the consideration of two questions, the proper explanation of which will, I conceive, exhibit this intricate subject in such a point of view as may enable us to determine, with some degree of certainty, the precise circumstance to which the ultimate effect should be imputed.

The questions, by which I conceive this determination will be most clearly established, are, Whether the suspension of the action of respiration induces a stoppage of the circulation and its necessary consequences—*chemically,*

mically, by depriving the blood of certain properties which it should acquire from the air in its passage through the pulmonary vessels—or *mechanically*, by obstructing the passage of the blood through the lungs.

The arguments that are brought to support the former, I shall endeavour to state with all the accuracy in my power.

Atmospheric air is said to be composed of phlogisticated, dephlogisticated, and fixed air; in the proportion of nearly two thirds of the first, one third of the second, and a very small quantity of fixed air. When this air is respired, it is found to have undergone a change in the proportion of its constituent parts, the dephlogisticated air being diminished, the fixed air increased. As these changes are constant and uniform, they must be connected with some corresponding changes in the blood that circulates through the lungs.

By repeating the experiment of Vesalius it was found that the blood in the trunks of the pulmonary artery was black, but in those of the pulmonary veins, florid; this change of colour therefore is produced by the chemical action of the air, and the

3 dephlogisticated

dephlogisticated portion is found to be that which produces the effect.

When the dephlogisticated air is diminished, the blood passing through the lungs does not undergo the change of colour, and the symptoms which follow obstructed respiration are to be attributed to this particular quality of the blood; it having been observed that when the blood which passed into the left auricle was florid, the auricle and ventricle contracted strongly, but when the blood began to put on a shade of brown the contractions were diminished, and when it was black they ceased, although the auricle was distended with blood, and as the contractions ceased, the functions of the body were suspended; but as soon as the florid colour began to be restored, the auricle and ventricle resumed their contractions, and all the other functions returned.

Applying these principles to animals in a state of submerfion, it is said that the dephlogisticated air, which the animal has in its lungs, is gradually consumed, and consequently that the blood passing through the pulmonary vessels receives less and less of its florid colour, and the contractions of the
heart

heart become proportionally slower until they cease entirely, because the blood which passes into its cavities is an insufficient stimulus.

The blood in the pulmonary vein, the left sinus venosus, left auricle, ventricle, and arterial system, is therefore of a black colour, and is an insufficient stimulus for exciting the action of the parts that contain it; on account of this defect of stimulus the left sinus venosus and auricle receive it into their cavity and remain at rest. As soon as they cease to contract all the intellectual operations cease, sensation and voluntary motion are suspended, and the external signs of life disappear.

Dr. Goodwyn, aware that the conclusion may "at first appear singular," that the same black blood which is a sufficient stimulus for the *right* side of the heart, should be insufficient to excite the *left*, endeavours to obviate the objection that will naturally occur against this theory.

He observes, "that the two sides of the heart do not exactly resemble each other in all their qualities, there being a considerable difference between them, both in respect to

the quantity of muscular fibre and the facility of being excited to contraction.”

The conclusion does indeed appear singular *at first*, for the reason specified; and, notwithstanding what is said in its favour, I apprehend it will also appear singular *at last*.

There certainly is a considerable difference in respect to the quantity of muscular fibre in the two ventricles, and for a very evident reason:—the right ventricle has only to propel the blood through the lungs, whilst the left must (with a much greater force) drive it over the whole body.

That there is a difference between them in respect to the facility of being excited to contraction, I am willing to allow, under certain restrictions; for, so far as my observations have extended, the greater facility of contraction does not depend on any peculiarity in the fibres of the right side of the heart, but on the greater degree of stimulus which is constantly in animals under the present circumstance applied to that side of the heart; for when, by any means, the quantity of blood in the two sides has been brought to an equality, the irritability or excitability has been nearly equal; and many

instances have occurred to me where the contractions of the left side have been stronger, and continued longer, than those of the right.

It is also added, "that there are several examples in the animal body where muscles of a similar structure are not excited by the same or similar power; some are thrown into contraction by the will, some by particular conceptions of the mind, and some by chemical stimuli: yet none of these different powers will produce a perfect contraction of those muscles to which they are not adapted by nature."

But this is a vague argument. The heart being a muscle of a very peculiar nature, and its offices no less remarkable, it resembles no other muscle in its contraction, or in the direction of its fibres; whilst all other muscles have some considerable affinity to each other, both with respect to the nature and direction of their fibres:—neither is there any muscle, viscus, or other part in the whole body, whose function bears any sort of resemblance to the heart, or that has the same, or even a similar, power to excite it to contraction,

contraction, or to the performance of its office.

These arguments therefore will, I apprehend, be deemed a very indecisive answer to the objection, that the blood which is sufficient to excite the action of one side of the heart should be insufficient to excite the action of the other.

The next circumstance deserving of notice is, that the left side of the heart *ceases to contract* as soon as the blood in its cavities becomes *black*, and that the cessation of the intellectual operations of sensation, voluntary motion, and the external signs of life, *arises from this stoppage of the motion of the left side of the heart.*

Did the inaction of the heart depend upon this black colour, or phlogisticated state, of the pulmonary blood, it is evident that, as soon as the blood passing through the pulmonary vein has acquired in a great degree this colour, the left sinus venosus, auricle, and ventricle, would *immediately cease their action, and that this action could not be renewed* in any degree so long as the blood in those cavities continued in the *same state*, that is,

so long as it was kept from the influence of fresh air.

If this therefore be the case, it is evident that when we open the chest of any animal, as soon as the usual external signs of life disappear we shall not perceive any motion in either the left auricle or ventricle.

To ascertain this circumstance, I drowned an animal under a glass receiver filled with, and inverted into a vessel of, water: as soon as its strugglings ceased, and it appeared to be dead, it was removed from the water, and the heart and lungs exposed to view.

Both auricles and both ventricles were found contracting and dilating with considerable strength and regularity: the right auricle and right ventricle contracted for thirty minutes; whereas the left auricle and left ventricle continued to contract for one hour and a quarter, after every external sign of life had disappeared.*

* The blood in the left side of the heart was as black, immediately after the animal appeared dead, and while the contractions of the heart subsisted, as it was two or three hours after, when all motion of the heart had ceased; it cannot with any propriety therefore be said that the heart's motion ceased in consequence of the blood's having acquired a higher degree of phlogistication.

The same experiment was repeated on eleven other animals. The event of these experiments was not exactly the same:—in some the contractions continued longer, in some a shorter time; and an instance or two occurred where no motion whatever in either side of the heart could be observed. This difference does not at all however interfere with the general event, for the average length of time, in five cases wherein the left auricle contracted after the animal appeared dead, was one hour and twenty-eight minutes; and in the left ventricle, forty-eight minutes*.

Conceiving

* I take this opportunity of mentioning that, on account of the difficulty, indeed the absolute impossibility, of procuring other subjects, my experiments were chiefly made on young animals, such as kittens and puppies; what therefore is said in this place, and indeed in every other part of this paper, is to be considered as referring to appearances observed in those animals. I have not been able to remark any difference of the least consequence in the length of time required to drown a kitten and a puppy; nor could I observe any difference in the continuance of their convulsive motions, in the contractions of their hearts, or in the irritability of these or of any other parts of their bodies: observations therefore made on one class of these animals refer with strict propriety to the other class

Conceiving it possible that the air might have some effect on the external parts of the heart, so as to continue its motion longer than natural, I varied the experiments in such a manner, that it did not appear possible the air could produce any such effect.

With this view, after drowning the animals in the usual manner, and opening the chest, the pericardium was suffered to remain upon the heart, so that the air could not come in contact with its external surface: but the heart, in all the instances, contracted as usual.

More effectually to exclude the contact of the air, some animals were drowned in cold, and others in moderately warm water: the thorax was then opened, and the sternum removed, while the animal remained under water; but in every instance the heart was found contracting, and it continued to con-

also. I have not yet ascertained whether the appearances between the full grown animals correspond so exactly, although I have reason to believe they do; but I am certain there is a difference between the appearances attending the deaths of young and of old animals, and it is a circumstance that ought to be particularly adverted to,

tract,

tract, some time after the animal appeared dead.

Recollecting that Dr. Priestley had related, that the colour of the blood was capable of being soon affected through a moist bladder, and having often remarked the familiar appearance which presents itself in bleeding, where the blood is changed from its usual dark brown to a bright florid colour, considerably below the surface of the coagulum, although this was covered with the serum, I thought the continuance of the contraction might, in the present instances, be attributed to some such circumstances: I attempted therefore to find out whether the heart would contract when the animal was covered with a fluid, through which I found the air could not produce any alteration in the colour of the blood.

After various devices, I found that oil was extremely well calculated to answer this purpose; for, on receiving some dark venal blood in a wide mouthed glass vessel, and immediately covering it with a very thin coat of oil, not the least alteration was perceived in the colour of the blood, although the oil was exposed several days to the influ-

ence of the air : a kitten was therefore immersed in a vessel of sweet oil, of the temperature of $67\frac{1}{2}^{\text{d}}$. nine minutes after immersion it was opened while it was entirely covered with the oil ; both auricles and both ventricles were found contracting very forcibly, fifty-one strokes in a minute, and continued to do so about three quarters of an hour, but some degree of motion was perceivable upwards of two hours after*.

From the events of these experiments we may conclude, therefore,

That the left sinus venosus, auricle, and ventricle, do not cease to contract in consequence of the phlogisticated state of the blood in their cavities :

That the intellectual operations do not cease—that sensation and voluntary motion are not

* The motion here alluded to was considerable, although by no means so strong as at first ; but it was several hours before it ceased entirely. In looking over the notes of my experiments, I find that in some animals, both cats and dogs, that were drowned in the usual manner, and opened after their deaths, some motion was perceivable in the heart after a very considerable length of time ; i. e. six, eight, ten, and twelve hours ; and in one or two instances, where particular attention was paid, its motion did not entirely cease for almost twenty hours.

suspended

Suspended—and that the external signs of life do not disappear in consequence of the sinus and auricle ceasing to contract: for, in the generality of instances, the sinus, auricle, and ventricle, continue to contract with a considerable degree of force for some time after the blood has acquired its black colour and appears fully saturated with phlogiston, and for some time after the external signs of life have disappeared.

Dr. Goodwyn infers from this theory, that the only conditions of the body requisite for the recovery of drowned animals are, that the blood be of a florid colour in the left side of the heart, and that that side of the heart retain the faculty of contraction.

Several instances are mentioned where the blood in the left auricle and ventricle was, by imitating natural respiration, very soon changed from a black to a florid colour; and many experiments which I have just related prove, that the heart has not only the faculty of contraction, but absolutely a strong and natural action commonly for a considerable length of time after the animal has appeared dead: upon this principle therefore
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it would be very easy to recover animals, so long at least as the heart continues to contract, without the application of any stimulus, either internal or external, other than that which usually excites its action.

I have said that the average length of time during which the left auricle continued to contract spontaneously, and with a tolerable degree of force, in five instances, was nearly one hour and a half; consequently, if the colour of the blood is changed at any time within that period, which may, according to Dr. Goodwyn, readily be done, the animal ought to recover: but will any man venture to say he can recover an animal whose respiration has been suspended one quarter of that time*?

* The hearts of many animals continue the capacity of contracting, if kept in a mild atmosphere, even so long as twenty-four hours, after the appearance of death has taken place, upon the application of various stimuli to their external surface, such as gentle pressure, pricking with a knife, a drop of any of the mineral acids, the caustic alkali, an hot iron; and sometimes much longer by means of an electrical shock: so that I am not sure, if we adopt this theory, whether we must not give credit to those extraordinary instances of recovery which have long been deemed fabulous.

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We are told that the pulmonary veins, sinus venosus, left auricle, left ventricle, and the trunks and smaller branches of the arteries proceeding from the left ventricle, contain a quantity of this black blood, which is said to be an *insufficient stimulus* to excite the contraction of the heart: it is not allowed that this blood is possessed of any noxious power, because “if it diminished or destroyed the faculty of contraction, the heart would not contract again when those means are applied which are necessary to produce the contractions:”—no experiments however are offered in support of this position, and the reason has not even plausibility to recommend it, for surely no one can deny but the faculty of contraction may be materially diminished, and yet it may contract again “when those means are applied which are necessary to produce the contraction;” for any thing that appears to the contrary, therefore, the blood may just as readily exert a *noxious* or *sedative* power as be an *insufficient stimulus*.

In which ever point of view this affair of black blood is regarded, it should seem that all the parts of the body in which this
blood

blood is present are equally liable to languish under the same defect—the brain, the source and origin of all the senses—the chylopoietic and abdominal viscera—the muscular system &c. : in short, the animal and natural functions must cease, as well as the vital, for want of the salutary action of the florid blood; and how is it possible that all these organs can again acquire their power of action, by altering the property of the blood in the pulmonary artery, and perhaps likewise in the pulmonary veins?

But supposing for one moment, and for argument's sake, what is very difficult to conceive, that this alteration does take place; yet it must be evident to every one, at first sight, that it is impossible the change can take place till inflation of the lungs has produced it: now, of the great number of recoveries mentioned in the reports of the Humane Society, how very few are the cases where artificial respiration was used at all; and many instances must have been seen, by every one used to make experiments of this kind on animals, that they often recover without any assistance whatever:—how the blood in the lungs, heart, brain, &c. has in these cases undergone the
necessary

necessary change I am unable to comprehend!

The author of this theory says, “no one can deny that the respiration is sometimes established in this state, in consequence of the application of heat:” but if the cause of the animal’s state of apparent death is, as we are taught to believe, black or phlogisticated blood in the left side of the heart, what effect can *heat*, or any thing else, air excepted, have in changing its property? A proper degree of heat may increase the irritability of the fibres, and by such means the disposition for action in the fibres of the heart will be increased, but nothing further: action itself cannot take place till the blood has received its stimulating property, and till its colour is altered; which changes cannot take place without the repeated application of fresh air.

Mr. Hunter, in his paper on the recovery of persons apparently drowned, published several years since, notices a theory very similar to that adopted by Dr. Goodwyn; he says, “the loss of life in drowned persons has been accounted for, by supposing that the blood rendered unfit, by want of the ac-
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tion of the air in respiration, is sent in that vitiated state to the brain and other vital parts, by which means the nerves lose their effect on the heart, and the heart in consequence its motion:" this however, he continues, "I am fully convinced is false; first, from the experiments on the dog, in whose case a larger column of bad blood, viz. all that was contained in the heart and pulmonary veins, was pushed forward without any ill effect being produced (Animal Oeconomy, page 118); and next, from the recovery of drowned persons and still-born children, which under such circumstances never could happen unless a change of the blood could take place in the brain prior to the restoration of the heart's motion: therefore the heart's motion must depend immediately upon the application of such air to the lungs, and not upon the effects which air has upon the blood, and which the blood has upon the vital parts."

As this objection was opposed to a theory so very similar to that which is the subject of our present disquisition, several years I apprehend before Dr. Goodwyn attended to
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the subject, and by a person of the very first eminence and authority in our profession, it was natural to conclude that Dr. Goodwyn would, at least the second time of publishing his book, pay particular attention to an objection that materially concerned his theory.

But if any notice whatever is taken of it, it is so very distantly and obscurely as scarcely to be perceivable; and as neither arguments nor experiments are brought against this objection, it seemingly was found altogether unanswerable.

It is said that the disease under consideration is in the blood, and consists in the presence of this black blood in the left side of the heart and arterial system; and the subsequent appearances, such as the diminution of the action of the heart and arteries, &c. are the consequent symptoms.

Whatever share the state of the blood may have in causing death, it does not appear by any means certain that it is owing so entirely to its black colour as this and many other passages in the Doctor's performance would lead us to conclude, since cases do not unfrequently occur where, in dissection, black blood

has been found in the left side of the heart and arterial system, notwithstanding the person suffered a very different kind of death, and where lividness of the lips, face, and other parts of the body, to a considerable degree, was found in patients under circumstances seemingly not any way connected with a state of suspended respiration.

In proof of the former part of this assertion I might here relate many instances which have occurred to my own observation; but such instances are so generally known, and so many are to be found in almost every book of anatomical collections, that I will only refer to those related by Morgagni, of persons dying in consequence of *apoplexy* (which apoplexy was evidently induced either by extravasation or great distention), where the face, lips, and neck, were of a *blue* or *livid colour*, and where on dissection the blood in the different cavities of the heart was *black*.

I lately had two cases under my care, and every man of moderate practice must have seen others, where the patients being suddenly and unexpectedly attacked with violent apoplexies, an hour or two before death the face and neck became very livid, and just before

before that event took place almost entirely black: in these cases the respiration was, as it always is under similar circumstances, long and laborious; but there was no obstruction to the passage of the air into and out of the lungs; and as, probably, there was ten times the quantity of air taken into and expelled from the lungs than would be in common respiration, the blood passing through the pulmonary vessels must have been exposed to the influence of a greater quantity of air than when the person was in health.

I am acquainted with a young lady of a healthy, but very delicate constitution, subject to no complaint but what occasionally arises from a weak stomach, who observed, the beginning of the winter before last, that she was more than usually affected by the cold; as the winter advanced the inconvenience increased; and it was soon observed, that when she exposed herself to any moderate degree of cold, either in the house or whilst in exercise in the open air, for a very few minutes, it had a visible effect on the colour of her face; the cheeks and nose became red, the redness would increase; and, if she continued exposed any considerable length of time, it became

quite of a blue colour. The intensity of the colour began to abate as soon as she became in the least warm, and when she was sufficiently so, it entirely disappeared, and her complexion recovered its usual appearance. From that time to the present she suffers the same inconvenience whenever she exposes herself to the cold, and it goes off as soon as she becomes warm: it is for obvious reasons more frequent in winter; but if in the summer-time she finds it at all cool, the same appearance readily takes place.

This lady was about twenty years old when this occasional change of colour was first observed, and it came on without any assignable reason whatever. Her state of health, particularly as to respiration, does not vary either before, at the time of its appearance, or after it has subsided; and the only inconvenience she perceives, is from the sensation of cold, and a kind of pricking in the parts affected:

Can the black colour of this blood be occasioned by the want of the action of the air in respiration? If it can, I would gladly know in what manner its action is precluded.

Dr.

Dr. Crawford has observed, in his elaborate treatise on animal heat, that the venal blood of animals, which has been kept for some time in a warm medium, approaches in its colour very nearly to that of arterial blood; and that the arterial blood of animals kept in a cold medium, becomes darker than usual. I have been informed that Dr. Crawford confined an animal in a cold medium at about 28° , and allowed him to inspire but a small quantity of air; arterial blood drawn from this animal, although he was perfectly alive and well, was equally dark coloured as the blood found in the left side of the heart of an animal that was drowned; so that the same coloured blood killed one animal, although it suffered another of the same species to live very well.

From these cases and experiments it is evident,

1. That in the instances mentioned, and in many similar to them, the black colour of the blood must depend on some other circumstance beside the want of the action of the air. And,

2. That the black blood *does* possess a
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sufficiently stimulating quality to excite the action of all parts of the heart.

From what has been said, therefore, it appears,

1. That the left auricle and ventricle do not cease to contract *in consequence* of the black colour or phlogisticated state of the blood in their cavities; because they really do contract, and with a considerable degree of force, for some time after the blood has acquired its black colour.

2. That the intellectual operations *do not cease*; that sensation and voluntary motion *are not suspended*; and that the external signs of life *do not disappear in consequence* of the sinus and auricle ceasing to contract, because the sinus and auricle continue to contract a considerable time after those changes have taken place.

3. That it does not appear that the blood's being restored to a florid colour in the left side of the heart, and that side's retaining the faculty of contraction, are the only conditions requisite for the recovery of drowned animals; because animals do not in many instances recover when this colour of the blood is restored,

stored, although the contraction of the heart continues.

4. If the black colour, or phlogisticated state of the arterial blood, is the cause of the death of drowned animals, it may just as readily exert a sedative effect, as be an insufficient stimulus; under either circumstance, all the different viscera in which this blood is present, appear liable to be affected by want of the salutary action of the florid blood as much as the left auricle and ventricle; and it does not appear, when their various functions are in this manner once suspended, how they can be removed by altering the property of the blood in the pulmonary artery and pulmonary vein.

5. If the death of drowned animals be occasioned by the black blood in the left auricle and ventricle, it would be impossible that any animal should recover till the property of the blood is changed by inflating the lungs; the contrary of which is very generally known.

6. It does not appear that the death of drowned animals is occasioned by "black blood in the left side of the heart and arterial system," because many instances have

occurred where the same appearances have been observed in persons who have suffered a very different kind of death: where, in diseases, the blood has appeared to possess an equal degree of blackness, accompanied with strong action of the heart and arteries, and deep regular and uninterrupted respiration: and where, in a state of health, the vital, natural, and animal functions have been continued, notwithstanding there was a considerable alteration in the colour of the blood.

From the whole of these observations I draw the following conclusion.

That the suspension of the action of respiration does not induce a stoppage of the circulation and its necessary consequences, by chemically depriving the blood of certain properties which it should acquire from the air in its passage through the lungs.

We now proceed to inquire, Whether the suspension of respiration induces a stoppage of the circulation and its necessary consequences, by mechanically obstructing the passage of the blood through the lungs.

I find, by repeated experiments, that a person in health, and in a state of perfect rest,
usually

usually respire about seventeen cubic inches of air; but, at the end of the expiration, there still continues in the lungs eighty-seven cubic inches; and, at the end of each inspiration, the lungs are capable of containing near two hundred additional inches. So that we may reckon, upon an average, that a moderate sized person can take into, and expel from his lungs, three hundred cubic inches of air; the volume of the lungs therefore must be very materially different at the time of a full inspiration from what it is at the time of complete expiration.

It is very well known, and I believe universally understood, that the capacity of the pulmonary blood-vessels must be diminished or enlarged in equal and exact proportion as the volume of the air-vessels is diminished or enlarged: consequently, at the time of complete inspiration, the capacity of the pulmonary artery and vein will be enlarged to the utmost extent, so that the blood will circulate with some degree of readiness through them; and, at the time of complete expiration, their extremities in particular will be so much contracted as almost entirely to prevent the passage of any blood through them.

In support of this, I beg leave to mention the following experiments.

A terrier puppy, about a week old, was placed under the receiver of the air pump, and the air directly exhausted. Notwithstanding the receiver was tolerably capacious, the animal's strugglings ceased in exactly two minutes from the time the machine began to be worked.

After twenty minutes the air was let into the receiver, the chest was opened, and the heart and lungs exposed to view. The right side of the heart and veins were enormously distended with blood; the left side was almost empty.

A puppy of the same litter was placed under a glass magazine of a condensing machine, and as much air forced into it as could be done by means of a common hand condenser. The restlessness of the animal prevented my observing by the gage to what degree the air was condensed; but by subsequent operations I have reason to believe, though I cannot be certain, that between three and four atmospheres were forced into the magazine; notwithstanding this great degree of condensation, the animal remained
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in his confinement a quarter of an hour at a time without any material inconvenience. When the super-abundant air was let out, the sudden change seemed to have a momentary effect upon him, but in a few seconds he was as well as ever.

In the first experiment the air was so much rarefied, that the diaphragm, intercostal muscles, and all the other muscles concerned in the action of *inspiration*, were insufficient to counteract the expansile property of the air; for the usual equilibrium between the external air, and the air circulating in the fluids in a dissolved or fixed state, was destroyed; the consequence of this must be, that as the pressure of the external air was diminished the fixed air of the fluids began to expand, and when the former was materially removed, the latter became detached and extricated from the mass of fluids in equal proportion; hence the air in the vesicles of the lungs being exceedingly rarefied, the internal air must become expanded, the muscles concerned in *inspiration* could not act with sufficient force to overcome these causes, the lungs were therefore necessarily forced into a state of complete expiration,

piration, and but a small quantity of blood passed to the left auricle of the heart.

In the second experiment the external air acted with a very considerably increased force upon every part of the body that it could come in contact with; these were the surface of the body and the cavity of the lungs: upon the surface of the body this additional pressure could effect no particular alteration; but the condensation of the air being very considerable, the muscles of *expiration* were not sufficiently strong to expel more than a small quantity of air from the lungs, consequently the lungs would be continued in a state nearly approaching to that of complete inspiration; under which circumstances this experiment proves that the blood passes with sufficient readiness through the pulmonary vessels.

To corroborate these experiments I endeavoured to produce a state of complete inspiration, and likewise a state of complete expiration, in the following manner.

A proper pipe being affixed to an hand air-pump, was introduced into the trachea of a kitten, and the air immediately exhausted
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from the lungs; the exhaustion was continued until the animal ceased to struggle, which was fifty seconds.

This experiment was repeated on another kitten with this difference, that as soon as the air was exhausted the trachea was immediately hid, the struggles ceased as in the last exactly in fifty seconds; in both cases but a small quantity of blood was found in the left auricle.

A proper pipe was inserted into an opening made in the trachea of a kitten about a month old, and air was, by means of a common pair of bellows and flexible tube, continually forced into the lungs, so as to keep them as constantly as possible distended; the operation was continued one hour, at the end of which the animal did not appear any ways affected; the pipe was therefore removed, and he immediately appeared as lively as ever.

A proper pipe was fixed to a strong bladder, which was filled with atmospheric air; the pipe was inserted into an opening made in the trachea of a kitten about three weeks old, and properly secured there; a very strong and uniform pressure was then made
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on the bladder, so as to keep the lungs constantly and regularly distended: in this state the animal continued strongly alive eight minutes, its strength then failed, and in four minutes more it lost all the usual signs of life; a ligature was then made on the trachea so as to continue the lungs in a state of distention, and the pipe was withdrawn. It was opened; the motion of every part of the heart was uncommonly quick and strong, by far more so than I had ever observed in any animal killed in any other manner; and some of the smaller arteries which were divided bled per saltim. There did not appear by any means that distention of the cava, or of the right auricle or sinus, which is usual in animals that are drowned, or when the air is exhausted from their lungs. On opening the left auricle a larger quantity of blood was evacuated than I had ever observed before.

To perform this experiment with accuracy considerable attention is requisite, or it will not always succeed; it was repeated several times, and at one in particular every precaution was taken against all interfering accidents. The subject was a kitten of the same
age

age and litter as that just mentioned. After introducing the pipe into the trachea, a very strong, regular, and uniform pressure was made on the bladder; the pressure was so hard that I with difficulty could continue it fifteen minutes, my arms were then so tired I was obliged to remove the pipe; the animal directly turned itself about, respiration immediately commenced, and in a few minutes it perfectly recovered.

The pipe was introduced into an opening made in the trachea of another animal; as soon as the lungs were fully distended, a ligature was made on the trachea, and the pipe withdrawn. In two minutes and ten seconds the struggles ceased; in fifteen more it was opened, and the right auricle was found to contain a somewhat smaller quantity of blood than the left. This experiment was repeated on an animal of exactly the same age, and the struggling continued two minutes and forty seconds.

From these experiments it is evident,

That only a very small quantity of blood can pass through the lungs when they are in a state of perfect expiration.

That the impediment to the passage of the blood through the lungs is materially lessened by their being in a state of full inspiration. And

That the difference in the length of time which an animal will live with collapsed and distended lungs, is in the proportion of fifty to the former, and one hundred and thirty to the latter.

If the capacity of the pulmonary blood vessels be enlarged to the utmost when the cells of the trachea are fully distended, it may be doubted what purpose the alternate motion of the lungs can answer, as in expiration the capacity is so much diminished: to this it may be replied, that, independent of its being the most commodious method of bringing the air in contact with the blood that has served its offices in the constitution, and thus producing a continual supply of fresh heat, it is extremely probable that the motion of the lungs is necessary to promote the circulation through them; for the quantity of blood that is to pass through the lungs is enormously great, equal to that which passes through the whole arterial system.

system in the same space of time, the impediment to its free circulation through the minute ramifications must therefore be considerable, even when the capacity of the vessels is tolerably enlarged; hence arises the necessity of expiration, which, by reducing the capacity of the vessels, presses the blood through the capillaries, and very much accelerates its passage into the left sinus and auricle.

The idea is rendered more probable by observing that the degree of motion of the lungs is always in proportion to the quantity of blood circulating through them; for instance, when in a state of perfect rest, a person in health usually occasions but a small alteration in the volume of the lungs, for he then respire about seventeen cubic inches: motion of the body quickens the circulation: the exertion of certain passions produces the same effect; and we all know by experience, that the motion of the lungs is increased likewise: if either one or the other is continued, or materially increased, the respiration is increased in proportion; and if the exertions are violent, we are then compelled to produce the greatest motion in the lungs,
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by inspiring as much air as they will contain.

The event of the following experiments seems also very much to corroborate this opinion.

I made a full inspiration, and took three hundred cubic inches of air into my lungs; I retained it there as long as I was able, which was seventy-two seconds. On examining this air by the test of nitrous air, I found it 31,00 worse than when I inspired it.

I inspired the same quantity of fresh atmospheric air, and by means of a proper contrivance breathed it into and out of a bladder as long as I could, which was one hundred and thirty seconds; on examining it in the same manner, it was 48,00 worse than when inspired.

A certain quantity of air, therefore, when the lungs are in motion, will continue the circulation of the blood through them almost twice as long as the same quantity will when they continue uniformly distended; the uneasiness and anxiety is the same in both experiments notwithstanding the air which is
breathed

breathed longest is 17,00 worse than the other.

Having premised these observations, it will now be necessary to enquire in what state and in what degree of distention the trachea of those animals is found that are killed by drowning.

The distention of the trachea, and its ramifications, may be occasioned by one of two circumstances; by water inspired into the trachea, or by air remaining in it.

If water is inspired into the trachea, the coloured fluid in which the animal was drowned, will of course be found in it.

The general event of my experiments on this head I have before mentioned, and declared that very *little*, if *any*, occurred to my observation, if the examination was made soon after the animal appeared dead.

If air remains in the cells of the wind-pipe, the quantity may be nearly ascertained, by pressing the chest of the animal while its head is placed under a receiver filled with, and inverted into a vessel of, water.

After an animal was drowned in the usual manner, it was gently removed from the receiver in which it had been drowned, and

its head placed under another receiver exactly filled with water; in this situation its chest was repeatedly pressed, but not one particle of air escaped from the mouth.

In order to compress the lungs as effectually as possible, after drowning other animals, and placing them in the same situation as in the last experiment, the sternum was removed, the lungs were consequently surrounded with water; but, notwithstanding there was the pressure of fifteen inches of water on their surface, not the smallest portion of air was expelled into the receiver.

From hence we conclude,

That the lungs of drowned animals are in a state of perfect and complete expiration:— and, consequently,

That only a small quantity of blood can pass to the left sinus and auricle.

If the stoppage of the circulation first takes place in the pulmonary artery, it follows that the blood returning from the various parts of the body, should, in consequence thereof, be accumulated in the right ventricle and auricle, in the sinus venosus, and in the great veins immediately connected
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with them. But is this found to be the case?

I speak with moderation when I say, that the number of experiments which I have made on various drowned animals, principally to elucidate the nature of their deaths, has amounted to two hundred; and out of this number I can with truth assert, that not one instance occurred in which the venæ cavæ, right sinus, and auricle, were not excessively and enormously distended with blood; but the accumulation did not at all times appear so considerable in the right ventricle*, although the pulmonary artery
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* Why the right ventricle is not so much distended as the right auricle, may be readily explained. The contraction of this ventricle, as I may shew in another place, continues longer than in any other part of the heart; its substance is likewise much stronger than that of the auricle, sinus, and great veins: hence no sooner is blood thrown into it from the auricle than it immediately contracts; the contraction is so considerable that some blood is propelled through the lungs, and what remains in the cavity keeps up so constant an irritation that the further entrance of fresh blood is prevented.

If an animal is opened as soon as it appears drowned, and a ligature passed round the pulmonary artery, the distention will be somewhat more considerable; but while

was always very much dilated and filled with blood.

We have now traced the consequences of the suspension of respiration to the mechanical congestion of blood in the right side of the heart and lungs, it only remains to offer some few remarks as to the manner in which this congestion may occasion death.

It cannot be expected that we shall be able to ascertain this point exactly by dissection; we have hitherto been conducted entirely by it; the subject now, however, becomes too minute to rely altogether upon this mode of investigation, and we are compelled to call in other aid.

the power of contraction and the irritability are greater than in the parts connected with it, the full effect cannot take place.

Whoever has employed much time in making experiments of this kind, must have remarked, that although the contraction and irritability of the different parts of the heart observe a general rule, yet that particular exceptions now and then occur; when, therefore, an instance is observed where the pulmonary artery has been taken up, that the right ventricle loses its power of contraction some time before the auricle, there the distention is equal in every part of the right side of the heart.

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As the congestion must produce its final effect either on the heart, the lungs, or the brain, we will examine upon which of these vital organs it is most likely to act.

We are naturally led, in the first place, to enquire whether it may not exert its fatal effects immediately on the heart itself.

If it operate immediately upon the heart itself, the action of the heart, more especially of the affected side, must cease as soon as the distention is formed.

I have already had occasion to observe that this is by no means the case, for the heart in every instance continues to pulsate, and with a very considerable degree of force, sometimes upwards of an hour after the appearances of death have taken place; and the right side, which should be most immediately affected, almost always continues its action the longest, commonly at least three times as long as the left side; how, therefore, it is possible that this congestion should operate on the heart so as to induce the appearance of death in every other part of the body, and yet continue perfectly alive itself, is very much beyond my comprehension.

Can it produce this effect by acting upon the lungs?

The lungs are perfectly passive in respiration, and are destitute of sensation; they moreover do not appear to be further concerned in the vitality of the system, than as they facilitate the action of the air on the blood and blood-vessels: to effect this as completely as they do, it is necessary they should have a regular and constant motion, which, while it promotes as much as possible the action of the air on the blood, is admirably calculated to propel the blood through the pulmonary vessels; a circumstance that would not be readily effected without some such contrivance, on account of the vast quantity of blood that is to pass through so small a space.

When this motion then is interrupted, an impediment arises to the action of the air on the blood; and the blood is arrested in its passage from one side of the heart to the other.

We see, therefore, that although the stoppage of the action of the lungs necessarily causes death, yet that it must effect it by
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the medium of some other vital organ, instead of producing it immediately by itself.

If the congestion does not produce its final effect on the heart or lungs, it follows that the brain is the organ it must operate upon.

But it may not be improper to enquire, whether there be any, and what proof, of the reality of this circumstance.

We will, therefore, first make ourselves acquainted with the external appearance of the body, and the state of the brain, as it appears on dissection; next trace the consequences that reason teaches us must ensue from the congestion in the great veins; and we will then observe in what manner it is likely the brain should in consequence be affected.

“The face is remarkably swelled; the eyes violently suffused with blood, enlarged, prominent, and sometimes so protuberating that the eye-lids seemed insufficient to cover them; the features of the countenance are generally distorted; and the tongue, in part, thrust out of the mouth.”

Extravasation does not, in healthy ani-

mals, take place in any part of the brain; but there is a considerable fulness or distention of the veins of every part of that organ. The heads of various animals were examined likewise by several friends at my request, and a certain degree of fulness, I was informed, always occurred.

The pulmonary artery, right ventricle and auricle, and the venæ cavæ, are distended with blood; in consequence of this an accumulation of blood will take place throughout the whole venal system; but the accumulation will be more considerable in the veins of the brain than in any other part, on account of the greater quantity of blood sent to it, and the weaker contexture of its vessels, which will more readily allow their capacity to be enlarged.

When any material addition is made to the bulk of the brain, symptoms of what is commonly called compression must necessarily take place, on account of the close connection between it and the cranium, for the bones of the cranium cannot relax; the pulpy substance of the brain must therefore be compressed, or forced into a smaller compass; every one is acquainted with the symptoms

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toms that must in consequence ensue; and every one knows, when they are violent, how speedily they will occasion death.

From the external appearances of the body, from the state of the brain as it appears on dissection, and from the consequences that must ensue from the congestion of the great veins, it is evident that the brain must be in a state of compression; and, from the manner we know the brain to be affected by compression, we may conclude, *that those who die by drowning, die in consequence of an apoplexy, or a compression of the brain* *.

That

* Should any further proof of the reality of this circumstance be required, I beg leave to refer to an Essay on the Recovery of the Apparently Dead, p. 37—58, where the subject is treated at some length; and where the symptoms attending persons in the act of drowning, and in their recovery from that state, are particularly noticed; and, likewise, the symptoms in other situations, such as in hanging, in the inflammatory angina, in the actions of laughing, straining, coughing, &c. all which arise from a greater or less interruption of respiration, and which consequently produce similar, although sometimes less dangerous effects.

Whoever has any difficulty in conceiving that the pressure on the brain is sufficient to occasion death so suddenly as is here represented, will do well to recollect the numer-

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That the suspended action of respiration is the first and original cause, will admit of no doubt; and it is equally evident, from what has been said concerning the appearances on dissection, that the right side of the heart and venal system are very much distended with blood; it is clear also, from dissection and the general collection of observations, that the distended state of the vessels of the brain is the immediate cause of the animal's losing the usual character and appearances of life.

From all this it is extremely plain that our first, principal, and great intention, should be to remove the compression of the brain, and the distention of the right auricle and ventricle, and of the great veins con-

ous instances of apoplexy which have so frequently terminated in sudden and almost instant death, with which the books of Pathologists are crowded; where, after opening the body, no other cause is to be discovered except a distended state of the vessels of the brain,

It may not be improper here to remark also, that very many instances may be recollected where the constitution will permit the greatest changes, provided they be gradually applied; but if too suddenly, the event is frequently very different.

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ned with them. How is this to be affected?

We have seen that the impediment to the passage of the blood from the right side of the heart to the left is owing to the diminished capacity of the pulmonary blood-vessels; if, therefore, these vessels are put in the same condition as when the blood usually circulates through them in a state of health, this impediment will be removed.

We have already observed, that when the pulmonary vessels are extended to the utmost, their capacity is not sufficiently large to allow the circulation to be carried on through them, even in a state of health; but that their alternate contraction and expansion is necessary to effect it: this action must therefore now be put in execution, and we must imitate the manner which nature compels us to act in, when from any particular circumstance we retain our breath, so that a larger quantity of blood than usual is collected in the right side of the heart; we are then obliged to make several deep inspirations and expirations, in order to propel the blood into the left side of the heart.

The lungs, therefore, being fully inflated, all the branches of the pulmonary artery will be immediately filled and dilated with blood by the contractions of the right ventricle, which we have seen usually continues a considerable length of time, and with a force seemingly sufficient to carry on the pulmonary circulation when no obstruction to the passage of the blood exists; some of this passes into the corresponding veins and left sinus, but the contraction of the ventricle not being so strong as in health, and the blood hesitating in its passage through the minute ramifications, some additional power becomes requisite to accelerate its circulation.

If the air is now forced out of the lungs by compressing the chest, or by any other means, this intention will be accomplished; for the volume of the lungs will be diminished, and the blood in the pulmonary artery and veins will, by inevitable consequence, be driven into the left sinus and auricle; for it is well known that it cannot return into the right ventricle, on account of the action of the semilunar valves.

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When the lungs are again inflated, the pulmonary vessels will, as before, be immediately filled and distended from the right ventricle, for the blood cannot return from the left sinus, as it is prevented by the valves; some of this will likewise readily pass into the left auricle, and the remainder will, by imitating expiration, be urged forward in the same direction also.

By frequently repeating this operation, therefore, the distention of the right auricle and ventricle, and of the great veins connected with them, will be removed, and the compression of the brain, which depended upon this distention, will be overcome also.

It is incumbent upon us in this place to enquire, whether bleeding can have any effect in removing the compression of the brain, and the congestion in the right side of the heart and venal system.

If an opening is made in any of the veins of the arm, the greater part of the blood in the veins below the orifice may, by rubbing the extremity, be evacuated; very little, however, can be procured, because the left side of the heart and arterial system being
almost

almost destitute of blood, a fresh supply is intercepted: indeed, could any quantity be procured, it would do no good, although it might do harm, by lessening the quantity in the left side of the heart and its appendages, without lessening that in the right side and great veins, as the valves will effectually prevent the retrograde motion of the blood in the veins.

We cannot procure blood from the right auricle or ventricle, the pulmonary artery or *venæ cavæ*, by making an immediate opening into either of them; nor is it possible, by opening a vein in any accessible part of the body, to diminish in the least the quantity of blood in any of those cavities, and for the same reason that it could not be done by bleeding in the arm, the action of the valves preventing the blood's passing in a direction contrary to its natural course. It is therefore impossible to effect any diminution of the quantity of the blood in the right side of the heart by bleeding:—we will now enquire, whether, by that operation, we can in any measure remove the compression of the brain, which, as we have seen, is the
immediate

immediate cause of the animal's losing the usual signs of life.

To ascertain this point, it will be necessary to consider the manner in which the blood returns from the brain and its membranes.

The blood sent to the brain returns from thence more particularly by the internal jugular veins, which are continuations of the lateral sinuses; soon after they get out of the cranium they run along the vertebræ of the neck, and pass behind the sterno-mastoidæi, and omo-hyoidæi, and end in the subclavian veins. The internal jugular veins, therefore, are too deep to attempt the draining off blood from them.

But although the internal jugular veins are the principal conductors of the blood from the inside of the head, yet the blood is in part conveyed from the brain itself into the external jugulars by the orbitary sinuses, which communicate with the venæ angulares, frontales, nasales, &c. The posterior external jugulars receive veins which come out of the cranium by the posterior mastoid hole from the lateral sinuses; they also receive the occipital veins which have further communication

munication with the lateral sinuses, and under the angles of the lower jaw the posterior and anterior external jugular veins communicate. But independent of, and beside these, there are a great variety of communications between the internal and external jugular veins themselves.

It cannot admit of the smallest doubt, therefore, but that by drawing off blood from the external jugular vein, we shall diminish the quantity of blood in the brain; and, as the compression of the brain, and its consequences the loss of the appearances of life, depend upon that superabundant quantity, it will be advisable in all cases, but particularly in those when the external appearances of distention are violent, to have immediate recourse to that operation.

It is evident, from what has been said respecting the operation of artificial respiration, that it has the most powerful effect in removing the congestion about the heart and lungs, and consequently the compression of the brain likewise; on this account bleeding may be thought unnecessary, but, as it will materially expedite the removal of the compression,

pression, I am of opinion it ought by all means to be employed.

As soon as the blood is thus conveyed into the left sinus and auricle, it is from thence propelled into the aorta, its large branches, and small ramifications; the vessels having, however, in a good measure lost their irritability, or power of contraction, which is universally allowed to be the principal cause of promoting the circulation through the smaller order of vessels, an obstruction will begin to take place, and the further progress of the blood into the corresponding veins will be prevented. How is this obstruction to be overcome?

The only method of supplying the defect of the vibratory motion of the small vessels, will be by alternately compressing and dilating them; and in this manner their contained blood must of necessity be driven towards the heart, as the valves will prevent its retrograde motion. Hence we see the great advantage that is to be obtained from the proper application of frictions, more particularly when they are applied to the extremities.

When the blood is in this way, with some degree of equality, distributed through the vascular system, we have an opportunity of paying more attention to the support and increase of the heat remaining in the body, which we know, from a variety of circumstances, is very intimately connected with the healthy state of the system, and which, therefore, at this time demands our assistance.

It does not appear, however, that the constitution at this time, I mean when all the functions are either entirely suspended, or very much diminished, requires any great degree of heat for its support; on the contrary, it appears from many observations, and particularly from Mr. Hunter's experiments, "that the degree of external heat should bear a proportion to the quantity of life," that "warmth causes a greater exertion of the living powers than cold; and that an animal in a weakly state may be obliged to exert a quantity of the action of life sufficient to destroy the (living) powers themselves."

I am further confirmed in this opinion
from

from the event of the following experiments.

An animal was drowned, and the temperature of its body reduced as soon as possible two or three degrees below the temperature of the air, which was sixty-one degrees, by allowing it to remain in the water: small electrical shocks were now passed through the extremities, of such a degree of strength as was merely sufficient to excite a contraction; the animal was then plunged into water three degrees warmer than the muscles of its thigh, and the heat of the water was increased three degrees every five minutes, till it became of the healthy standard; notwithstanding the heat was so gradually applied, the power of contraction in the muscles diminished at every observation so much, that it was necessary to increase the strength of the shock every time; but some time before the body had acquired the natural standard, the irritability of the muscles was entirely destroyed.

The experiment was repeated with this difference: the heat of the body was reduced in one instance to seventy degrees, in another to eighty, the animals being kept

in the water twenty minutes ; the degree of irritability was then accurately ascertained, and the heat of the bodies increased in the same gradual manner as before ; but in neither instance, nor in any experiments I afterwards made, did the powers of life increase ; on the contrary they evidently diminished, and, as far as I could judge, equally as fast as when no artificial heat was applied.

In whatever point of view this subject is observed, it is evident that the external heat should be applied in the most gradual manner ; and even when this is done with every precaution, it will be highly advisable to continue the body at a moderate degree of heat, and never attempt any degree equal to the natural temperature, until the symptoms of life are sufficiently strong to bear so great an exertion.

While I am treating upon this part of the subject, I cannot avoid noticing some directions that have lately been given concerning it, which I should not think it advisable to follow ; and I the more readily do it, as they are delivered by a gentleman for whose abilities I entertain a great respect, and to whose
opinion

opinion the world will ever be inclined to pay much attention.

Dr. Goodwyn, in his book "on the connexion of life with respiration," speaking of the application of heat, after some judicious observations, says it should be applied very gradually and uniformly, and it may be raised to ninety-eight degrees, but not further than one hundred.

"When the body is warmed uniformly, and the heat of the interior part about ninety-eight degrees, we direct our attention to the state of the thorax; and, if the patient makes no attempt to inspire, we proceed to inflate the lungs with air."

It is to me a matter of extreme astonishment, that we are here directed to wait till the body is uniformly warm, and the heat of the interior parts about ninety-eight degrees, before we turn our attention to the state of the thorax, and proceed to inflate the lungs. The enormous length of time necessary to give a body, that has in winter fallen into the water, and for a considerable time been exposed to the cold bleak air, an uniform and natural degree of heat, will readily be conceived by those who have seen persons in

similar situations; and by them it will naturally be supposed, that by the time the body has acquired this degree of artificial heat, the vital principle, unaided by the smallest degree of circulation, will be too far extinguished for any future recovery. I must approve the directions for conducting the application of heat, because precautions nearly similar to mine are recommended, and for similar reasons; but where so much dependance is placed on the immediate application of heat, and where so great a quantity is directed, I fear its application will be made too suddenly, and thereby destroy the small remains of vitality, or at least materially impede its further increase.

No reason is given by Dr. Goodwyn, nor do I conceive any good reason can be given, why we are to wait till the body is thoroughly warmed before we inflate the lungs; for, from any thing that appears to the contrary, the blood may, according to his theory, be as readily changed at one period of the treatment as at another. In every case of suspended animation, therefore, I should, on every account, have recourse to artificial respiration; as soon, at least, as I had placed
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the body in the best situation for the application of external heat.

No one, I believe; at this time doubts that the constant supply of animal heat is occasioned by the action of the air on the blood in respiration: this is rendered sufficiently evident by the very accurate and elaborate experiments of Dr. Crawford; and, from the manner in which that gentleman explains the generation of animal heat, we have reason to apprehend, that the circumstance of artificial respiration is one of the most powerful and effectual means we can employ for producing heat in the body at this time; and this it will be likely to do in proportion to the remaining degree of life. “The pure air,” says Dr. Crawford, “is received into the lungs containing a great quantity of elementary fire; the blood is returned from the extremities impregnated with the inflammable principle; the attraction of pure air to the latter principle is greater than that of the blood. This principle will, therefore, leave the blood to combine with the air; by this combination the air is obliged to deposit a part of its elementary fire, and as the capacity of the blood is

at the same moment increased, it will instantly absorb that portion of fire which has been detached from the air." Now there is every reason to think that the blood in the lungs of drowned animals is very fully impregnated with the inflammable principle, and, consequently, if there be any degree of vitality remaining in the system, the repeated application of fresh air to the lungs will be likely to produce effects similar to, although in a smaller degree than in those who have a greater degree of life.

In confirmation of this idea, it suits my purpose to observe, that I once attended a person who had been some considerable time in the water, and was a still greater length of time exposed in his wet clothes to the action of the air. When removed on shore there was no opportunity in the house to which he was conveyed of applying external heat; but all the other means of recovery were employed with unremitting assiduity, in order, if possible, to compensate for the loss of so powerful a remedy: artificial respiration was, in particular, very constantly and attentively employed, but all to very little purpose; for, although there was evidently

dently some irritability in the body, yet the vital functions could never be renewed. In the progress of the treatment there was one circumstance which pleased us not a little, and from which I entertained considerable expectations of a favourable termination; it was, that although no external heat of any consequence had been applied, yet after our remedies had been employed some time, there was a generous warmth diffused over the greater part of the body, and which I attribute to the action of the air on the blood in the lungs.

When the compression of the brain, and the distention of the right auricle and ventricle, and of the great veins connected with them, are removed; and when the irritability of the heart and vascular system is prudently increased by the proper administration of heat, it is from every consideration rendered in the highest degree probable, that we have done every thing in our power; we have removed the original cause, have diminished the consequent effects, and have increased the irritability as much as could be done consistently with prudence: in my opinion art can do no more. The event of the

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the case will now depend entirely on the remaining powers of the constitution: if they are considerable, the heart will be enabled to act with force sufficient to propel the blood through the vascular system; but if the power of contraction is materially weakened, the blood will either not circulate at all, or else in so small a degree as to be insufficient to continue the necessary functions of life.

We will take this opportunity, however, of enquiring whether, under any, and what circumstances, other remedies that have been supposed particularly useful may be really so. The principal of these are electricity, particular stimuli adapted to the different organs of sense, and irritating medicines thrown into the stomach and intestines.

That shocks of electricity, when sent through the region of the heart, will stimulate it to contraction, is most certainly true; and from this circumstance I some time since entertained very considerable expectations, from its application in the recovery of animals whose respiration had been suspended.

But since that time I have had better and more frequent opportunities of observing the
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real state of the heart, which I have in another place mentioned as continuing its contractions some considerable time after the external characteristics of life have quitted the body; as, therefore, it already possesses not only the power of contraction, but does absolutely continue to contract, and that with apparently sufficient energy to propel the blood through the vessels, if there were no impediment to its passage, any additional stimulating power will be wholly unnecessary; and consequently it does not appear what good effect electricity can produce when applied to the heart.

It is not probable, either from reason or experiment, that it can have any influence on the brain, which is entirely of a pulpy substance; or on the lungs, which are destitute of muscular fibres, and are perfectly passive in respiration.

The next part on which it might operate with advantage, is the diaphragm, as it is so intimately connected with the vital organs, and is so readily excited to contraction; but even here its utility is not very apparent, for the action of the diaphragm can be of no further service than by producing motion of
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the lungs, and consequently a small degree of respiration, which we know how to produce much more readily and effectually by other means.

If electricity is, therefore, ever admissible in the treatment of cases now under our consideration, it must be when respiration has long been suspended, at which time the action of the heart will necessarily be much diminished.

Although I do not expect any advantage from its application, yet, so far as I am able to judge, if it be prudently and cautiously applied it will not do any harm; if a very strong shock is sent through any muscle, it will lessen its irritability; and if it be frequently repeated, its power of contraction will soon be destroyed: the irritability of the system at large, however, will not suffer in the least, nor even the irritability of those parts that are in immediate contact with the affected muscle. I have frequently sent strong shocks through one auricle or ventricle of the heart while both have been beating, till both the motion of the part and its power of contraction have been destroyed, and yet the one that has not been electrified has continued

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nued its contraction regularly, even for hours after. Small shocks, I have no doubt, in some degree lessen the irritability of the parts through which they pass, but it is so trifling as to be almost imperceptible; and on this account I would recommend, that the strength of the shock should be no greater than merely sufficient to occasion a contraction; what this precise degree is in the human frame I have not yet had sufficient experience to ascertain, although I can very well judge in various kinds of quadrupeds. I should, however, commence this operation with shocks about two or three tenths of an inch, from a small vial containing not more than ten or twelve inches of coated surface; if these did not produce effect, I would gradually increase both the length of the shocks and size of the vial; and, proceeding in this manner, it will be impossible to do harm, let their strength be ever so great; although I apprehend, if smart shocks from a pint vial do not produce effect, that it will not be possible to do it by any means whatever.

When an animal loses the external characteristics of life, he loses sensation and
voluntary

voluntary motion likewise: this is extremely evident, and very easily proved; for if an animal is covered with water till it appears dead, it may then be opened and cut in every direction, without exhibiting the least motion or sense of pain from such treatment; it is absurd, therefore, to suppose that remedies applied to parts destitute of feeling, and the power of motion likewise, can be productive of any effect whatever upon the part, either good or bad; as well might we expect to operate upon the feelings of a stone, or any other inanimate substance, as to imagine it is in our power to excite those of animals under these circumstances. Irritating remedies applied to the skin, and all the other stimuli adapted to the different organs of sense, cannot therefore be of the least benefit while sensation and voluntary motion are suspended.

From the sympathy that is well known to exist between the stomach and the vital organs, more particularly when in a state both of health and disease, we are led to conceive, that exciting its action may be productive of advantage in the present situation, and so most assuredly it would, were we able to
effect

effect it; but as the nerves of the stomach are in the same state as those in the other parts of the system, that is, deprived of their power of action, it will not be possible for us, by any means, to produce any sensation or action whatever in the stomach, until the energy of the brain be in some measure restored.

All this is confirmed by a variety of experiments, for I was never able to observe that any stimulus applied to the internal surface of the stomach produced a perceptible effect; if a solution of white or blue vitriol, or emet. tartar, were injected, it did not produce vomiting; nor did stimulating medicines increase either the strength or quickness of the heart's motion when respiration and the usual action of the brain were interrupted, and consequently when sensation and voluntary motion were suspended, and the usual signs of life had disappeared.

Applications to the internal membrane of the intestines will be attended with no better effect; but even if it were possible to act on their nerves and excite the peristaltic motion, it does not appear what influence this would have on the vital functions, and the system

at large; for the peristaltic motion will continue sometimes upwards of two or three hours after the appearance of death has taken place, it will even continue after the brain is removed from the body, nay after the intestines themselves are removed: the reason of this I apprehend to be, that the fæces are the proper stimulus of the intestines, and the most powerful that can be applied to them; for if any other stimulus, such as warm atmospheric air, air loaded with the effluvia of aromatic substances, warm water, aromatic decoctions, or electricity, be resorted to, after the motion has once ceased, it has never happened to me, to observe that they were reproduced. The nature of this stimulus is not affected or altered by any change that takes place in the system, and therefore it continues to exert its effects on the intestines so long as their irritability remains. So that it does not seem, even if it were in our power to continue or increase the peristaltic motion of the intestines, that it would be in any respect advantageous.

If these remedies are at any time capable of producing good effect, it must be when
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the principle of *sensibility* is in some measure returned; that is, when the body begins to discover some appearances of life, at this time it may be judged unnecessary; but from various considerations I am disposed to believe that they may be of much real benefit. I will not, in this paper, dwell particularly on them, as it seems to me that I have already done that sufficiently in another place. I will content myself with observing, generally, that stimulating remedies of every kind, applied to the different organs of sense, will increase the excitement and energy of the brain, and the other vital functions must of necessity be increased also.

In cases of extreme debility arising from other causes, and where all the vital actions are much diminished, a similar mode of treatment is adopted with much success; blisters are applied to irritate the nerves of the skin, the volatile alkali to stimulate those of the nostrils, and a generous cordial is thrown into the stomach; it is well known that any of these remedies applied individually will rouse the languid powers of life, and increase the action of the heart and ar-

teries; but if they all are had recourse to at the same time, then the effect will be proportionably powerful.

I am still of opinion that the action of vomiting, if excited by such medicines as do not occasion a preceding or consequent nausea, may be productive of much good. Nausea weakens and debilitates the animal powers to a very great degree; it is self-evident, therefore, that it must be extremely prejudicial in such cases as we are now treating of, and ought most particularly to be avoided; but full vomiting may be effected without inducing any such symptoms: it then produces a strong action in the stomach, diaphragm, and abdominal muscles; the consequence of this action must necessarily be a stronger propulsion of the blood throughout the whole vascular system, but more particularly through the brain and all the abdominal viscera: stagnations of the blood in the inferior order of vessels will be overcome, and by such means, it is probable, the equable circulation of the blood throughout the whole system will be effected sooner than by any other.

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Of what, and how great, importance the establishment of a free circulation must be, is evident to the most ignorant; suffice it to say, that if a perfect recovery does not ensue after such appearances, it must, in my opinion, be attributed to improper treatment.

From what has been said, therefore, I conclude, that neither stimuli applied to the different organs of sense, or irritating medicines thrown into the stomach and bowels, can produce any effect while sensation and voluntary motion are suspended; but that they are capable of producing much advantage, if applied when the principle of sensibility is in some measure returned.

A P P E N D I X.

I have, upon a former occasion, mentioned the electrical shock as being the *test* or *discriminating characteristic of any remains of animal life*, and my subsequent observations and

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experiments

experiments have only served to confirm me in the opinion that it is the only means by which we can distinguish between absolute and apparent death.

It may not be amiss, however, in this place to observe, that as the irritability is different in different parts of the body, and as it is materially diminished in some parts before it is at all affected in others, electricity, applied to a *particular part*, cannot be considered as an accurate and perfect evidence of the state of the *whole system*: to determine this, therefore, with precision, it will be necessary to pass small shocks in various directions through the body, when, if they produce contractions, we may be certain the parts through which they were sent are alive; if not, that they are absolutely dead*.

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* The length of time the irritability continues, and the part it continues in, are different in different experiments. Five hours and an half is the shortest, and twenty-three hours and forty minutes is the longest, time I have observed the irritability to continue in the heart; in some it has continued longest in the right auricle, but in at least as many it has continued longest in the left auricle: sometimes I have found it has quitted almost
every

If tolerably strong contractions follow very small shocks, the remaining powers of life may be deemed very considerable; but if strong shocks are requisite to produce trifling motions, the irritability must be almost entirely exhausted.

In this manner, therefore, we may judge with great accuracy concerning the degree of vitality remaining in all the external parts of the body; and may likewise determine, if we observe attentively, the motion of the diaphragm; but I do not know in what manner we can perceive the contraction of the heart, in which organ the irritability most commonly continues the greatest length of time, more especially if respiration has long been suspended, for then the left ventricle and arterial system being almost destitute of blood, we cannot feel any thing like a pulsation in the larger arteries, a circumstance that may indicate when respira-

every part of the heart one, or even two hours, before it had left the extremities; but I have met with but few instances where it remained in any other part after it had entirely quitted the heart.

tion has lately ceased, as at that time the left ventricle, and arteries proceeding from it, contain a quantity of blood.

An animal body cannot be said to be positively and absolutely dead, so long as any part of it can by any means be brought into a state of contraction; but it is far from being necessary, when we wish to determine whether the body is in a recoverable state, to be certain that every part has lost its irritability; for I am satisfied, by abundant experiments, that the irritability may, and does continue, in *every part of the body*, a considerable time, sometimes an hour or two, after the animal could not be recovered.

Upon the whole then, and from the experiments I have made, I am sufficiently convinced,

That, in cases of what is usually called sudden death, a recovery is not to be expected if the irritability of any of the extremities is destroyed, or even if it is materially diminished.

In a late publication on this subject it is said, with some degree of exultation, that
“ whenever

“ whenever the functions of an animal are suddenly suspended, and the body puts on the appearance of death, it is always in our power to determine whether it be really dead, by restoring the temperature, and by inflating the lungs with proper air.” It does not appear, however, that there is any thing new or important in this observation; for if an animal does not recover from such treatment, there are very few who would expect it to recover from any other. Dr. Goodwyn has not stated any particular length of time as being requisite to make the determination; so that in one sense he is sure to be right, for if these means are made use of without effect for several hours, it will not be doubted that absolute death has taken place.

When a kitten, or young puppy, is drowned in the usual manner, all voluntary motion ceases, the senses are abolished, and the animal appears perfectly dead in about one minute and twenty seconds. In a very short time, however, from fifteen seconds to one minute, it is affected with a violent and general convulsive motion: this motion is

strong, regular, and flow; sometimes remaining near five seconds. It returns in a few seconds, and is repeated two or three times in every minute, sometimes for the space of a quarter of an hour, but more commonly, and at a medium, for about ten minutes after the natural struggling has ceased.

I am persuaded this convulsive motion is entirely an extraordinary exertion of the remaining powers of life to continue respiration, and for this reason, that the diaphragm and abdominal muscles are more particularly concerned in the action; but all the muscles connected with respiration, both ordinary and extraordinary, are contracted likewise; the convulsion is also attended with a kind of gasping, which is a further corroboration of the opinion: indeed it is placed out of all doubt, for if the animal be removed from the water, it remains perfectly still till the convulsion returns, which is accompanied with a very deep inspiration, and succeeded in a few seconds by an expiration.

Several experiments were made upon the following plan:

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In the space of a minute after the strugglings had ceased, the animal was removed from the receiver and exposed to the open air: inspiration accompanied the next convulsive motion, and respiration was soon established.

The same event happened when the animal was withdrawn at the end of the second, third, and fourth minute; they seldom recovered at the fifth or sixth, and I do not perceive by my notes that any revived after the seventh, although they might make several imperfect respirations after that time.

As far as my experiments upon such animals as are here instanced have gone, we may be allowed to conclude, that they will very generally recover their vital functions, after the natural strugglings from drowning have ceased for the space of four minutes.

I made a few experiments with the view of observing the longest general period at which it would be possible to recover animals that had been immersed in water, by the single remedy of restoring respiration; the suspension of which was the cause of inducing the appearance of death. I had not an opportunity,

tunity, however, of pursuing this interesting subject with that accuracy or attention to which it is so deservedly entitled, on account of the difficulty of procuring a sufficient number of subjects for experiments. All that I shall therefore, at this time, mention respecting it is, that although I have been able, by imitating natural respiration, to recover some animals after they had been eight, ten, or twelve minutes under water, I have observed several instances when the operation had been performed with accuracy in which the animal did not recover, notwithstanding it had not been immersed so long as some others that had recovered spontaneously.

I cannot venture to draw any general conclusion from the event of my experiments on this part of the subject. If, however, I might be allowed to form any *opinion* upon it, it would be this: that restoring suspended respiration will probably not be sufficient to renew the vital functions, if it be not attempted before the convulsive motions of the animal have ceased*.

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* I have before remarked, that the continuance of this motion is uncertain; the soonest I observe in my notes is
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From the appearances on the dissection of animals that have been hung, it is natural to conclude that their death arises from the same cause as those which are drowned, a suspension of the action of respiration. I have always, however, had so much difficulty in conceiving how it was possible, that the trachea could be so completely shut by the pressure of the cord, as wholly to intercept the passage of the air, that I could not allow the death of the animal to be owing to that cause only, although I did not hesitate to admit it as the principal one.

Considerable light may be thrown on this circumstance, by hanging an animal whose trachea is not included in the ligature, or into whose trachea an opening has previously been made, so that the passage of the air into and out of the lungs may not be intercepted; if an animal in this situation should die in the same, or nearly the same time that

three minutes, the longest twenty; but the medium of many experiments is eleven minutes and thirty-five seconds; the probable time of recovery, therefore, will vary likewise, but the average may perhaps be about eleven minutes and a half also. It is a subject, however, that demands a further investigation.

another

another animal of the same age and species would die hung in the usual manner, the death of animals that are so hung must be attributed to some other cause than a suspension of respiration : but if the animal should live any considerable time longer than usual, its death should then be imputed to that circumstance only.

A dog was hung in the usual manner; in eight minutes his struggling ceased, and in nine minutes the pulsation of the heart could not be perceived.

An opening was made into the trachea of a dog about two months old, and a ligature being passed round his neck above the opening, he was hung as usual: he struggled for some time, but breathed freely through the aperture in the intervals of struggling: in this kind of way the animal continued for the space of an hour and an half, when he was cut down, and appeared to have received but little inconvenience from the suspension. Early the next morning he escaped from his place of confinement, and became so troublesome to the servants that they turned him away.

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If the death of animals that are hung arises from the pressure of the cord preventing the return of the blood from the brain, the animal should die very soon when a tight ligature is made round the blood-vessels of the neck without including the trachea.

The trachea of a dog was separated from the contiguous parts, and a cord passed under it and round the vertebræ of the neck, so as to include every blood-vessel of the neck, but to leave the opening into the lungs free and pervious. One end of the rope being then made fast to a fixed point, the force of three men was exerted to draw it tight, which being continued several minutes, he was left suspended, the cord still drawn moderately tight. In this situation the animal continued alive two hours and ten minutes, and it seemed as if he then died more in consequence of his own exertions than any other cause.

From these experiments it appears,

That the death of animals which perish from hanging is not occasioned by any compression of the nerves, arteries, or veins of the neck, but is owing entirely to the trachea being
shut

shut by the pressure of the cord, and thus causing a suspension of respiration.

I cannot omit this opportunity of making some remarks on one or two instruments lately recommended for inflating the lungs.

Dr. Goodwyn intends that his syringe should inflate the lungs and draw the air out again; and this it appears as if it would do very effectually; but yet, if I understand the construction of the instrument, one half of the air last expired, or what remains between the opening (a) and the lower part of the cylinder, will be again forced into the lungs, because there is no opening at the lower part to permit the escape of the air, as there is at the upper part; and of this the Doctor seems aware when he says the *greater* part of the expired air escapes into the atmosphere. If the blood of an animal under the circumstances we suppose our subject to be, has the power of phlogisticating air thrown into the lungs, the air next expired will of course be worse than when thrown in: only half of this foul air, however, is thrown out of the instrument,

instrument, the remainder (half of which is air that has once been in the lungs) is mixed with the same quantity of fresh air, and thrown into the lungs again; hence it is evident that the air thrown in becomes worse every time, and that, in every point of view, air from the lungs of an healthy person would be preferable.

I have before remarked, that it would be advisable to introduce as large a quantity of air into the lungs as they can well contain, and this, whether it be done on the supposition of the air acting chemically or mechanically: one hundred inches is recommended, but as our lungs will hold three times that quantity without inconvenience, I think it would be advisable to use three times as much.

In giving the description of a fumigator, Dr. Cogan makes this remark, "some have been constructed so as to work with a pistern in the manner of a syringe," but "*they are expensive, complicated, and soon out of order, and are worked with great labour and fatigue.*"

This instrument is, however, said to answer the purpose of extracting water from
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the lungs, as well as of throwing air into them.

When it is intended to answer this purpose, the instrument acts in the manner of a common air-pump, though, as the pistern is drawn but half way up the cylinder, only fifty inches of air can be drawn out. Dr. Goodwyn has shewn in another place, that there are upwards of one hundred inches of air in the lungs of dead persons, so that not half of the air in the lungs will be extracted. The only way in which an instrument of this kind can operate so as to effect the extraction of water, must be by diminishing the capacity of the air-cells, and in this manner half their contents, whether air or water, will of course be evacuated; for evident reasons the air will first be drawn into the cylinder, and the greater part of the water will remain in the lungs, till, if it could be so contrived, by repeated exsuctions, the cells of the bronchia are drawn so close together that their contents must be expelled. In order to explain more correctly the effect of this instrument, let us suppose a person taken out of the water with a considerable

siderable quantity (fifty inches for instance) of water in his lungs: the instrument being properly applied, fifty inches of something are drawn out of the lungs; by far the greater part of this will, of course, be air, because that being lightest will be uppermost; and if any quantity is confined in the bronchia by the water, it, by means of its great elasticity, will force its way through the water when the first exhaustion has taken place. As soon as the instrument is removed, the external air will occupy the place of whatever was drawn out by the first operation; so that when the instrument is used again, the fresh air, which has just entered, is extracted, but the water must still continue almost the same in the lungs, and so it must, let the operation be repeated ever so often, and for the same reasons.

From this view, it appears that this instrument possesses no advantage over those in common use for inflating the lungs; and that, in the state in which it is here described, it will not answer the purpose of extracting water from the lungs, although with some alterations it might be made to answer that purpose effectually; but how safely, I will

not pretend to say; of that point I have many doubts.

I procured an hollow glass globe, capable of containing a few ounces; two openings were made into it opposite each other; in one I fixed a valve of oiled silk, this valve would allow air to pass from the globe, but not into it; and by means of a screw it was connected with a small exhausting syringe: in the other opening of the globe I fitted a tube proper to be introduced into the trachea; the instrument was now in effect an air pump, the globe answering the purpose of a receiver, and the valve connected with it allowing every degree of exhaustion that might be required. If the pipe of this instrument be introduced into the trachea of a drowned animal, and the air drawn out of the globe, whatever is in the trachea or lungs, will be brought from thence into the globe. The pipe was therefore introduced into the trachea of a small animal, and the pistern gradually drawn up, but, notwithstanding this attention, some of the blood-vessels were ruptured, for as much blood as water was perceived in the globe; the operation, therefore, of extracting water from the lungs by
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any exhausting instrument, is, on account of the danger attending it, what I shall never attempt, except in my experiments on brutes.

It is possible, however, that there may not be so large a quantity of water in the lungs as to render it necessary to have recourse to any particular method of removing it: I always concluded so from the event of my own experiments, and my opinion is not altered by the small quantity Dr. Goodwyn mentions to have found in his; for if the water were even in greater abundance, I should not apprehend that it would prove any material impediment to *the action of the air on the blood*, for we daily see that the colour of the coagulum changes soon after it is drawn from the vein when it is considerably below the surface of the serum. In certain cases of catarrh likewise, and where, from general relaxation of the vessels of the lungs, a great secretion of mucus takes place, we have reason to think that sometimes, and in particular cases, the whole of the air-cells are occupied with mucus instead of air, and yet the atmosphere exerts its usual influence over the blood in the lungs; so that if these

circumstances are true, and no one can deny them, it does not appear why a very thin surface of water should render it “impossible to apply the fresh air sufficiently near to change the quality of the blood.”

A pair of double bellows has lately been made known to the public; they are, as well as the instrument last described, intended to imitate expiration as well as inspiration; and, from the account I have seen of them, appear very well calculated to answer those purposes, if they are large enough to contain a sufficient quantity of air. I do not, however, perceive the least advantage these can have over Mr. Hunter's, and their very complicated construction will render them extremely liable to be frequently out of order.

ARTICLE XIV.

A Description of four Cases of the Gutta Serena, cured by Electricity: To which is added two Cases of the like Nature, in which the chief Means of Cure was a Mercurial Snuff. With Incidental Remarks annexed to the Cases.

BY JAMES WARE, SURGEON.

Read MAY 11, 1789.

CASE I.

A lady, sixty-three years of age, who had lost the sight of the left eye twenty years, in consequence of a violent ophthalmia, was suddenly attacked, in April 1780, with an appearance like black lace hanging before the right eye, and confusing every object at which she looked. It had continued ten days before I saw her. Each day the blackness became

deeper and more extensive; and, at that time, every object presented before the eye was altogether invisible. On examining the eye, I found that the pupil preserved its natural size and colour; and that the power of the iris to dilate and contract this aperture, according to the greater or less degree of light to which the eye was exposed, was not yet wholly lost. The lady had long enjoyed a good state of health, and, the disorder in her sight excepted, was at the time of consulting me perfectly well. I immediately applied the electric air by means of a pointed conductor, and continued the application about ten minutes. It was repeated the next day; and on the third, immediately after being electrified, she had a stronger perception of the light. The same application was repeated every day for a fortnight, when she distinguished all large objects before her. I now placed her on the glass-footed stool, and took small electric sparks from the eyelids and integuments surrounding the eye. This experiment, however, was soon followed by a pain in the head, which rendered her sight more confused. For the present, the use of electricity

tricity was therefore wholly omitted. Three leeches were applied to the right temple, and afterwards a blister of the size of half-a-crown to the same part. By these means the pain in a few days was removed. The electric air was then again applied, but without sparks. It was continued about ten days longer; at the end of which time she recovered the perfect use of the right eye: and this she preserved till the time of her death, which did not happen till several years after.

C A S E II.

Mrs. R. when about thirty years old, was suddenly attacked with a violent head-ach, accompanied with sickness, which continued with little intermission or abatement for the space of three days. After undergoing this long paroxysm of severe pain, and probably very much owing to the same cause, the sight of the left eye became impaired in so considerable a degree, as to be incapable of distinguishing any object, though placed immediately before it. At that time the right eye did not appear to be at all af-

fectcd; and, during a few following days, she could see with it as perfectly as before. But soon after, the disorder extended to this eye also; and in eight days from the first seizure of the head-ach, she so far lost the sight of both eyes, as not to be able distinctly to perceive even the blaze issuing from a large fire. There still, however, remained some degree of a glimmering sight with the right eye, so as to make her sensible of the difference between night and day. But it was not long before she became totally dark in this eye as well as the other: and on the third day of her being so I was first consulted. On examination I found that both the pupils were considerably dilated, and that their size was unalterably the same, though acted upon by the brightest light. I immediately passed a strong stream of the electric fluid through both eyes, which was continued for about ten minutes. This, though powerful enough to be strongly felt when applied to the eye, and even to the hand, of other persons present, seemed to affect the patient only in a very small degree: and the application was renewed several

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ral days before she was sensible of the least amendment. In about a week from the time when the first trial was made, as she was returning home after being electrified, she perceived with her right eye some water collected in a gutter ; and the same evening was able to distinguish the light of a candle. The pain in her head still continuing to rage with violence, I then directed three leeches, and after them a blister, to be applied to each temple, with the use of gentle laxatives occasionally, as the state of the body required. The joint effect of these was not inconsiderable (though but partial and temporary) towards giving relief to the patient for the complaint in her head. But as only the right eye had yet recovered any sensibility, and that in a small degree, I then renewed the electric applications, placing the patient on the glass-footed stool, and taking small sparks from the integuments surrounding the eyes ; at the same time continuing to pass the electric stream through the eyes themselves. At the end of three weeks the sight of the right eye was so much restored, that with it she could distinguish large letters. But the left eye during the
whole

whole of this time remained totally blind; and the patient was still afflicted with severe sensations of pain in her head, particularly on the left side. Having continued the electric applications near a fortnight longer, without making any visible advance in the cure, I was almost ready to despair of their rendering any further service. Yet, unwilling to give up the use of means which had already administered so much relief, I determined on a further trial; and accordingly persevered in the use of them some time longer. I was happy to find that this perseverance was not in vain. For, one day whilst I was taking electric sparks from the left eye, she suddenly exclaimed that she could now perceive a glimmering of light with this eye as she had some time before done with the other; and this she imputed to the effect which the electric spark then had on a part of the eye which had not before been touched by it. The very next day a great number of objects became visible to this eye; and from that time there was a progressive daily amendment: within a short space of time the sight of both eyes was perfectly restored: as the sight returned,
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the sensations of pain in the head gradually abated, till they entirely ceased.

C A S E III.

Mrs. S. in February 1784, when she was in her thirtieth year, was brought to-bed; and, being a woman of a healthy constitution, chose to suckle the child herself. This she did for some time without feeling any inconvenience from it; but having continued it for about six weeks her strength began to fail, and continued to decline daily, till she became incapable even of moving about the house without experiencing a very painful languor. About the same time her sight also was affected; first only in a smaller degree, but afterwards so considerably that the full glare of the mid-day sun appeared to her no stronger than the light of the moon. At this period of her disorder no black specks were visible before either eye, nor did objects at any time appear covered with a mist or cloud; but the patient being further afflicted with a violent pain in the neck, which ran in a direction

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upward to the side of the head, on that account the person who attended her thought proper to take four ounces of blood from the part first affected, by cupping. After this the sight of the patient was worse than before, and it was not long before she entirely lost the use of both eyes. She had been three days in this state of blindness, when the assistance of my partner, Mr. Wathen, was first called in. On examining the eyes, he found the pupils of both to be very much dilated, and to remain unaltered in the brightest light. Mr. Wathen's first advice was, that the child should be weaned without loss of time; ordering, at the same time, bark draughts to be taken by the mother three times in the day. He also prescribed an opening medicine, to be taken occasionally, on account of a costive state of body, to which she had been almost constantly subject ever since the time of her delivery. With these was united the frequent application of the vapour of æther to the eyes and forehead. On the fourth day after this mode of treatment was adopted, I visited the patient with Mr. Wathen. From the account she gave of herself, her strength
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and spirits seemed to be in some degree on the return; and she could then perceive faint glimmerings of light, though the pupils of both eyes were in the same dilated and fixed state as before. The use of the bark and æther was still continued, and the following day a strong stream of the electric fluid was poured on the eyes, whilst several small electric sparks were also variously pointed about the forehead and temples. The day after this, to increase the force of the electrical applications, as it was then thought advisable, the patient was placed on a glass-footed stool, that, being thus insulated, the experiments which had before been tried might be repeated with still greater effect. This process, there is every reason to think, had a considerable influence towards making a perfect cure. On the first attempt it was almost immediately followed with such a degree of amendment, that the patient, to whose sight every object had before been confused, could now clearly distinguish how many windows there were in the room where she sat, though she was still unable to make out the frames of any of them. On the

the third day, soon after she had been thus electrified, the menstrual discharge came on for the first time since she had been brought to-bed, and it continued three days. During that time it was certainly proper to suspend the use both of the bark and electricity, which was accordingly done. But no sooner did the cause of the suspension cease, than the use of both was resumed: and the effect was every way to our wishes; for her sight now mended daily. At the end of a week she could perceive all large objects; and in a short time her sight was so much recovered that she could read even the smallest print. Her strength, indeed, was not so quick in its return: on which account she was advised to remove from town into the country, where the change of air, with the help of a mild nutritious diet, soon restored her to perfect health in every respect.

C A S E I V .

MRS. ———, near forty-five years of age, was attacked with a violent pleuritic disorder. It continued several weeks; till at length her strength was so much reduced

duced that she became even unable to turn herself in bed without assistance. But before this, and near a month after the commencement of the pleurisy, she was seized with a violent pain in the left eye, which she described as shooting upward to the top of her head, and which was soon followed with a considerable dimness in her sight. The dimness continued increasing five days; at which period she entirely lost the use of this eye. In the space of three weeks afterwards, a violent pain, similar to that which she first complained of in the left eye, attacked the other also; and was accompanied with the like symptom of shooting upward to the top of the head. The sight of this eye, however, though considerably impaired, did not go off so rapidly as the other. The dimness was slower and more gradual in its progress; and, for two or three weeks after, she saw occasionally, or at least fancied she did, a number of bright sparks, which seemed to dart suddenly across the eye. But in less than a month, what remained of the sight of this eye went off also, and she became totally blind of both. On the loss of her sight the pain immediately ceased. It

is also to be observed in the case of this patient, that her spirits had often been much agitated by painful occurrences;—that for many years past she had been subject to frequent returns of rheumatic affections in different parts of the body;—and that, in her late illness, she had tried the power of many medicines, in conjunction with bleeding by leeches on the temples, and the application of blisters both to the head and side.—Besides these trials of medical skill, it was thought proper, during the latter part of her illness, that she should be removed into the country to take the benefit of change of air.—The result of all was that she recovered her strength: but the blindness still continued. In the left eye she had been blind five weeks, and in the right a fortnight, when I was first consulted. On a careful examination of the pupils of both eyes at this time, I found that, though they retained their usual transparency, they were much dilated, so as not to be in the least affected by any degree of light. My first attempt was with the vapour of vitriolic æther, which I directed her to apply several times in the day to both eyes. With this was united the use of the
peruvian

Peruvian bark, two scruples of which in a glass of white wine were prescribed to be taken three times in the day. Besides which, once in that time, a strong stream of the electric fluid was to have been applied to the eyes, and continued for about ten minutes or a quarter of an hour. But the person employed in the business of the electricity being unacquainted with the mode of applying the stream, substituted instead of it, of his own accord, small electric shocks; to which he gave different directions through the head. She had been electrified only three times, and in this way, when her husband was taken ill, and in a few days died. This melancholy event prevented her from attending afterwards to have the electric applications repeated. It is, however, to be noticed, that it had been found not a little serviceable on every trial which had hitherto been made of it; and in particular the last time she was electrified, that the operation was no sooner over than she instantly perceived a number of objects near her. The bark and æther were still continued as at first ordered; and in about two months the pupils returned to their

natural size; and she recovered a sight sufficient to enable her to read common letters with the left eye, and to see all larger objects with the right.

R E M A R K S.

As it will not, I presume, be doubted by any who are made acquainted with the cases above related, that they furnish direct and no inconsiderable proofs of the great use of electricity in the treatment of the Gutta Serena, I therefore beg leave to avail myself of the opportunity which these instances afford, to recommend the trial of this now too much neglected mode of practice, I mean electrical applications under all similar complaints. It is but a few years ago when electricity was held in such high estimation as to be deemed a sovereign specific for the removal of almost all obstructions in the human frame. Accordingly, at that time, recourse was had to it in most disorders of this kind, where the more easy as well as common methods of cure did not speedily take effect. In consequence of its being then so generally practised, it is not to be wondered

wondered at that many instances occurred in which it failed of success. But this, I apprehend, has been often owing rather to an injudicious use of it, either in cases to which it could not apply, or in the manner of using it, than to any want of efficacy in the nature of the remedy when properly applied, and where it was at all likely to be of service. It seems therefore to have been without any sufficient reason, notwithstanding all the discouragements with which it was attended in fact, and which were thought to make against it, that the practice of electricity has of late so much sunk in its reputation as to be almost wholly laid aside. The success I have met with in the use of it very much confirms me in the opinion I have always entertained, that under proper direction it may be rendered of considerable use. This opinion is grounded on the subtile and active nature of the electrical fluid, which of itself strongly points out the peculiar propriety of applying it in affections of the nervous system; and under which class of disorders it has been so often tried with the happiest effects: and in incipient cases of the Gutta Serena, of which

I am now led more directly to speak, I have known it, under the management of different professional men, as well as in the course of my own practice, to be followed with very remarkable success*.

But, after all, considerable as the relief is which electricity has been found to afford in many instances of this disorder, yet it is not to be expected that this, any more than other remedies, should equally succeed in all such cases. It is always to be remembered that the causes of the disorder are various, some of which are, from their very nature, incapable of being removed. In proof of this, besides the instances which have occurred under my own inspection, many authors might easily be quoted; but it shall suffice, at present, to refer only to

* An eminent physician of this city who has paid particular attention to the effects produced by electricity in medical cases, informs me he has found its application more strikingly useful in cases of the Gutta Serena when this disorder has been produced by lightning than when it has come from any other cause. He lately related to me two cases brought on in this way, in both of which electricity proved successful, and very speedily restored the patients to their perfect sight.

one, I mean Bonetus, who, in his *Sepulchretum Anatomicum*, lib. i. sect. 18, has given us several such cases; in four of which, after the decease of the patients, the real state or true cause of their disorders appeared to be as follows:—in one, the blindness was found to be occasioned by an encysted tumor weighing fourteen drachms, which was situated in the substance of the cerebrum, and pressed on the optic nerves near their origin:—in a second, by a cyst, containing a considerable quantity of water, and lodging itself on the optic nerves, at the part where they unite:—in a third, by a caries of the os frontis, occasioning an alteration in the figure of the optic foramina:—and, in a fourth, by a mal-formation of the optic nerves themselves. Now, in all these instances, and others of the same kind which might be adduced, it must be evident that the causes of the disorder were such as lay beyond the power of art to reach*.

* Maitre Jan had so formidable an idea of the *Gutta Serena*, on account of the causes from which he apprehended it to proceed, that he pronounced it to be, in every state of the disorder, and at all times, incapable of a cure. *Traité sur les Maladies de l'œil*, p. 253.

But while, in the cases now referred to, those causes were ascertained on dissection, which could not be known while the patient was living, and which shewed the malady to be in itself altogether irremediable, it must not pass unnoticed, that others also have occurred, in which, upon opening the subject, and after the closest inspection, nothing was to be discovered, either in the structure of the eye, or in the then state of any of the component parts contributing to the faculty of vision, which could at all obstruct the performance of their proper offices. In these instances the failure or imperfection of sight was accounted for by supposing some defect in the optic nerves, though not discoverable, and which, however occasioned, disqualified them for conveying the images of objects through the eye to the brain: and this was thought to be the only solution which could be given of the difficulty.

I have bestowed not a little attention on the cases of such subjects as those last described, and am led, by reflecting on them, to hazard a conjecture as to one cause, which, at the same time that it seems fully

equal to the production of every apparent effect in the disorder now under consideration, does yet make so very little difference in the appearance of the parts affected from that which they commonly have after death, as may easily escape the notice even of those who have acquired no small skill in anatomical investigations.—The cause I mean, is a dilatation of the anterior portion of the *circulus arteriosus*;—which, I think highly probable, has been the cause of the *Gutta Serena*, in not a few of the instances of which no particular account has been given; and especially in those cases where the blindness has been accompanied with an inability of moving the upper eyelid. In the appendix to my *Remarks on the Ophthalmy*, the first edition of which was published in the year 1780, I inserted a case of this last kind which received a perfect cure; and since that time I have met with several similar instances. But here some explanation may be necessary.

By the term *circulus arteriosus*, anatomists understand an arterial circle, surrounding the *fella turcica*, which is formed by the carotid arteries on each side of this

prominence, by branches passing from them to meet each other before, and by other branches passing backward to meet branches from the basillary artery behind.

My meaning will perhaps be better understood by the following fuller description. At but a little distance from the points where the carotid arteries enter the cranium through the petrose canal which opens by the side of the sella turcica, each artery sends off a branch passing in a straight direction forward till it has reached a little beyond the part where the optic nerves unite, whence it proceeds, and in a direction inclining towards a branch from the opposite artery, which it usually joins, and with it forms the anterior portion of the circulus arteriosus. It is to this portion of the circulus arteriosus to which I here principally refer; and concerning which it is very material to be noticed, that its situation is directly over the optic nerves, which it crosses, lying in close contact with them. Very near to these first branches issuing from the carotid arteries is a second set, I mean one on each side, taking their direction backward for the purpose of meeting other branches from the
basillary

basillary artery, with which it is also usual for them to unite; thus forming the posterior part, and completing the whole of the circulus arteriosus. It is yet further to be observed, that exactly in the same manner as the anterior branches of the carotid arteries cross the optic nerves and lie in close contact with them, so the posterior branches of this artery cross and connect with the nervi motores oculorum. — Now, as it is well known that all the arteries of the human frame are, from their texture, liable to no small variations both by contraction and dilatation, should a more than common degree of the latter at any time happen to take place with respect to both, or either of those portions of the circulus arteriosus which I have been describing, it must then be plain to every one who is at all conversant with the subject, that the nerves severally connected with these parts must, in proportion to the degree in which they are dilated, suffer by compression from them. The dilatation of an artery being, however, not always equal in every part even of the same artery, it is evident that the compression, which is the effect of it, must, as to its extent,

tent, be determined by that of the former, which is its proper cause. Should then the dilatation take place in the posterior portion of the circulus arteriosus, so as to compress the nervi motores oculorum, the consequence will be, that the eyelids, and probably the eyes also, will lose the power of motion. But if the dilatation happens in the anterior portion of the circulus, as the compression will then be on the optic nerves, the sight must of course be destroyed. And should the dilatation take place in both portions so as to occasion a compression both on the optic nerves and the nervi motores oculorum at the same time, while the eyelids will hereby be rendered immoveable, the eyes also will be deprived of sight and motion together. For ought we can pronounce, but a small degree of pressure on such tender and exquisitely sensible parts as those we are speaking of, may produce all these dire effects. But, however that be, it seems not a little to favour the opinion now advanced, that most of the persons I have seen who have been attacked with the united symptoms of blindness and falling of the upper lid, have been,
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like the girl whose case is above referred to (p. 21), both young and plethoric; and such subjects appear much more likely to suffer from an undue dilatation of the blood-vessels than those of a different habit. I am further informed by surgeons who have resided in hot climates, that persons, after much fatigue, when the blood is likely to be most rarified, and the vessels through which it passes of consequence most dilated, have not unfrequently in such a state of body been attacked with sudden blindness, without any apparent defect or disorder in the eyes; and that the cure of such patients has generally been accomplished in a short time by bleeding, blistering, purging, and the application of volatile remedies to the eyes: in which instances, as well as the former, it seems not a little probable that the blindness was occasioned, in the first instance, by a dilatation of the blood-vessels within the cranium.

Besides the blood-vessels of which I have been speaking, there is another not yet noticed, the dilatation of which may also essentially affect the sight. I mean that vessel, the course of which lies directly through the
centre

centre of the optic nerve to the retina;—a branch of which also passes through the vitreous humor, till it reaches the capsule of the crystalline lens. The dilatation of this vessel I have often suspected might be the cause of blindness in such instances where it has come on suddenly, and in which, though all objects placed directly before the eye were totally invisible, there has nevertheless remained some small sense of light, so as to give a confused perception of objects sideways. In such cases, it is to be noticed, that the pupils are seldom much dilated; notwithstanding which, they admit of very little variation of size in different degrees of light.

A dilated pupil is considered by most authors as a symptom peculiarly characteristic of a Gutta Serena; and I have observed it to be a common attendant in most of those cases in which electricity has been found serviceable. Many other instances of blindness are, however, continually occurring in which, instead of a dilatation, a contraction of the pupil is the only change which takes place in the appearance of the eye. In cases of the latter description, the obstruction

tion in the sight is usually preceded by severe pain: and the original cause of these several effects may be an internal ophthalmy, if prevalent in any considerable degree: and they are not unfrequently accompanied with visible opacity in the crystalline capsule. In cases thus circumstanced, electricity administered in different ways has also sometimes been of advantage. But there is a medicine which in many instances has proved its superior as well as more certain efficacy, and which I must therefore greatly prefer to all external applications whatever. The medicine I am speaking of is the corrosive sublimate, which in the new dispensatory is called *hydrargyrus muriatus*. Of this I would recommend a quarter of a grain as a quantity proper to be taken for a common dose; which I have found to agree best with the stomach when first dissolved, as Van Swieten directs, in half an ounce of brandy, and to be then taken in a basin of sago or water-gruel. For young patients some abatement must be made in the quantity of the dose according to their age, and it should be continued with as few intermissions as the constitution will admit for a
month

month or six weeks, and even longer, if found necessary.

I must also add here, that in several instances of the common Gutta Serena, I have lately known considerable relief to be obtained by the use of a snuff compounded of ten grains of Turbeth mineral (in the new Pharmacopœia called hydrargyrus vitriolatus) well mixed with about a dram of the pulvis sternutatorius; or, in place of that, the glycirrhiza vel saccharum commune. A small pinch of this snuff taken up the nose is found to stimulate it very considerably; sometimes exciting sneezing, but in general producing a very large discharge of mucus. It will hardly admit of a doubt, that the benefit derived to the patient from the use of this snuff chiefly depends on these its immediate effects, which have been just pointed out: though, at the same time, it is not improbable that some particles of the mercurial preparation, which enters into the composition of this snuff, may make their way to the minuter vessels connected with the part affected; their action on which may also not a little contribute to the promotion of its efficacy. Applications of the kind last mentioned

mentioned in cases of the Gutta Serena have the concurring testimony of many authors both antient and modern ; and some of them speak of the chief ingredient in the snuff above described, which is Turbeth mineral, as particularly adapted to give relief in cases of this nature. Mr. Boyle, in his works *, relates a case in which this one ingredient was singly administered in its full strength by an empiric at Paris, and was attended with astonishing success. It is, however, to be noticed, that in this instance it operated most violently in the several ways of vomiting, purging, sweating, salivating, and also caused the head to swell to a very large size. I have been a witness to the efficacy of the same application in several instances in which, being given in its compounded state, the Turbeth mineral was so far covered, or its potency reduced, that it was followed with no such violent effects as in the case related by Mr. Boyle. Of these instances of its success which have come within my experience, the two following are so remarkable and satisfactory,

* Boyle's works abridged, vol. i. p. 103.

that

that I shall relate the cases at some length.

CASE V.

W. W. a shipwright in the King's Yard at Woolwich, about forty-six years of age, in the year 1784, received a violent blow on the right eye, which it instantly deprived of sight. A very considerable inflammation ensued, which was soon followed by a similar disorder in the other eye. The inflammation in the left eye went off in a short time, without leaving any perceptible bad effects; but that in the right eye continued, and was attended with extreme pain many weeks; and when at length it abated, the eye still remained totally blind. The sight of the left eye continued perfect until nearly three years had elapsed after the accident above mentioned. It was then attacked with a dimness which slowly but uninterruptedly increased, until, in about twelve months from its commencement, this eye, as well as the other, became so blind that the patient could scarcely distinguish the difference between
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day and night. In this melancholy state he remained eighteen months; at the end of which I was consulted by him for the first time. I found, on examination, that the pupil of the left eye was much dilated, and its size unalterable in the brightest light. It was also clouded with a slight opacity; but this, when considered alone, was insufficient to account for the patient's total blindness. The pupil of the right eye was contracted almost to a point, and this point was completely opaque, and turned upwards from its central position, so as nearly to touch the outer margin of the cornea. From the inspection of the case, together with the account I received of its progress, it was evident that there was no possibility of recovering the sight of the right eye; and the blindness had continued so long in the left eye, and the disorder so exactly answered to the idea we usually entertain of a fixed Gutta Serena, that I gave the patient no encouragement to expect any relief. Being desirous, however, to try the effects of a mercurial snuff, compounded in the proportion of one part of Turbith mineral with five of liquorice powder, I prescribed it for him,

and recommended him to take a pinch of it every night before he went to bed. After this consultation I heard nothing more from him for about six weeks. He then called on me again, and gave me the following satisfactory information. The first three times he used the snuff it made his nose bleed for about ten minutes. After this the hæmorrhage did not return any more, but each time the snuff was taken it occasioned the discharge of a considerable quantity of pituitary mucus. He had taken the snuff only eight days before he perceived with his left eye the motion of his fingers; and in eight more could distinguish them one from another, and also some large chalk marks which were drawn on a dark-coloured door. His sight after this became daily more clear, until at the time I saw him, he was able to walk, without any assistance, from his dwelling-house in the town to his work in the yard, and, when there, to employ himself in many different parts of the business of ship-building.

C A S E VI.

Mrs. B. a corpulent but healthy woman, about twenty-eight years of age, received a violent cut on the fore finger of the right hand from a butcher's cleaver; which, as might be expected, was followed with a profuse bleeding. In consequence of the fright and pain which this accident occasioned, she fainted, and continued in that state almost an hour. When she came to herself she had still a very severe sensation of pain, which in a few days caused an inflammation over the whole hand, and threw her into a high fever. At that time her head ached violently;—her eyes, though not inflamed, were the seat of much pain;—and the sight of them so much impaired, as to make both the patient and her friends very apprehensive on that account. The surgeon, who was first called in, was then of opinion that the dimness of sight, so much complained of, was nothing more than the necessary effect of the fever, the reduction of which was therefore the

first object of his attention. With this view he prescribed the usual febrifuge draughts; at the same time not neglecting those outward applications which he judged proper for the inflamed hand and finger. But this method of treating the case, however likely to succeed, was in fact found to give no relief either for the complaint of the head or eyes: the pain in the one, and the dimness of the other, continuing the same, without the smallest abatement. When she had continued in this state for a week, the further advice of a physician was required; who, besides the use of other internal remedies, thought it material that she should be bled with leeches on the temple. Accordingly, as soon as they could be procured, three were applied on each side. This bleeding seemed to do more for her relief, as to the pain of the head, than all that had been prescribed before. For, from that time, her head became much easier; nor was she afflicted with the same pain, at least to any degree of violence, during her confinement. At present, however, she was far from being benefited in her sight by any thing which had been done. For the remainder of the

day in which the leeches were used, her dimness continued much the same; and, though she slept well that night, yet, to her great astonishment, when she awoke the next morning, she found that instead of being merely dim she had now totally lost the sight of both eyes. This then was the complaint to which the attention of the faculty was now confined; remedies having been found for the previous and concomitant ones, which had accordingly subsided. In the course of the two following months various attempts were made for the recovery of the patient's sight, by the use of means, some more, and others less, common; but which, whatever instances of success they might have been attended with in other similar cases, in the present were found insufficient to give any lasting relief. Once, indeed, during these applications she thought she perceived a picture which hung against the wainscot at about the distance of seven feet from her. This, however, whether real or imaginary, was little more than a momentary impression; for, neither at that time, nor at any other, was she able even to distinguish so much as the light of the

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window. Among other methods of cure which were made use of, she had been three times electrified by Mr. Lowndes, in St. Paul's Church-Yard; who, as directed, applied the electric wind to both eyes, and drew small sparks from the temples and integuments surrounding the orbit. But, slight as these electrical applications were, yet so extreme was the timidity to which the patient was constitutionally subject, that she was not to be prevailed on to submit to a repetition of them. Whatever hopes, therefore, might have been entertained as to success from this quarter, they of course were now given up. On account of a violent pain in the side, she was blooded, and blistered on the back: which I pass without further notice than to say, that though they succeeded, as were to be wished, for the removal of the complaint to which they were immediately directed, still the blindness remained, and seemed as fixed as ever. On the 28th of November, 1787, my partner Mr. Wathen first saw her. He found the eyes at that time to be wholly insensible of light, and the pupils widely dilated. From the view he took of the case, he saw no ground of hope
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for a cure:—still, however, as it was incumbent on him to try whether any thing could be effected by the use of means, he prescribed the application of a large blister to the head;—a pill containing one eighth part of a grain of corrosive sublimate to be given her twice in the day;—and a small pinch of snuff, compounded of two grains of Turbith mineral with a scruple of the pulvis sternutatorius, to be taken frequently. On the 5th of December I attended the patient. On that day she described some appearance like that of the tables and chairs in the room, which she fancied was before the right eye; but she saw no object with a degree of clearness to make her certain what it was. She was under this uncertainty even as to the light of a candle; nor could she be sure of the difference between day and night. On enquiry I found that the pills and snuff had been regularly taken as prescribed; but that the blister for the head, which had also been ordered, was not yet applied. The effect of the snuff, a pinch of which she took three or four times every day, was to excite violent fits of sneezing, which were followed with a considerable discharge of mucus from

the nose. I saw the patient a second time on the 13th of December, and was then happy to find that some further progress was made in the cure: for she now told me the colour of my handkerchief; though, in order to determine concerning it, she was under the necessity of viewing it in one particular direction, to which she could not so easily adjust her eye. At that time she also distinguished a wine glass standing on the table:—and, being placed before the window, discovered the motion of several persons who were walking on the opposite side of the street; but these last mentioned objects being more distant, she was still unable to distinguish one from another as they passed. She continued the use of the snuff and pills regularly from the time of this visit to January the 26th following; on which day I saw her again, and found the sight of the right eye to be still improving, and that in no inconsiderable degree: but the left eye remained yet totally blind. The dilatation in the pupil of this eye was obstinate and undiminished; nor had the brightest light the least effect in producing an alteration. It was now judged necessary to increase the
potency

potency of the snuff; for which purpose one additional grain of the Turbith mineral was mixed with each scruple of the pulvis sternutatorius. On the 13th of April following, the right eye was so far recovered as to distinguish every object that was placed before it; when she had also so far the use of the left as to discern, and with some degree of clearness, the opening and shutting of my fingers. The pupil of this eye was still much dilated as before; nor was that of the other yet reduced to its ordinary size. As lately as March 17, 1789, the sight of the right eye continued perfect: but that of the left had received very little amendment. The patient then wished to decline the further use of remedies altogether, being perfectly satisfied with the degree of sight she had recovered*.

ARTICLE

* Since the preceding paper was written, I have been informed by Dr. De Valangin, that he has long been in the practice of prescribing the Turbith mineral as a sternutatory, and has found it of distinguished use in many disorders both of the eye and ear. He recommends to mix it with sugar, and in the proportion of one part of the former with three of the latter. In order to be more exact in the use of this remedy, I have lately accustomed myself

ARTICLE XV.

*Observations on certain Herpetic Affections,
attended with painful Irritation.*

BY J. C. LETTSON, M. D.

Read DECEMBER 31, 1787.

HAVING been repeatedly consulted on account of a disease which is always extremely painful, and sometimes by mismanagement rendered fatal, I presume to submit a few remarks on the subject.

myself to prescribe one grain of the Turbith mineral to be mixed with eight grains of pulvis glycyrrhizæ vel saccharum commune; and one fourth part of this powder to be snuffed up the nose once or twice in the course of the day. And in those cases where the nose has been peculiarly dry, I have rendered the powder more effectual, by directing the patient to inhale the steam of warm water into the nose previous to the use of the snuff.

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The first species of affection which I shall remark, is attended with a violent irritation, and almost irresistible itching in the anus, which I have observed chiefly in the male sex, and mostly occurring in the decline of life, though not universally, as I have seen the complaint among the middle aged. It happens to persons who have been liable to eruptions on different parts of the body, especially of the herpetic kind; and to persons liable to arthritic complaints. It does not appear dependent upon ascarides; it is usually increased at nights by the warmth of the bed, and then becomes so insupportable, as to oblige the miserable object to rise frequently to seek some easier situation, or to divert the attention from the moment of torment.

From all that I have observed, it does not appear to be otherwise dangerous than by preventing of sleep and increasing debility, thereby producing dyspepsia, or similar affections.

It more frequently appears as a preventive of other diseases, as I have known persons variously indisposed for a considerable lapse of time relieved as this disease came on and augmented.

augmented. A gentleman of sixty-eight years of age, who had long laboured under spasmodic affections, and particularly of that stricture in the organs of respiration, and fluttering intermission of the pulse, concomitant in the angina pectoris, was perfectly relieved of these symptoms as this pruritus came on. One about the same period of life, who had for upwards of three months had severe vertigoes, and strong symptoms of approaching apoplexy, with the aura epileptica which often precedes a fatal fit, totally recovered from these alarming indications of fatality by the supervention of this pruritus.

A worthy friend of mine, about sixty-three years of age, whose constitution had been much debilitated and broken down by repeated attacks of the gout, was at length relieved by an attack of this pruritus. I endeavoured to convince him of the salutary effects of this new affection. His patience being exhausted after some months submission to my advice, he requested his apothecary to attempt the removal of this painful sensation; and a strong saturnine preparation was applied to the part affected, which

which for a few days afforded some relief, but before the week had elapsed, as he sat in his chair with his family, he suddenly expired.

The part affected in the pruritus has been carefully examined by surgeons, without the appearance of much local disease: sometimes a little redness has been observed, or a slight eruption of the herpetic kind; but in general not more than might be produced from scratching this place, from which it is impracticable wholly to refrain. The disease is totally different from the piles, and exists with or without any hæmorrhoidal affections; it is, however, more liable to arise from their suppression. Though I would strenuously discourage the local application of repellents or astringents, so intolerable is the irritation, that some means of alleviation ought to be adopted; and those which my experience can suggest I shall communicate.

The body should be kept soluble by the least irritable laxatives, such as sulphur, magnesia, castor oil: by mineral waters of the sulphureous or saline kinds, as those of Aix

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la Chapelle, Harrowgate, Jessop's Well, Cheltenham, &c.

Sometimes I have administered the following alterative pills for a week or two, with advantage.

℞. Calomel. levigat. gr. fs.

Sulphur. aurat. antimon. gr. j.

Extract. cicutæ, gr. iij.

Syrup. simp. q. s. fiat pilula, omni nocte sumenda per hebdomadem unam vel alteram.

In some cases, especially when any syphilitic eruption had formerly appeared, the irritation has been mitigated by the following remedies, with the cautions due to the strength of the respective patients :

℞. Mercur. corrosiv. sublim. gr. iifs. solv. e spirit. salis marin. gut. iij. et adde aquæ cinnam. ten. ʒx. m. cap. gut. xxx. bis de die e decocti lusitanici, ʒiv.

℞. Antimon. crudi pp. (in nodulo ligati) ʒj.

Lapid. pumicis pulv. (in nodulo lig.)

Radic. chinæ.

————— sarsaparill. ā ʒfs.

Nuc.

Nuc. jugland. integror. cum hilis et
putaminibus contuf. no. x.

Aquæ ꝑb iv. decoque ad medias, et
cola, colaturæ adde, tinct. stomach.

ʒj. m. fiat decoctum lusitanicum.

As repellents and astringents appear to me dangerous, I have ordered, with safety and some relief, a decoction of hemlock and poppy heads to be used as a fomentation; or applied in the form of a cataplasm; or a lotion made of a diluted solution of the caustic alkali.

Above all, perhaps, nothing contributes more effectually to alleviate the disease than a light farinaceous and acescent diet, long and sedulously pursued.

If, however, the uneasiness is still very urgent, I have ordered issues in one or both thighs, in order to divert the acrimony to another channel.

Besides the parts affected with this species of irritation already described, I have occasionally met with instances of its attacking the fauces and throat internally, and thereby exciting a cough resembling the spasmodic or convulsive.

Opium

Opium joined with antimonials, which produce a determination to the surface of the body, are particularly indicated with the alterative plan already recommended; but scarcely any means prove more certainly and speedily efficacious than a blister to the back or anterior part of the neck, kept open as a drain in duration proportioned to the continuance of the disease; or the insertion of an issue in the arm, thigh, or leg, as before recommended, which, in a case now before me, has relieved a gentleman totally, whose life had afforded a continual scene of misery for twelve preceding months.

The other affection I shall introduce is peculiar to the female sex, as it is a pruritus in vagina, but it is accompanied with the same intolerable itching of the part affected. It occurs in those of delicate irritable habits, especially from the age of twenty to thirty, in unmarried women, to the married who have had no children, and to the sex, indiscriminately, about the time of the cessation of the menses: it does not appear to depend upon any disposition to leucorrhœa in either period;

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at least I have known it to occur without such previous disease. I never saw it produce the furor uterinus where I have been consulted.

In the period of celibacy, sea-bathing has been particularly beneficial; and the remedies recommended for the pruritus ani may be tried. I have used the topical application of saturnine preparations with some advantage, but never with injury: the constitutions have generally been of that delicate frame as to discourage bleeding. I have known the internal use of bark serviceable after the exhibition of the alteratives before mentioned; but when the disease occurs about the time of the menses ceasing, occasional bleedings, of three or four ounces at a time, prove of obvious benefit; at the same time a careful attention to a light diet, and moderate in quantity, at this period, is peculiarly advisable in a sex whose sedentary life precludes the necessity of strong nourishment.

Though the affection thus cursorily noticed is not attended with a shadow of fatality, yet it renders the sex inconceivably miser-

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able, whose delicacy makes them frequently exercise a patience in suffering unknown to the other. I have known the irritation to be so intolerable, as to induce the patient to deny herself the pleasures of mixed society; for the efforts to smother the disease not unfrequently excite violent hysterics, with a mixture of epilepsy.

ARTICLE XVI.

*Remarks on the Angina and Scarlet Fever
of 1778.*

BY JAMES JOHNSTONE, M. D. &c.
WORCESTER.

Read DECEMBER 6, 1790.

SOON after Midsummer 1778, we heard of the scarlet fever and sore throat being epidemical and very fatal in Birmingham. In the autumn I saw several patients labouring under it: these were chiefly in the neighbourhood of Stourbridge, and in a tract of country which communicates with Birmingham, and runs from Dudley to Belbroughton, and in the parishes of Kinver and Enville: later in autumn we were visited by it in Kidderminster; and many fa-

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milies were affected with it in the country about Cleobury.

As this disease much agrees with the ulcerous fore throat described very accurately by the excellent Drs. Fothergill, Huxham, and others: from which the Scarlatina Anginosa of Withering, so far as it relates to the history and course of the disease, does not materially differ; I shall not be particular in enumerating the symptoms of this disease, but refer to the writers here mentioned.

I only remark, that the scarlet eruption was a much more frequent symptom and attendant of this disease than it used to be when I first became acquainted with it, near thirty years ago, and wrote upon 1779. The patient's fever and dangerous symptoms generally ran high, in the proportion as the efflorescence was more or less diffused, and of a deeper erysipelatous red colour.

The patient for the most part vomited, and was purged on the first day of seizure; the efflorescence appeared on the second, and about the fourth day began to disappear; though it sometimes both appeared later and continued longer. The palate and glands

of the throat were intensely red, and swelled in the same degree with the face and other parts of the body. White ulcers often appeared from the very beginning on the tonsils, palate, and uvula; and a thin acrid ichor flowed from the eyes and nostrils. But the ulcers and this ichorous running was more generally observable about the third or fourth day, or later. And when the disease took a favourable turn, health began to return after the sixth or seventh day; if otherwise the patient died about that time.

I do not propose to give a full history of this disease, but only to record such discriminating circumstances as display its true nature and proper cure. As it has been deemed, by some gentlemen, a very different kind of disease from the malignant ulcerous sore throat, and of course was treated more as an inflammatory, than as a disease either putrid, or strongly verging to putrescence; I gave no small attention to this point, and shall candidly relate the result of my observations.

1. As to the natural genus of the disease, I observed that when it entered schools, or large families, it generally infected the

whole, especially when the communication was considerable, and the houses small. In such houses some individuals, at their first seizure, were more or less severely attacked with the scarlet eruption, with swelling, redness, and ulcers in the throat; yet others in the same family, infected from them and by them, often had the ulcerated fore throat, without any efflorescence or eruption on the skin. *Vice versa*, the first seized sometimes had the simple ulcerated fore throat only; and yet others infected by them had the more severe attack of the disease, of fever and scarlet eruption, as well as fore throat. It has constantly been seen in this neighbourhood, and will be generally observed wherever the disease prevails, that in both forms it is infectious; and that the infection acts as it does in all other contagious diseases; sometimes in producing the disease in its fullest form and description, and sometimes in giving it only partially and mildly: thus we found the Scarlatina Anginosa often infecting some with a mere ulcerous fore throat; and, in others, the Scarlatina Anginosa conveyed by a mere ulcerous fore throat: a proof this, that the nature of the disease is
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the same in both these forms, and differs only in degree, and in difficulty to the physician and danger to the patient. Just as it happens that a person receiving the virus from a person who has a distinct small pox, has often a confluent small pox, and *vice versa*. It is needless to illustrate so obvious a fact by producing a greater variety of parallel cases. Observation then sufficiently determines that the Scarlatina Anginosa and ulcerous Angina mutually produce each other by infection; the nature of the disease is thereby in a considerable degree ascertained, and a fixed point is obtained from which observations may be taken with advantage, and a proper judgment and use made of the observations of others.

It has been disputed whether this disease should be treated as an inflammatory, or as a putrid disease; those who held the former opinion have not appeared to act consistently with it, and those who held the latter may not always have rightly discriminated and varied the treatment which particular cases and situations required. I shall endeavour to relate, with candor, the result of observations made with much attention and cau-

tion: what I observed to be hurtful, and what I found advantageous; in short, what conduct I pursued, and, on a review, would recommend to young practitioners in like circumstances.

This disease has been seen of three different species.

1. The simple scarlet fever of Sydenham, in which the fever and eruption are moderate, and the throat neither much inflamed nor ulcerated; this of itself is a very mild disease, and, if the patient is neither overheated by food or medicine, nor pent up in a foul close air, nor confined to his bed, he soon recovers. But I remark in Sydenham's treatment of this disease, that while he kept his patient cool and temperate in diet and in degree of heat, he ordered abstinence from animal food, administered no purging medicine till the disease was passed over; on the contrary he directs every night an anodyne draught, which, with many good consequences from its sedative qualities, would dispose to costiveness; and he did not allow a purge till the disease had finished its course. I think Sydenham's practice in this point, who

who was much disposed to order purgative medicines in feverish complaints, deserves the attentive consideration of such medical gentlemen who think purgatives indispensably necessary, from the beginning, in treating the *Scarlatina Anginosa*. Sydenham also found a blister to the neck often necessary in this disease, and appears to have treated it with equal success and simplicity.

2. The *Scarlatina Anginosa*, in three or four days progress, constantly shews every symptom of the highest putrefaction, notwithstanding some appearance of inflammation in the beginning; and it is attended with considerable danger, if the apparent inflammatory stage be not treated with a due regard to the stage and symptoms of putrefaction, which certainly succeed.

3. An ulcerated fore throat, without scarlet eruption, though often a very dangerous disease, seems, however, more certainly curable than when attended with a considerable degree of scarlet eruption. The ulcerous fore throat, when not neglected in the beginning, in this country is found easily and certainly to yield to the bark, to acids, wine, and an antiseptic diet. This method,
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long established by successful practice, has lately been so fully described by my son (the late Dr. Johnstone), that I refer to that work, and to what has been wrote by Dr. Fothergill, Huxham, Wall, and in my dissertation on fevers; and shall now only mark the practice which I found most successful in the Scarlatina Anginosa, as it appeared in autumn 1778, and this year 1779.

When called in the beginning of the disease, I order an ipecacuan vomit; I prefer this emetic, in this disease, to any preparation of antimony, having observed these last were apt to run off by stool, and were in some instances followed by death; whereas a vomit of ipecacuan generally prevented a diarrhœa, which I have ever observed in this disease to be a very dangerous symptom; but I desire to be understood, that I do not reckon a lax stool or two in a day such a diarrhœa as can produce danger; but it ought not to be allowed to go farther. And, in order effectually to secure my patient from having his strength sunk by this evacuation, I always order a mild opiate to be given constantly after the operation of the vomit.

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I give sometimes half an ounce of Syr. è Mecon. Sometimes a dram or more of Elix. Paregoricum in small cinnamon water, with a little Spiritus Nitri dulcis, for this purpose. If the fever continues to run high about the fourth or fifth day, if the throat be swelled or sloughed, and the head heavy and loaded, I again repeat the same vomit and sedative draught, and generally find the feverish heat, the foulness of the throat, and head-ach, much abated by it.

In the first stage of the disease I order cooling demulcent subacid drinks, especially if the efflorescence and heat are considerable; I give antiseptic medicines, but such as are not heating, to abate the symptoms of inflammation, at the same time they obviate the putrefaction which the disease falls into. I order Emulsio Communis and Spir. Nitri dulcis. Tinctura Rosarum, lemonade, cold water with a toast, every half hour, or as often as it is requisite or agreeable to drink; and the Succus Limonum nearly saturated, so that the acid may prevail; or the following medicine to be taken to the quantity of two spoonfuls for a dose every third or fourth hour.

R. Decoct.

R. Decoct. Cort. Peruv. ℥ss. Myrrh. ʒi.
 Succ. Limonum. rec. expr. ʒiss.
 Sacch. alb. ʒi. f. Mistura Antiseptica.

The patient is ordered to receive into the mouth and throat the vapour of myrrh and vinegar, and to gargle it often with a gargle of Tinct. Rosar. ℥ss. Spir. Sal. Marin. ʒss. Mell. Rosar. ʒss. m.

If the patient is at any time seized with diarrhœa, I order a dose of Pulv. Sudorif. Doveri, at bed-time; or a draught like the following, to be given once or twice in the twenty-four hours.

R. Pulv. Ipecac. gr. i. C. Cascarill. ʒss.
 Aq. Cinnamom. ʒi. Syr. è Mecon. ʒii.
 Elix. Paregor. ʒss. m. f. haust.

If the diarrhœa be considerable, the vegetable acid is omitted from the bark antiseptic mixture, and some Gum Arabic, Spirit. Nitri dulc. and Elixir Paregoricum, are substituted instead of it.

I order the patient always to get out of bed in this stage of the disease, and require them either to sit in large well-aired rooms, and, *in houses where these cannot be had, and the*
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season will allow, I enjoin their being much in the open air.

The immediate effects, and the remote consequences of this I find so happy, that I apprehend an attention and conformity to it never fails to render the disease mild, and to carry the patient happily through. The fever, the intense redness, head-ach, and anginous swelling, are very wonderfully relieved by removing the patient to an open window, or by carrying him out into the open air. And the cool open air seems as truly a specific antidote to the mischief of the poison of the Scarlatina Anginosa as it is in the small-pox. And, in the eruptive stage of the former as well as the latter, its good effects are most conspicuous.

This might be easily accounted for, when it is considered that we are perpetually throwing out from the lungs, by every expiration, a considerable quantity of putrescent exhalation, which particularly striking the parts about the fauces, determines the fomes to act there with particular force. Hence pure air, by carrying off this mephitic vapour more perfectly, will act as a powerful antiseptic.

antiseptic. But it is from the observation of the happy effects of a pure and temperate air, and not from theory, that I recommend it so earnestly in this disease; for, when thus used from the beginning, it will contribute more than every thing besides to the patient's recovery.

In the advanced stages of the disease, the bark, in substance, will be a necessary addition to the antiseptic mixture.

Fixed alkaline salts I have not given, and do not recommend. I know no decided success which recommends their use, no facts of an unequivocal kind which do not mark their unfitness in putrid diseases; and such I think this clearly to be. In the uncertainty of art and science, I shall trust the instincts of nature: these direct to acids, to fruits, to cooling diluent liquors, in this and all continual fevers, and give, at the same time, an aversion and horror to animal food, and every thing of an alkalescent nature and tendency.

After the severer attacks of this disease, the weakness induced by it, and the action of the poison taken up by absorption from
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the skin, frequently obstructed the lymphatic vessels and glands, so as to occasion a leucophlegmatia, or ascites, after the fever was removed; which made evacuating, and particularly diuretic as well as strengthening medicines necessary to remove these consequences.

ARTICLE XVII.

Of the Lepra Græcorum.

By WILLIAM FALCONER, M.D.F.R.S. & C.M.S.

Read MARCH 23, 1789.

THE Lepra Græcorum, although in this part of England (at least) it be no uncommon disease, is seldom described by medical writers from their own experience. Doctor Cullen * says he never saw it; and scarcely any other modern accounts that I have met with appear to be taken from actual observa-

* De Elephantiaſe Leprâ Framboeſiâ a Trichomate utpote morbis a meipſo nunquam viſis amplius ſtatuerè non auſus ſum. *Genera Morb. Cullen*, p. 295. Note. Edit. 1780.

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tion. The Bath Hospital affords numerous opportunities of seeing this disease, as the waters have been famous from the earliest times for the relief they give ; and it is from the patients of the Bath Hospital that the following account is principally, though not altogether derived.

Description of the Leprosy.

The appearance which the leprosy puts on, is that of large blotches on the skin, generally of a round or elliptical form, which appear in various parts of the body, but principally on the legs, arms, forehead, and breast.

These blotches are of different sizes, from that of a shilling to one considerably exceeding that of the hand. These are covered with a rough eruption which is at first red, and in its progress becomes white, at least it is so in some parts, and scaly ; though in some patients it becomes scaly sooner, and to a greater degree than in others. This eruption is, in some, nearly level with the skin, and in others it is more prominent, even to nearly half an inch above the sur-

face; which last is more common when the leprous eruptions put on a white scaly appearance, than when they remain of a red colour. It is in general dry, though not uncommonly moist, and oozing a thin ferous fluid. The parts affected are sometimes rather swelled, but not to any considerable degree, nor are they in an oedematous state. The swelling is most common when the eruption is of the moist kind. When it puts on a scaly appearance it is often very uneasy to the feeling, and even rather painful; but this seems to arise principally, if not altogether, from the hardness and stiffness of the skin, which renders motion troublesome. The same circumstance causes the outside of the skin to be insensible to slight impressions of the touch, but no real insensibility of the part affected, or of those adjacent to it, has been observed. The breath has been remarked to be rather short in the moist kinds, especially in persons advanced in years; but I am not certain that this was produced by the disease. The appetite, sleep, and strength of the patients have not been apparently affected; and there is very rarely any thirst or fever attending it.

The body is in general costive, but not to any great degree, and what soon yields to common cathartics. This complaint we have no opportunity of seeing in its first stage; but it is said to begin with sickness, and a sensation of weight and oppression at the stomach, which is relieved by vomiting; after which, in a few days, the eruption appears in different parts of the body, and sometimes on the head, in form of pimples with white heads, attended with great itching. These sometimes spread, and discharge a thin corrosive humour; at others they rise and incrust the parts over with a rough scaly coat, not unlike the bark of a decayed tree. Nothing very particular appears to attend the amendment of the patients. The scaly and rough parts fall off gradually, and are not succeeded by fresh eruptions; the itching abates, and in time the skin appears again in a natural state, as before the disorder commenced.

Cause of the Leprosy.

I have been able in numerous instances to trace the cause of this disease to a circum-

stance so general, that I doubt not it is, if the truth could always be discovered, universal. I mean here the sudden application of cold to the body when in a heated state. This commonly happens from the drinking some cold liquor; but this is not peculiarly necessary to produce the disease, as I have seen it arise from the external application of cold. It matters not in what manner the body be heated, whether by heat of fires, rooms, or by exercise, as cold produces the same effects in all the above cases. Hence such persons are especially liable to it whose ways of life subject them to such vicissitudes; as smiths and other trades, that oblige those who work at them to be near fires, or in heated rooms; and such as use violent exercise or labour, as huntsmen, porters, and such like, who are too apt to indulge their appetites without caution.

Women, in situations where they are exposed to the same sudden changes of temperature, are liable to the same disease, as cooks, laundresses, &c. several of whom I have seen in the Bath Hospital affected as above described. It is proper to observe, that the danger is much less in those who
take

take cold liquors at the time they are heated with exercise or labour, if they continue to pursue their labour for some time after drinking, than if they leave off their work immediately. Those cases that I have seen were of persons who exposed themselves when at rest to the effects of cold. The same observation holds equally true of cold externally applied. The quality of the liquor drank is, I believe, of less importance than the temperature. I have known the disease to have been produced by the drinking of water, milk, and beer, and I doubt not many other liquors, if cold, would do the same. Whether stronger liquors of the fermented kind, or such as are warmed by aromatics would be equally dangerous, if drank cold in such circumstances, I cannot determine.

On the Cure of the Leprosy.

I wish I were able to point out a remedy with as much certainty as I think I have discovered the cause of the disease. The Bath waters, indeed, externally applied seem to be of more service than any other reme-

dy; but even these sometimes fail, and, when they succeed in apparently clearing the body of all marks of the disease, it is found by experience that no absolute dependence can be had on such seeming abatement of the disease, as it is apt to recur after some time; and upon this account it is customary, in registering such patients, not to put them down as *cured*, but as *cleansed* only. Instances however often happen wherein such patients remain free from the leprous eruption for several years, and some have never experienced any return of it at all, though they lived many years afterwards. The obstinacy of the disease is by no means proportioned to the quantity of the eruption. I have often seen patients with the face, and many parts of the body, almost covered with a white prominent scaly crust, that have been perfectly cleansed in a few weeks, whilst others that had only a few red blotches that projected but little from the skin, found no alteration of much consequence in a trial of several months.

I have seen many medicines given internally in this disease to assist the efficacy of the Bath water; but I am rather doubtful if
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the efficacy of *any* is much to be depended upon, farther than as regards the relief of some of the concomitant symptoms.

Mercurials, as calomel, have been given to two, three, four, and five grains at night for three days successively, and carried off by a purgative given on the fourth day, and this course repeated every week for several weeks together, but, as far as I can find, without any remarkable good effect. Decoctions of the woods of sarsaparilla and of mezerion have been given at the same time, but without much effect. Plummer's pill and the pilul. Æthiopicæ have also been administered, but I believe with little advantage. The acrid mercurial preparations have been much in use in this disease. The solution of corrosive sublimate, both that in water and that in spirits, have been given and continued a long time, and joined with decoction of the woods and of sarsaparilla. I am inclined to think that some considerable advantage must formerly have been believed, at least, to have been produced by the use of such preparations, as the name of *guttæ ad lepram* was affixed to a solution of this kind in the old Pharmacopœia of the hospital;

and I have been told by persons whose observation I could not but respect, that in some obstinate cases they had seen much advantage from such a course continued for some time. I cannot however affirm the same from my own experience, though I do not mean to deny it altogether. Mercurius calcinatus, joined with an opiate, and given at night for some time, has also been tried, and I believe with much the same success.

Mercury is also used in external applications, as in the unguentum e mercurio precipitato, and in the unguentum citrinum; but I have not seen any good effects they have produced.

Antimony has been often used, as in the form of essentia antimonii, and in a powder composed of crude antimony and the compound powder of gum tragacanth, but with no advantage as far as I can learn.

Sulphur also has been used internally, as in the aqua sulphurata, which indeed is no other than the phlogisticated vitriolic acid combined with water, and in form of flowers made up into an electuary, but with no effect worth recording.

Sulphur also has been used externally
made

made up into an ointment with hog's lard, and sometimes with tar; but I think that the simple tar ointment succeeds better, and in some cases appears to be of real use in softening the stiffness of the skin, and promoting the separation of the scaly eruptions. Elm bark in decoction, so justly recommended by Dr. Lysons in a disease that resembles this so nearly as to appear to external view to be only a lower degree of it, is in this disease of little efficacy. The tincture of cantharides, so highly commended by Dr. Mead for its efficacy in the leprosy, has not answered to such a character in the trials I have seen made of it. I have several times tried it without being able to perceive any effect worth remarking from it. It never, in my experience, seemed to shew any effect as a diuretic.

The method in general pursued is, to order the patients to bathe twice or thrice a week, according to their age, strength, and other circumstances. This, after a few times trial, commonly causes an abatement of the itching, and an incipient desquamation of the leprous eruption, and of consequence renders the skin softer and more pliable.

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This course is accompanied with a direction to drink the waters, which at a medium are taken in the quantity of about a pint daily, which are thought to second the good effects of the bath, by promoting an easy and gentle perspiration. If the amendment appears to proceed according to expectation, no other medicines are given, but such as are somewhat gently opening occasionally, if the body should be costive.

In cases where the eruption either shews no signs of abatement, or where, after being removed in one part, it breaks out in another, and a succession of the eruptions is kept up, though in general in no great quantity, recourse is had to the acrid mercurial preparations before mentioned, which, it must be owned, coincide very well with the use of the warm bath, which assists their diaphoretic powers, and obviates any tendency towards a salivation; but whether such medicines act specifically on the disease, or really contribute to its cure or abatement, I cannot take upon me to decide with positive certainty.

It now and then happens that this complaint, although from appearance almost entirely removed,

moved, will continue in that state without any farther amendment, resisting every remedy for a long time, and at last oblige us to dismiss our patients, generally indeed in a much better state than at their coming in, but still without even a temporary removal of the disease. It sometimes (though I believe but seldom) happens that the same cause (the sudden application of cold), which originally produced the leprous eruption, will cause it to strike in; and when this occurs it produces great disturbance in the system. I have before mentioned that vomiting was a symptom that generally, if not always, preceded the eruption at the commencement of the disease; and when the eruption is struck in, this symptom again makes its appearance. A professional gentleman of eminence, who attends this hospital, mentioned to me a case of this kind, that fell under his own inspection; and a very remarkable instance occurred to my own observation: A girl about sixteen years of age, who had at the time a leprous eruption upon her, drank, when violently heated, a large draught of cold water, presently afterwards the leprous eruption suddenly disappeared,

peared, on which she was seized with a perpetual disposition to vomiting; every thing she swallowed was in a few minutes rejected. For this complaint she was sent to the Bath Hospital. Her health in other respects was not much affected, save what the fatigue of straining, and loss of strength by the want of sufficient sustenance, produced. A variety of remedies were tried, both external and internal. Besides the Bath waters, both drank and used as baths, she tried opiates, bitters, aromatics, elix. aloes, the effervescing saline draught, ipecacuanha in small doses, and a multitude of other medicines. Opiates also were externally applied to the stomach, and blisters, but all without the least effect.

After a stay of several months she was discharged no better; and about eight months afterwards was again re-admitted, the disorder having then taken a different turn. The vomiting had ceased; but her limbs and body were almost universally convulsed, though without loss of the senses. She again used the waters in every form, and a great number of other medicines and local applications; but after several

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ral months was again discharged without receiving any benefit.

It appears probable to me, that the scurfy redness of the face which we sometimes see among females, and which is to them so great an object of dread, is nearly allied to this disease. We know that it generally, if not always, owes its origin to the same cause, the drinking of some cold liquor when the body is violently heated, which often happens from dancing and public amusements. We also know how dangerous it is to the health to repel such eruptions; and I recollect a case that fell under my care about twelve years ago, wherein an almost perpetual vomiting was induced by the use of an external application, advised to repel an eruption of this kind that appeared on the face. This however, after continuing above six weeks, was at last cured. Other disorders of a dangerous nature have been brought on by remedies used for the same purpose. I once saw a dropsy of the breast produced by the use of a mercurial remedy for a redness of the face, which it effectually removed, but instantly produced a dropsy of the chest, terminating in death.

The

The number of persons admitted into the Bath Hospital for this disease in the space of four years, viz. from June 12, 1771, to June 12, 1775, and their state when discharged is as follows :

| | | |
|--|---------|-------|
| Whole number admitted | - - - - | 83 |
| Of whom were cleansed | - - - - | 52 |
| Much better | - - - - | 24 |
| Died of the small pox | - - - - | 1 |
| Irregular in behaviour, and discharged without a sufficient trial of the waters | | 2 |
| State in which they were discharged omitted in the register | - - - - | 4 |
| | | <hr/> |
| | | 83 |
| | | <hr/> |

ARTICLE XVIII.

Case of Epilepsy successfully terminated.

By J. C. LETTSOM, M. D. &c.

Read JANUARY 7, 1788.

WILLIAM ROUTLEDGE, a young man, twenty-six years of age, who resided in the neighbourhood of Stratford in Essex, was desired to consult me by English and Furnass, eminent practitioners in that town.

This he did on the 19th day of November 1787, when he gave me the following account of his indisposition:

About four years ago an acquaintance of the patient's laboured under epileptic fits, whom he attended as a friend, and assisted

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in holding, when under the paroxysms. They impressed the mind of my patient with considerable terror; and at length he fell into the same state himself. From the frothing at the mouth, the falling into convulsions, and the loss of sense during the fits, there remained no doubt that they were epileptic. They usually came on at their early commencement about once in three weeks or a month, and then lasted from one to three hours each attack: they have since gradually increased in frequency, and diminished in duration; and when he consulted me the attacks were not less in number than two or three a week, but rarely continued longer than half an hour.

It is unnecessary to dwell here upon the fixed and mechanical causes of epilepsy, most of which, it is well known, cannot be removed, and consequently the diseases under such circumstances are irremediable.

There are however two states of the constitution connected with epilepsy that are curable, although these states appear exactly opposite.

The *first* I shall speak of is the plethoric, where there may be a general fulness of
blood,

blood in the whole habit, and from this general constitution the head in common partakes; or, what I conceive to be more frequently the case, where, from some peculiar conformation of the body, and more especially of the head and neighbouring parts, a partial determination of blood is thrown upon the brain.

The cure here must depend upon depletion: but what are the most effectual means of producing and preserving this depletion? Bleeding from the system is perhaps the most speedy and certain means of lessening the volume and impetus of the blood; but it has been found that venæsection gives a tendency to the system to sanguification, on which account topical bleeding adjacent to the head has been preferred.

A seton, or issue, seems also calculated to take off determination to the head; and affording at the same time a permanent remedy, is well adapted to the purpose.

But as no external means of depletion can be long effectual, without attention to the food taken, a spare diet of vegetables in particular, with farinaceous liquids, have been recommended. The diet upon which

the quantity and constitution of the blood so much depends must hence appear a primary object of attention. I think however this mode of taking nourishment may be altered both to the benefit and pleasure of the patient. In such constitutions I have allowed even animal food and wine, under certain restrictions, in preference to plentiful diluting liquids. Meat of any kind is allowed, though sparingly, and wine in the same manner; but drinking freely of the smallest liquids, even water, is cautioned against, under an idea, derived from observation, that dilution promotes repletion and sanguification; thus an ounce of meat diffused in one pint of water, will produce a larger quantity of blood than if the same quantity of solid food were diffused in a quarter of a pint; and I would rather indulge the patient with a glass of wine alone, than a glass of wine and a tumbler of water: by this means I have seen a more steady and secure depletion maintained, than by admitting large quantities of diluted liquids, without solid food.

At the same time this depletion is further promoted by laxative medicines, which not only

only produce emptiness by evacuation; but by the stimulus on the intestines, take off determination to the head.

The *second* state of curable epilepsy I mean to introduce here, is that of Atonia; and taking the former reasoning as well founded, the treatment of this state will be readily inferred; and diet, medicine, exercise, and pursuits encouraged, which tend to strengthen the debilitated system.

In the case which I have already described, which I considered of this kind, I ordered the following prescription:

R. Vitrioli Albi ℥ss.

Aquæ Puræ ℥ix.

Aq. Nucis Mosch. ℥ss.

Syr. Balsam. ℥i. M. ft. Haustus, mane sumendus primo, tertio quoque die.

R. Pulv. Cort. Peruviani ℥i.

— Valer. Sylvestr. ℥ss.

Limatur. Martis pp. ℥ij.

Syr. è Cort. Aurant. q. s. Ft. Elect. de quo sumat magn. Nucis Moschatæ bis per diem.

R. Pil. Rufi ʒiſs.

Vitrioli Albi ʒſs. M. ft. Pilul. xxx.
capt. ij. om. nocte.

This was ordered on the 19th of November; and on the 3d of December the patient called upon me, and informed me, that he had not had any return of the fits: he complained, however, that the morning draught produced violent vomiting, which induced me to substitute a milder emetic of five grains of ipecacuanha, to be taken only twice in the week: the electuary and pills were continued. Towards the conclusion of December he again called upon me to inform me of the continuance of his health.

There are doubtless various other means of promoting the vigour of the system, both from the vegetable and mineral kingdoms; but, as the first prescription was salutary, I had no occasion to attempt any other formula.

ARTICLE XIX.

Case of Imperforated Anus successfully treated.

BY T. MANTELL, DOVER, SURGEON & C.M.S.

IN A LETTER TO J. C. LETTSOM, M. D. &c.

Read JUNE 1, 1789.

DEAR SIR,

As it is well known by surgeons, that, in *common* cases of imperforated anus, they are in general easily relieved by a simple puncture; it is also understood from the writers who have mentioned such imperfections, “*That, where there is no mark or vestige of an anus perceptible,*” it is almost impossible to be relieved either by the efforts of nature or art.

If the following case is thought by you worthy of observation, I beg leave through your medium to present it to the Medical Society.

Mrs. S——— was delivered of a female child in September, 1786. A few days after I was informed, that no proper evacuation of Meconium had taken place, and that some small quantity of fæces had come away with the urine. On examination I found that a mal-formation was the cause, there not being any anus, or the least appearance of one. The infant, in other respects, was well formed: the vagina was perfect, and the water passed naturally by the urethra; the health of the child was bad; she appeared generally in great pain, was very coſt-ive, and, by violent forcings, a little quantity of hard fæces were driven out, in the form of small spiral strings, per vaginam,

On acquainting the parents with the danger of the case, and proposing, as the only relief, to make an incision through to the intestine, and by that means endeavour to obtain a natural mode of evacuation; they requested me to do whatever I thought proper.

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As I had no direction by an impulse of the fæces against the skin, I chose the usual natural distance from the vagina, and made a deep but small incision, and, by passing a curved probe by the vagina, through the aperture into the rectum, I soon felt it, and was guided by that to proceed till the discharge of fæces came plentifully through the new aperture; the hæmorrhage was not great, and the child was immediately relieved. To prevent constipation, and avoid pain by the expulsion of hard fæces, I gave laxative medicines, and my young patient felt little inconvenience, though there still continued some small discharge, as before, per vaginam. At the month's end it removed with its mother to town, and I saw no more of them till the spring of 1788, when I was informed by Mrs. S—— that the child had been very unhealthy, that it had suffered from many disorders, and was still troubled (particularly when costive) in voiding the fæces; and that the orifice I had formerly made had been so much closed as to render it necessary for a surgeon to dilate it, and yet it was now again very confined, which made such a constant use of purging

medicines necessary, as to debilitate the constitution of the emaciated little subject.

I had formerly been afraid of making the aperture large, lest, if I did, the powers of retention might be lost; but there now being a kind of stricture at the part, induced me to think the levatores, and sphincter muscles were not deficient; and that no mischief would ensue, if I enlarged the orifice. Accordingly I made a large incision, and after this no further difficulties arose, the child became healthy, and I have the satisfaction of finding, near a year since the last operation, that she continues perfectly well.

I am, Sir,

Very respectfully yours,

Dover,

May 25, 1789.

T. MANTELL,

ARTICLE XX.

*Case of Hæmorrhage and Purple Spots, without
Fever, or previous Illness.*

By JOHN AIKIN, M.D. C.M.S. &c.

Read OCTOBER 19, 1789.

Miss P——, aged eleven, healthy, but of a delicate habit, had last winter an indisposition attended with slight fever, cough, and loss of strength and appetite, for which she was sent into the country in the spring, and returned much mended. She remained well, till on Sunday evening, August 8, she was taken with an oozing of blood within the mouth, which continued all night. At the same time there was an appearance of
4 purple

purple spots, like flea-bites, about the bend of the arm. On Monday morning similar spots appeared on the legs, and the bleeding continued. On this account she was taken to Mr. Turner, surgeon, who stopt the hæmorrhage by an astringent application to the gums. She then went to school as usual; but Mr. Turner properly recommended the decoction of bark acidulated with vitriolic acid, which she began to take in the evening. She passed a good night; but next morning her friends were alarmed with the progress of the complaint. The purple spots were now very general over the body and limbs; a large blotch, as big as the hand, perfectly black, somewhat elevated, and sore to the touch, appeared on the middle of one thigh; and there was another large black spot also tumid and sore, somewhat above the inguinal glands on the same side. Still she seemed little indisposed, and she ate a tolerable dinner that day. I saw her about three that afternoon; and found all the appearances above mentioned, with a pulse nearly natural, but a good deal of languor and debility. She had been sick; and had thrown up a quantity of very black coagulated blood. Her tongue had

had a dark hue; and a kind of cadaverous smell might be perceived about her. The decoction of bark was directed to be continued, with a large portion of the tincture of bark, and some drops of tinct. opii. Port wine and water, or porter, was ordered for her drink.

The sickness continued; she passed a restless night, with much heat and faintness. Next morning I found her very pale, and excessively debilitated. Her pulse was extremely hurried, and beat with a quick jarring stroke; her tongue looked livid; the spots appeared much as before; she had discharged much black matter by stool: her appetite was quite gone; and she had such a loathing to the bark, that we were obliged to substitute to it, the inf. rosarum.

On Thursday the pulse was very quick, but weaker, and a strong pulsation was seen in the carotids. She was extremely faint and low, which was not surprising, as her stomach rejected every thing, and she scarcely took the least of either food or medicine. However, the colour of the spots began to be somewhat more dilute, and the large blotches

blotches were less elevated and sore. This night she was more composed.

On Friday the sickness was greatly abated, and she resumed both her drinks and medicines. The spots were evidently lighter. From this time the amendment was rapid, and her strength returned as quickly as it had been lost. On Sunday she had one black and costive motion, and soon after a natural one. Her urine through the whole had been pale: whence it is probable that the black blood discharged by vomit and stool had been, in great part at least, swallowed during the hæmorrhage of the mouth. On Monday I had the satisfaction of finding my patient down stairs, and walking about the house. Many of the spots were quite gone; and the blotches had a greenish hue, like a bruise losing its blackness. After this she had no complaint. The weather, during the whole of the disorder, was close and sultry.

R E M A R K S.

Every experienced practitioner has, I doubt not, met with instances of a disposition to hæmorrhage,

hæmorrhage, attended with the eruption of purple spots, apart from fever, or any other distinct disease; but I believe this affection does not frequently appear in the acute form, and exquisite degree above described. And I am particularly induced to offer it to the Society, because I do not find in any of the systems of nosologists, that clear and discriminating notice taken of it, which a disease so marked, and occasionally so formidable in its aspect, would seem to require. Several of the systematists have, indeed, described a genus of diseases under the denomination of *purpura*: but this is by all of them placed under the head of *Febrile Diseases*. Now, though we know that spots, or vibices, of a purple colour are frequent attendants upon fevers of the putrid and malignant kind, in which they almost always portend a fatal termination, yet, in cases like the present, it is evident, both from the origin and termination, that true idiopathic fever makes no part of the complaint. Quitting, then, the class of fevers, where are we to look for it in the systems of nosology? Considering the purple discolorations as its most conspicuous mark, we might perhaps

haps expect to find the disease under the head of *Ecchymoma*. But in this genus of Sauvages, the species which alone comes near it in description, the *ecchym. vibex* is made only a symptom of preceding acute diseases; and the same may be said of the *vibex* of other authors. Sauvages, however, in his class of *cachexiæ*, has the genus *phænigmus*, which, though defined from a *red* discoloration of the skin, yet contains a species which seems nearly to denote the object of our enquiry. This is the *phænigm. petechialis*, or the *purpura apyreta*, of Cuffon, characterised by the eruption of *purple* spots on the whole body, without itching, tumour, or other symptom. This affection Sauvages says he has sometimes seen in children, arising from the summer heat, without any remarkable lesion of the functions, and disappearing in a few days from the use of cooling drinks and gentle purgatives. He also quotes Sachsius, as having observed in a woman diffused rose-coloured spots, some of which *wept blood*; and similar ones, without effusion of blood in a child, both of which yielded to *antiscorbutics*. If, however, we compare these cases with that which I have related,

related,

related, it will be manifest that the symptoms prevailed to a so much inferior degree, that they convey the idea of a much less alarming disease. From Cuffon's well-adapted name of *purpura apyreta* I make no doubt that he intends the genuine disease in question; but I have not his work to consult.

Van Swieten, in his *Commentary on Boerhaave, sect. 723*, giving an account of *exanthemata* in fevers, after he has mentioned those of the most malignant nature, denoted by their purple or black colour (which appearance he justly refers to a kind of ecchymosis, or extravasation of humours), says, that in the months of August and September, 1742, he saw some patients in Leyden, with spots of a black or deep purple colour appearing throughout the whole body, which by degrees changed to a more dilute hue, and vanished. As he did not attend these patients from the beginning, he was not acquainted with the other circumstances of the case; but if there had been a *true putrid fever* he could not but have discerned and mentioned such a leading circumstance. Further, he observes that many other people of the lower rank were taken with the same

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disease,

disease, of whom *some died*: but, if it had been a genuine purple fever, *some only*, and probably *very few*, would have *escaped*. These, then, I consider as instances of our disease; but, if so accurate a writer has described it so imperfectly, it is a sufficient proof, that much is yet wanting to its history.

Dr. Percival, in his *Essay on the Septic Quality of Sea Salt*, quotes from the *Philos. Transactions*, vol. liii. a case in which purple spots, with profuse hæmorrhages ending fatally, were occasioned in a young lady apparently from the use of sea-water. This, too, was a *non-febrile* disease.

In the *Edinburgh Medical Commentaries* for the year 1774, a case communicated by me is inserted, of a youth who, after the termination of a slow fever, was attacked with a painful swelling of one arm, which was covered with dark red and purple stains, followed by gangrenous vesications; purple spots and blotches appearing at the same time on other parts of the body. No general indisposition attended these formidable appearances, and the skin every where gradually recovered its natural colour, the dis-
ease

ease making a stand only in the hand and fingers of the affected arm, where it produced a mortification of the soft parts, and a destruction of the last phalanx of two fingers.

I shall beg leave to close these narratives with a pathological observation. It has been a sort of fashion of late to account for almost every instance of a putrescent and colliquative state of the fluids, on the supposition of a previously debilitated state of the solids. Yet various facts seem to prove that such a state of the fluids may exist as an original disease, and that the debility of the solids may frequently be the effect, not the cause. Not to dwell upon the instance of sea-scurvy, which is now generally admitted to depend upon a morbid condition of the animal juices, induced in the first instance by the use of salted or corrupted food, I conceive that some of the cases above related must be accounted for on a similar principle, though the cause and nature of the vitiation is not so apparent. In the case which is the principal subject of this article no manifest debilitation of either the vital or moving powers occurred till after the appearance of

the hæmorrhage and purple spots: even on Tuesday the appetite was good and the pulse natural; when the effusion of the dissolved blood beneath the skin made the most frightful show. Further, the debility, when it had begun, went on augmenting, nor was its progress stopped by food or medicine, of which she took scarcely any; yet in this very low condition the hæmorrhage ceased, and a re-absorption of the extravasated blood took place. After it had appeared by these tokens that the blood had in part recovered its healthy state, the symptoms of debility went off with surprising rapidity, and the functions were all presently restored to their natural vigour. It is, I imagine, inconceivable that a person walking about, and performing all the usual actions of life, should at the same time labour under such a debility of the extremities of the sanguiferous vessels, as that they should be incapable of retaining their contents, especially when none of the excretory organs were preternaturally relaxed. On the other hand, we have daily examples of the utmost degree of debility in the animal and vital functions, without any tendency to the extravasation of
8 blood,

blood, or the unusual discharge of any other humour.

Might not the hæmorrhage from the mouth, and extravasations, be considered as *critical* in this case, and the means Nature took to relieve herself from an oppressive and destructive load? Can the speedy recovery be attributed to any thing else but such a natural crisis? Is it not analogous to the eruption of exanthemata? Must a peculiar *acrimony* of the blood be admitted; or can the whole be accounted for on the supposition of mere *rarefaction* accompanying a weak state of the vessels? These are questions, the discussion of which might be useful and important, but which the proper limits of this paper, and probably the plan and intentions of the Society, will not admit my entering upon.

JOHN AIKIN, M. D. C. M. S.

Yarmouth, August 29, 1789.

ARTICLE XXI.

Case of Aneurism, with the Dissection.

IN A LETTER TO J. C. LETTSOM, M.D. &c.
FROM W. LUXMORE, OF UXBRIDGE,
SURGEON, AND C.M.S.

Read NOVEMBER, 3, 1789.

WILLIAM HOGG, aged about fifty-two, of a muscular habit, from the day being fine in April, 1788, threw off a winter's garment, and sat under a tree, as frequently was his custom, to amuse himself in reading; very soon after he was attacked with a severe pain on the anterior and middle part of the right thigh; but having always enjoyed uninterrupted health, disregarded it for two or three months. When the pain increasing and extending

tending to the hip, down the spermatic process to the testicle of that side, with frequent sudden and acute paroxysms, attended with the sensation of intense heat *like burning*, and his nights becoming very restless, he applied for medical assistance; when bleeding (for the attack on the testicle) and various anti-rheumatic medicines, together with opiates, and the warm bath at nights, seemed at first to relieve his complaints; but these failing to produce any permanent effect, the cold bath was tried to as little purpose; a blister-plaister was then applied to the thigh, which afforded some ease, but only for a short duration.

About the latter end of October the pains became more severe, and though he was tolerably easy with the aid of opium, whilst warm in bed, yet the moment his thigh was exposed to the air, the pains were excruciating.

About November they began to extend across the loins to the other hip, down the thigh and edges of both tibiæ, with the same sensations of heat and burning: during the continuance of the pains the parts affected were exquisitely sensible to the touch, as well as to the external air; but the moment

the pains ceased, those sensations ceased likewise. The extractum cicutæ was now given by the direction of a very eminent physician, in pretty large doses, and a very large and strong blister applied to the loins, which was kept open as long as possible, and seemed to procure a considerable mitigation of every symptom: after the blister healed, the cicuta was continued, and increased to a drachm thrice a day, during the continuance of the severe frost, when he felt very little pain or inconvenience; but the frost going off, every complaint recurred with redoubled violence, and the pains and burning sensation now extended to the back part of his thighs and legs, and neither the cicuta, warm bath, or opium, afforded relief. In this deplorable situation, and anxious to be relieved at any rate from this excruciating malady, in March, 1789, he applied to a *certain Urine-Doctor*; but finding every complaint aggravated, after about a fortnight's trial of his medicines, he desisted; and was then directed, by the same eminent physician before mentioned, to other anti-rheumatic medicines, and a repetition of the blister on his loins, which the patient imagined

gined had before relieved him: this was made perpetual, and kept open as long as possible; and, when it ceased to discharge, mercurial frictions were used on the parts affected, and the doses of opiates continually increased, with laxatives interposed.

During the whole period of his illness, prior to his application to the *Urine-Doctor*, he regularly attended his avocation (which was that of kitchen-gardener to a noble Duke, no less conspicuous for humanity, benevolence, and other virtues, than his exalted station); had been free from any feverish symptoms, his appetite moderate (for he was a very regular, temperate man, and much disposed to contemplation), and excretions natural, without the least appearance of disease in any of the viscera; but from that period his pulse became greatly accelerated, and full, with constant thirst, attended with a very painful dysuria, and his pains and other sensations excruciating: for several days after the apothecary had renewed his attendance, the patient had omitted to acquaint him that this dysuria had occurred during the course of medicines he had lately been under from the *Urine-Doctor*, and he was

greatly surpris'd that the lact. amygd. with strong solutions of gum Arabic, assisted with emollient injections and fomentations, proved ineffectual to relieve it, and that an ischuria vesicalis was at hand; finding the feverishness increasing, he was bled to about ten ounces, and laxative, nitrous, oleaginous, saline medicines freely exhibited, with fomentations, and repeated injections with laudanum; but these proving abortive, stronger diuretics were administered, by which a small quantity of urine was evacuated; but the ischuria returning, the bladder was emptied with the catheter, which passed with great facility; and, as no water would now pass without it, the operation was repeated four or five successive days, when an evident relaxation of the sphincter vesicæ succeeded from the quantity of urine that incessantly and insensibly ran off in twenty-four hours; then the ischuria, attended with great pain, recurred for twenty-four hours, when about three pints of very deep-coloured offensive urine were drawn off.— An œdematous swelling of the abdomen, thighs, legs, feet, and right testis, now succeeded, notwithstanding there was a constant

stant *unremitting* discharge of natural-coloured urine, of which he was insensible; and, whenever he was first raised to a sitting posture, it would *fly* from him in full stream. The swellings soon totally subsided, with an entire loss of motion in the lower extremities, and a considerable atrophy of the right; the urinary flux still continued, as did likewise the quickness of pulse and thirst.

The sensations he now felt, were—Whenever he sat, as if on bladders of water, *which occasion a constant rolling*; his feelings, either on pressure, moving, or handling the lower extremities, exquisitely painful; but a total inability of motion, at times great pains, and the sensation of great heat in the spermatic processes and penis, and in the latter an insensibility to the passage of the urine through the urethra; the loins, hips, thighs, legs, and feet affected with the most excruciating pains and intense burning sensations, though at the same time these parts were perfectly cool, the patient expressing them, *as if roasting before a very strong fire*.

A copious red eruption now appeared on the thighs and legs, which did not however
alleviate

alleviate his sufferings; the hæmorrhoidal vessels discharged freely several days, an evacuation he had never before experienced. As nothing hitherto seemed to be attended with the least permanent success (for laxatives afforded only temporary relief), tinct. opii $\mathfrak{z}\text{ij}$ was directed to be taken every six hours, with ten grains of calomel every other night, and a laxative every other morning. This course was persisted in about nine days, when the calomel was discontinued, and very liberal doses of the decoct. cort. cum extr. & tinct. exhibited in the intervals of the opiates; but as the pains and other complaints appeared now to be rather aggravated by the opiates, they were entirely omitted, and the extractum cicutæ, joined to the cortex, increased to fifty grains every six hours, without producing the least sensible effect.

The discharge of urine having continued in this incessant state for five weeks, at this time (*about a month before his death*) became quite ropy, and a surprising quantity of mucus was voided with it, in the same insensible manner, so intimately mixed as to be almost inseparable, to the amount at least
of

of sixteen ounces in twenty-four hours, and of a most offensive smell; and the state of his pulse, after this last appearance in the urine, was from one hundred and ten to one hundred and forty.

Appearances after Death, and on opening the Body, about 18 Hours after he expired, June 17th, 1789.

ON viewing the body, as there was a livid appearance on the course of the ureters, we expected to have found the chief morbid affection in them, as well as the kidneys and urinary bladder, especially as the attendant symptoms had strongly indicated a great affection of those parts; but on opening the abdomen, and minutely examining its contents, we discovered, that the aorta descends formed its *bifurcation* unusually high above the kidneys; about two inches below this bifurcation on the right side, and immediately over the kidney, a considerable tumor presented itself, whose external and inferior part had the appearance of suppuration,

tion, but the superior and interior, towards the spine, the colour of the artery in its natural state; the whole evidently within its external coat; the kidney, which was not more than half its natural size, and very little diseased, was pushed by this tumor considerably from its situation, nearer the ribs; and, on separating this tumor, it was found to consist of a white *pulpy* substance, tending to ossification, and the arterial tube almost obliterated.—It extended about four inches, and weighed at least three ounces; below this the iliac artery appeared perfect; the transverse processes of the spine, and that part of the spine itself contiguous to the tumor, were quite carious, and two or three of the processes entirely dissolved; the ureters were rather enlarged, but without any other morbid appearance; the bladder was contracted and quite empty; the stomach and intestines were replete with flatus, but firm and elastic; the liver of its natural size and colour; and the gall bladder moderately full; the spleen, pancreas, peritonæum, and mesentery, in their natural state; but the omentum had a slight morbid appearance.

Upon

Upon the whole then it was obvious that the *Aneurismatic* tumor above described was the undoubted cause of the patient's death; and readily accounts for the pain which originated in the thigh, as well as the atrophy of the right extremity, and the relief he always felt (as the colon lay immediately on the tumor) from the operation of laxatives, when succeeded by copious evacuations, there being no diseased appearance in the thigh where the pain commenced.

ARTICLE XXII.

Two Cases of Hydrocephalus.

BY MR. THOMAS JAMESON, SURGEON IN
BLOOMSBURY, AND F. M. S.

Read APRIL 15, 1790.

CHARLES HARRIS, aged about one year and a half, had a fair complexion, well-proportioned shape, and no bad health, until the end of September, 1789, at which time he was seized with a swelling of the right ear, and an eruption, with a ferous discharge behind it. After bathing it, and taking two mercurial purges, the humidity gradually decreased, with an abatement of the tumefaction until it healed.

On the 9th of November following I
found

found him seized with a quick pulse, though his appetite was good, and costive habit, which were soon after succeeded by vomiting, blindness, stupor, sleep, a convulsive motion of the right leg, and many other symptoms of oppressed brain. He was treated with blisters, laxatives, mercurials, leeches, and, as an incisor tooth was distending the gums, they were lanced; but all without success, for he died on the 31st of November, which was just three weeks from the time of his having been taken ill of the acute disease.

Catherine Harris, sister to the above, aged eight years and nine months, of a fair complexion, with white hair; the occiput larger than usual, and therefore over-proportioned to the os frontis; but the futures of the head and bregma were ossified and close; was remarked to have had a very large head when an infant, which was also a long time before it closed. She had no other scrophulous, or ricketty appearances, but enjoyed a good state of health, until she was four years old, when she was attacked with a sore mouth and violent fever; but from which she recovered in less than a month, and remained very well until the 1st day of
last

last December, the time at which I began to attend her.

She complained of swelling and heat in her feet and legs, succeeded by the same sensation of heat in her back, and afterwards by a foreness of the mouth and throat; and then a swelling of her lips, with foreness and tumefaction of the whole mouth, both externally and internally. As an agreeable application I ordered the mel rosæ to be used to the mouth, and internally, a purge.

These symptoms disappeared in less than three weeks, but were immediately followed by others of a more serious nature, which shall now be related, in part from memory, because the disease began like a fever, and I did not make minutes till several days were elapsed.

On the 22d of December she complained of pain in the front and back part of the head, a weakness of the eyes, and had a frequent small pulse, and flushing of the face. A purging draught, with calomel, was given her, and afterwards a saline mixture.

23d, The pulse was quick, the skin hot, and the head affected with pain and heaviness.

ness.—The saline mixture, with antimonial wine, was repeated.

24, The pain of the head was very violent, she was constantly retching, and unable to retain any solids or liquids on the stomach; on which account she took an emetic, and a cordial absorbent mixture after it.

25, The vomiting continued, but not so frequent as before she took the emetic; she began to shew some degree of strabismus, which afterwards increased.

26th, She had a very severe pain of the head, with a constant propensity to put her hand to the back part of it; her eyes were weak and drowsy, and she slept very much.

As she had been costive since the purge, a laxative glyster was administered, and two leeches were applied to the temples.

27th, The pupils of the eyes were much dilated, and both drawn inwards to the nose, with great insensibility to the light of a candle.—Three grains of calomel were given her in a little absorbent powder.

28th, A physician visited her, who ordered a purge, with calomel, and a julep of
Vol. III. E. e chalk

chalk to abate her retching; which last was continued until.

The 1st of January, 1790, when she became totally blind, with both pupils dilated to the greatest degree; she was costive, constantly scratching her forehead under the hair, and her vomitings became less frequent.

A blister was applied to the back of the neck, and kept open; a grain of calomel, with three grains of magnesia, were given three times a day; also a drachm of mercurial ointment was rubbed on the legs and thighs night and morning, and repeated daily.

3d, The pulse continued frequent, with all the other symptoms increasing, except the vomiting, which had stopped; she was constantly picking her nose, and had a spitting of blood.—She was bled at the arm to near six ounces, and the mercurial powders, with the ointment, were continued.

4th, The spitting of blood increased; the blood drawn was not fizy, but was rather of a slender texture.

5th, She had a continued delirium, with blindness, and a soreness of the throat; the
spitting

spitting of blood, which at first was very alarming, now abated; and seemed to proceed from the mucous membrane of the nose. She had a continued convulsive motion of the right hand; her mouth and throat were a little sore, apparently from the mercury, but by no means in proportion to what might have been expected from the quantity exhibited.

6th, A large vein, and the integuments which run across the nose to the orbits of the eyes were so swelled as to disfigure her face; her costiveness continued throughout the greatest part of the disease, notwithstanding her mercurials and laxatives; her urine, during the time it could be procured for inspection, was generally turbid, whitish, and deposited a mucous sediment. The former remedies were persevered in, and another blister was applied between the shoulders.

8th, Most of the symptoms were increasing, attended with a parched fore mouth, and brown tongue, but with very little ptyalism. She now recovered her eye-sight, but attended with so much bodily weakness and other symptoms as announced a speedy dis-

solution.—The mercurials were now laid aside.

9th, She recovered from her delirium, knew her friends, and was heard frequently to say her prayers: she had a very quick pulse, and

On the morning of the 10th she died.

ON DISSECTION

Of the last patient, there appeared an enlargement and turgidity of the vessels of the pia mater; the two lateral ventricles of the brain were also enlarged, with about two ounces of water found in each; and the other ventricles likewise contained some water.

It is worthy of observation, in this last patient, the difficulty that occurred of producing a salivation, for she had used a great deal of mercury during the space of ten days; also the cessation of the symptoms before her death.

It is likewise to be remarked, that the acute Hydrocephalus was preceded by a swelling of the ear, with a discharge around
it,

it, in one patient, and of the mouth in the other. The symptoms throughout were nearly similar, and in the same succession, in both. It is also singular, the latter child of the same family being taken ill immediately on the death of the former; and both diseases being terminated in three weeks to a day.

ARTICLE XXII.

Experiments made on the Laryngeal and Recurrent Branches of the eighth Pair of Nerves, with a View to determine the Effects of the Division of those Nerves on the Voice.

BY J. HAIGHTON.

Read MAY 24, 1790.

NOTWITHSTANDING the subject of this paper has engaged the attention of physiologists from the earliest periods to the present time, a contrariety of opinions still prevails. This may possibly excite our astonishment, when we consider that the subject is not of very difficult investigation, requiring for its accomplishment very little more than an unprejudiced mind, and a hand accustomed to dissection.

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The anatomists of the present time, however, are by no means agreed whether the recurrent branches of the eighth pair of nerves ought alone to be considered as the vocal nerves; or whether the laryngeal branches of the same pair do not likewise claim a considerable share of that office. The advocates for each opinion appeal to experiments.

Besides bearing my own testimony on the occasion, and endeavouring to prove by a series of experiments, made in rather a public manner, that the recurrent branches are the true vocal nerves; I shall likewise endeavour to establish as a fact, what hitherto has been generally denied, viz. that the voice, when taken away by the division of nerves, may again be restored.

But before I request your attention to the experiments on which I rest my opinion, I must first beg your indulgence while I lay before you the state of the present inquiry.

In this paper then there are two questions involved:

First, Are the recurrent branches of the par vagum the true vocal nerves? and

Secondly, Does the voice, when taken away

by a division of the vocal nerves, again return?

The most early accounts of this subject with which anatomical history presents us, at least such as merit our attention, are to be found in the writings of Galen. Indeed before his time this had been a subject of inquiry with philosophers, which, from the uncultivated state of anatomy, had never been investigated with much success. Their ideas were such as might be expected from people toiling in the infancy of a science in pursuit of discoveries; and wandering about in the regions of darkness in hopes of finding a glimpse of light to guide their future steps. They imagined that the carotid arteries were subservient to the voice, and rested that opinion on an experiment, which, on a superficial view, appeared decisive. They made a ligature upon both carotid arteries, and observed that the animal became instantly mute. But anatomists were not long under this delusion; for the remarkable effects produced by this experiment soon awakened their curiosity; and, upon examining with more attention the parts contained
within

within the ligatures, they found that the large nerves, now called *par vagum*, passed between the artery and vein, and were included in them.

Before this time experiments had been instituted to prove that the nerves formed the communication between the brain and the different organs; and that they were subservient, though in different respects, both to sense and motion. Hence the former experiments were diversified, sometimes by making ligatures upon the arteries alone, at others on the nerves; and it appeared that the effects formerly attributed to ligatures on the arteries were only referable to the same experiments on the nerves.

Ruffus, of Ephesus, had the merit of detecting this fallacy, and likewise first of discovering that those nerves, now known by the name of the *recurrents*, were branches of the *par vagum*, and were distributed to the larynx: no mention however is made of his experiments on these branches, but only on the trunk of the *par vagum* itself.

Notwithstanding the assertion of Ruffus, Galen claims the discovery himself. He does not admit that his predecessors had any
knowledge

knowledge of the recurrent branches; but only of the principal trunks: and from the idea which he had formed of their function, he called them the vocal nerves. On which occasion he thus expresses himself: “*Vocare*
 “*vocales nervos confuevi eos, quos ipse in-*
 “*veni; nam preceptores mei eos duntaxat*
 “*qui apud arterias sunt, cognoscebant.*”

But he afterwards adds, that the same changes are induced upon the larynx, whether these vocal nerves are immediately affected, or the trunks which run by the side of the carotid arteries. “*Atque idem est*
 “*modus quo gutturis musculi læduntur,*
 “*sive recurrentes nervi, sive hi qui juxta*
 “*arterias sunt, vitientur.—vel incisi, vel la-*
 “*queo intercepti.*” And in another place, speaking in allusion to the experiments of his predecessors, he observes, that, in consequence of tying the nerves accompanying the carotid arteries, an animal loses its voice, and not from any pressure on the arteries alone.

He confirms this doctrine by observations on the human subject. He relates an instance of a boy who had a scrophulous tumour extirpated from the side of the neck
 by

by an inexperienced surgeon, in which half the force of the voice was lost; also another instance still more remarkable, in which both these nerves were cut through, in attempting to extirpate scrophulous tumours, and in which the voice was entirely lost.

The above experiments have been repeated by several anatomists since the time of Galen.

Mündinus, who flourished in the fourteenth century, said: “If the recurrent nerves of the larynx be cut through, the animal immediately loses its voice.”

Vesalius has given a description of these nerves, and affirms, that a division of them is attended with a loss of voice. This observation merits particular attention, for Vesalius seems to have been a determined opposer of Galen’s doctrines in general, though in this instance he agrees with him; from which we may reasonably conclude, that he had very satisfactory proofs of this matter before he acknowledged its truth. But to place this beyond doubt I shall cite his own expression. Says he, “Pulchrè auditur, quàm validam efflationem animal citra

“*vocem moliatur, recurrentibus nervis cul-
tello divisis.*”

The same thing has been very much insisted upon by Muralto, who has prosecuted this subject. He asserts, that, notwithstanding it has been very much doubted by some anatomists, yet from experiments he is convinced, that the division of these nerves deprives an animal of its voice.

Among the writers of more recent date, Dr. Martin, of St. Andrew's, has pursued the inquiry, and has published a sensible paper upon this subject in the second volume of the Medical Essays of Edinburgh. He bears his testimony in favour of the doctrine of former experimenters, by his own observations: he divided these nerves in a sucking pig of about five weeks old, and found, that when one of them only was divided, the pig lost half his voice, or, as he expresses himself, “it became considerably weaker;” but upon cutting the other, it was entirely lost; though, by the sound of the breath, and the motion of the thorax, it was evident that an attempt was made to produce sounds.

This experiment has been repeated at Pa-
ris

ris by *Monf. Siie*, who affirms, that the division of recurrent nerves occasions an entire loss of voice.

In the *Leipfic Commentaries* for the year 1755, an analysis of a very ingenious essay is given of the effects of ligatures upon nerves, in which the author* had observed, that making ligatures on the *par vagum* produced aponia: “*Convulfus, nullum amplius, licet tentaret, edidit clamorem.*”

But, notwithstanding this perfect agreement of the above writers, their assertions have been positively contradicted by others.

Drelincourt, who wrote about the year 1680, maintains the contrary: he declares that a dog, upon which he made this experiment, barked afterwards whenever he was ill-treated.

The late professor *Monro*, reasoning perhaps from the anatomy of parts, and from the nerves which supply the larynx, is inclined to believe that a division of the recurrent nerves will not occasion an entire loss of voice, so long as the superior, or laryngeal branches of the *par vagum* remain entire.

* *Joannes Henricus A. Brunn.*—*Gottingæ*, 1753.

But an eminent teacher of anatomy goes further in this matter. I remember, when I attended his lectures about eleven years ago, he affirmed that he had determined this matter by experiment: upon dividing the recurrent nerves of a dog, his voice was not lost, but only diminished; and that a division of the superior, or laryngeal, branches became necessary to produce a perfect aphonia; and at the same time observed, that Galen and others had erred exceedingly in maintaining a contrary doctrine.

When a contrariety of opinions prevails on any subject demonstrable by experiment, and when these opinions are supported by men of the first professional character on the ground of actual experiment, I must confess my own expectations of clearing up this point are not very sanguine.

Every one who has been much engaged in experimental inquiry will acknowledge the necessity of a frequent repetition of experiment, because various causes, of which the experimentalist had no conception, will contribute to influence the result, and render the conclusions doubtful and uncertain.

The doctrines of the above writers, at
least

least so far as related to this inquiry, are for the most part founded on solitary experiments; and every one who has frequently operated on living subjects must have observed, that, when working upon minuter parts, where the animal has been particularly irritable or unsteady, or where much blood has been effused, that there has been much uncertainty in the business, with a great tendency to deception; and in many instances it has been found, on examining the parts after death, that the experiment had been conducted contrary to intention. If this be granted, it will be sufficient to shew the necessity of repeating, and even of diversifying, experiments before they can admit of certain and determined conclusions.

The only end I had in view in prosecuting this subject was the investigation of truth; and having no preconceived notions, I could pursue the inquiry without apprehending any thing from the misguidance of prejudice. My first attempt was to ascertain the effects of a division of both the recurrent nerves.

EXPERIMENT I.

A longitudinal incision being made on the fore part of the neck of a dog, and the sterno-hyoidei and sterno-thyroidei muscles being separated from the trachea, the recurrent nerves, which, in the lower part of the neck of a dog run on the anterior and lateral parts of the trachea closely adhering to it, came into view. I divided them carefully with a lancet; and soon after, upon stimulating him, he could make no other kind of noise but that of a loud breathing. He was now remanded to his former state of confinement, where he had heretofore expressed great impatience by howling; but, though he frequently made attempts, yet he could never exceed a wheezing kind of noise.

That no doubt might remain in my mind concerning the result of the experiment, I determined to rest the matter on another test; therefore the next day, having laid bare the crural nerve, and irritated it several times with the point of a lancet, at last I cut it through. As I had always observed, that the division of this, or the sciatic nerve,
in

in common with other nerves going to voluntary parts, extorted howling; this appeared to afford us a very fair test of the presence of voice: but, though he expressed pain by struggling and breathing loudly, he never discovered any remains of voice.

EXPERIMENT II.

Wishing to repeat the last experiment with some diversification, I divided the trunks of the par vagum themselves, instead of the recurrent branches.—The division was made about the middle of the neck, and of course some distance below the part where the laryngeal branches are sent off. In this instance also, as well as the former, the voice was entirely lost.

Having occasion to divide the par vagum in two other dogs, for a different purpose, I took the opportunity of examining the state of the voice, and the result in these cases corresponded very exactly with my former experiments.

Conceiving that I had now sufficiently ascertained the loss of voice from the division of the recurrent nerves, and also from the

trunks of the par vagum from whence they originate, I wished to know what changes would ensue from a division of only one of them.

EXPERIMENT III.

I divided one of the trunks of the par vagum about the middle of the neck, as in the former experiments, and found, upon putting his voice to the usual tests, that it still existed, but considerably weaker than natural. At first I thought he was somewhat hoarse; but, in a few days from the experiment, it approached to the natural pitch, but considerably fainter than before.

Being now satisfied concerning the effects of dividing the recurrent nerves, or the par vagum, about the middle of the neck, I wished to ascertain the consequences of cutting through the laryngeal branches of the par vagum, as some anatomists have imagined it contributed very much to the formation of the voice.

EXPERIMENT IV.

Another dog being procured, and a longitudinal incision made on the anterior and superior part of the neck, I exposed the upper part of the sterno-hyoideus muscle, and separated it from its attachment to the os hyoides, by which means, and by a little careful dissection, this nerve came into view. After making it distinct, and disengaging it somewhat from the surrounding parts, I cut it through as near to the par vagum as I possibly could. The same operation was performed on the opposite side. Upon examining the effect of this experiment on the voice, it was several notes flatter, though not much altered in its strength, and continued nearly in the same state.

That I might not be deceived in this experiment, I examined the parts carefully after death, and found the nerves had been divided agreeably to my intention.

From hence it appears that the recurrent branches of the par vagum supply parts which are essentially necessary to the formation of the voice; whilst the laryngeal

branches of it seem only to affect its modulation or tone.

As the experiments already related sufficiently evince the facility of destroying the voice of an animal, it remained to determine whether the voice, when once taken away by the division of nerves, ever returned.

EXPERIMENT V.

I divided the other trunk of the par vagum of the same dog which had been the subject of the third experiment, at the distance of six weeks from the division of the first. This occasioned a total loss of voice; and he continued entirely mute for about a fortnight. About this time I thought his voice was beginning to return, which really happened in a few days afterwards; but the pitch of it was sharpened almost an octave. In this state it has remained about ten months without any evident change since it first returned, except in its strength, which is increased.

This last circumstance of the recovery of the voice may perhaps deserve some attention when we consider how universally this
position

position has been denied. I have not been able to find in physiological writings any instance of it; but there are several experiments related, where the loss of voice was permanent. In Dr. Martin's paper published in the Medical Essays of Edinburgh, he observes, that he kept a young pig seven or eight weeks after its voice had been taken away by a division of the nerves, without perceiving any symptoms of its return.

Monf. Siie confirms the assertion of Dr. Martin by experiments made on two dogs, which he kept several months afterwards; but in neither of them did he perceive any thing of returning voice.

Notwithstanding the recovery of the voice is so generally denied, anatomists in every age have been very well aware of the communication of the recurrent nerves with the laryngeal. This communication was known to Galen, who even formed an opinion from it, that the voice ought to return some time after it had been lost by experiment; but he has not been able to produce one instance where it really happened. Other anatomists since Galen have adopted his opinion, but without any support from facts.

My last experiment establishes this point beyond doubt; and the dog which was the subject of it being at this time alive, may be seen by any who may still doubt.

Though the fact be established, I confess I had many doubts respecting the mode in which this was effected. Anatomists contended, if the voice ever returned, after having been destroyed by the division of the recurrenents, it must be by means of the laryngeal branches.

I was very much inclined to question this, from observing what happened when one of the nerves of the par vagum was divided a considerable distance of time from the other; by which the nerve first divided united, and was able to perform its office before the second was cut through: whereas, when both were divided at the same time, or at an interval of only a few days, the animal always died. In the fifth experiment six weeks intervened from the division of the first and second nerve, a space of time sufficient for union perfect enough for the performance of its function.

But this point can be reduced to absolute certainty by experiment: if the laryngeal branches be divided in an animal which has recovered

its

its voice after a division of the recurrens or par vagum, the result will furnish us with a decisive answer : if the voice still remains, it is evident that it has been restored by the union of the nerves ; if, on the contrary, it be again taken away, it is equally certain that it had been recovered by the communicating laryngeal branches.

I intended to have submitted this matter to an experiment, and had actually proceeded some way in the performance of it, but having had occasion, in a former experiment upon the same animal, to make a ligature upon the trunks of the jugular veins, the collateral venous branches, by which the blood had been returned from the head, were become so much enlarged as to obstruct the operation ; I found it necessary to secure such of them as were opened, and to suspend my design of completing this inquiry until a more favourable opportunity shall present itself.

As the physiology of the larynx will admit of much speculation, I shall beg leave to consider the matter in another paper, *in which I shall bring forward some conjectures on the formation and modulation of the voice,*

ARTICLE XXIII.

*Case of a Wound of the Thorax; with some
Remarks.*

BY W. NORRIS, SURGEON TO THE CHAR-
TER-HOUSE AND GENERAL DISPENSARY,
LONDON; AND F. M. S.

Read OCTOBER, 12, 1789.

THE parts contained within the thorax being so immediately necessary to life, Nature, consistent with the wisdom displayed in all her works, has enclosed them in a case of bone.

The spine, the sternum, and the ribs, considering the degree of motion in these parts which respiration requires, are wonderfully well adapted to the defence of the
contained

contained viscera against external injuries. Instances of wounds, therefore, which penetrate the cavity of the thorax are much less frequent than those of any other part of our frame, in proportion to the extent of surface. And, as such wounds are always hazardous, I thought the relation of the following case might merit the attention of the Society.

On Thursday the 10th of January, 1788, about eight o'clock in the evening, Thomas Johnson, aged 31 years, going down King-street, was run against by a bricklayer, who had his trowel carelessly sticking out from under his arm. Though he was immediately sensible of something having pricked him, yet he felt very little pain; but being soon alarmed by the discharge of a considerable quantity of blood, he came running to my house. Near a quarter of an hour passed before I saw him, as I was not at home; he was then sitting breathing quick, and keeping his body bent to the right side. On examination I discovered a wound about a quarter of an inch below and behind the nipple of the right breast, which extended an inch and seven-eighths in a direction downwards and forwards. This wound, which

NOW

now bled very little, was completely filled by a portion of the lungs, which protruded as far as the skin, and appeared to be unhurt, as neither blood nor air was observed to escape from it. As the man lived at a very small distance, I had him immediately conveyed home in a chair, where Mr. Andree, the anatomist, saw the wound, &c. in the state which I have just described. Having returned the prolapsed portion of lungs, in order to effectually disengage it from the wound, I carried my finger quite round on the inside, and every where felt the lungs distended. I then brought the lips of the wound together by a suture through the integuments, and applied a superficial pledget. Mr. Vaux and Mr. Ashwell now saw the patient with me, and we immediately took away twelve ounces of blood, and ordered an anodyne; as the man had a diarrhœa at the time, it was unnecessary to give him any purgative medicine. The most rigid abstinence was enjoined, and barley water was ordered for his common drink. Should a cough, difficulty of breathing, or any other urgent symptom occur during the night, his attendants were desired to give me

me notice of it; and accordingly I was called to him at three o'clock in the morning. At this time his breathing was laborious and short, but not attended with much pain. Twelve ounces of blood were immediately taken away, which became very fizy, and he was much relieved.

At nine o'clock on Friday morning we found him with a full hard pulse, beating about 100 times in a minute; and, as our great object was to allay or prevent inflammation of the lungs, we bled him again to the quantity of ten ounces.

As it would be both tedious and uninteresting to relate the symptoms at the different times at which I saw him each day, I shall content myself with observing, that from the fulness of his pulse, and the difficulty in respiration, which bleeding always removed, it was judged necessary to repeat that operation four times in the course of this and the two following days, during which time the pulse varied in quickness, never beating more than 125, nor fewer than 110 times in a minute.

The wound looked well, and discharged very little. The patient during the above period

period had no acute pain, though troubled with a short, frequent cough, which he had had in a small degree before the accident; he only complained of an uncomfortable tightness about the wound inwardly, and of this only when he coughed. He lay easiest on the right side; but when tired of one posture, he could, without much pain or fatigue, turn quite round; and he frequently lay on his back. The choice of posture was left entirely to himself, that he might be sure to have the most easy, which will always be found to be the best. Hitherto the antiphlogistic plan was most rigidly adhered to, the patient during three days and a half not having tasted any thing stronger than barley water, and having in that time lost about seventy ounces of blood.

On Monday morning, the 14th, his pulse was not so frequent, his thirst was abated, his tongue was moist, and respiration free; a little milk was therefore added to his barley water, and weak beef tea directed to be given frequently.

On Tuesday morning we found that he had passed a restless night, his pulse had again become full and quick, his cough was
troublesome,

troublesome, respiration short, and he now complained of a more acute pain in his side than he had before felt. Those symptoms we supposed to indicate an inflammation of the pleura; and ten ounces of blood were instantly taken away, by which he was much relieved. The beef tea was discontinued, and he was only allowed to drink barley water, or toast and water. In the evening he became again worse, and was again bled to the quantity of eight or nine ounces.

He slept well, and on Wednesday morning was much better, but towards night the pain again returning with shortness of breath, it was judged necessary to take away six ounces more blood.

This enabled him to pass the night with ease and rest, and on Thursday morning we found him quite free from pain, his tongue moist, and his breathing free; his pulse was reduced to ninety in a minute, and he desired food, which was accordingly allowed him.

I now removed the future, as the wound seemed to be perfectly healed. In this however I was mistaken, for it soon began to open again, and within two or three days it discharged freely a thin ferous matter;
and

and on removing a compress of soft linen, which was generally kept on the part, I several times distinctly observed a puff of air rushing from the wound. These circumstances, which were sometimes attended with a shortness of breathing, but without pain, I imagine were produced merely by the admission of some air through the wound, by the future being too soon taken away. The patient's appetite was keen, and he was permitted to indulge it; he daily acquired strength, the discharge diminished, the wound healed, and a few weeks residence in the country restored him to perfect health, which he now enjoys.

R E M A R K S.

On the subject of wounds of the thorax, the most celebrated physiologists seem to have fallen into error. Observing that, in the dead body, the pleura being divided, and air thereby admitted into the thorax, the lungs, if there were no adhesions, invariably subsided, they seem to have concluded from thence, that, upon the infliction of a like wound, the same phænomenon would

take place in the *living*. The words of Haller are: “ Si idem vulnus in vivo animale
 “ inflixeris, perinde pulmo collabatur, et
 “ immobilis jacet, et una spiritus ab ani-
 “ male ægrius ducitur, et vox debilitatur,
 “ et perit demum, atque mors ipsa super-
 “ venit, si utramque thoracis caveam aperu-
 “ eris. Sed de ea morte alias rectius quæ-
 “ retur; addimus interim pectoris vulnera,
 “ quibus utraque cavea aperitur, *omnino per-*
 “ *funesta esse*, ex præstantissimorum chirur-
 “ gorum testimonio,” *lib viii. sect. 2.* That
 in the dead body the lungs will collapse on
 the division of the pleura, I very well know;
 but that this will happen in a living animal,
 Nature being left free to assist herself, I do
 not believe*. To determine this matter,
 however, I made the following experi-
 ments:

* My meaning is, that if the wound be kept open so
 that the air can get easy admission to the cavity of the
 thorax, the lungs must necessarily collapse in proportion
 to the quantity of air so admitted; but that, if nature be
 not counteracted by art, the wound will be contracted,
 and the entrance of air prevented by the drawing of the
 ribs together, and the animal bending to the injured side,
 unless the opening be *very large*.

I made

I made an opening into the thorax, at about an equal distance from the sternum and spine, between the eighth and ninth ribs of a sheep. The incision through the pleura was about an inch long, and easily admitted my finger. The animal was then untied, and suffered to go about, which it did without any apparent inconvenience. I very attentively watched its breathing for some time, which did not appear to be in any degree oppressed, nor at all quicker than that of a number of other sheep with which it mixed.

Twenty-four hours after it was killed, and the lips of the wound were found slightly glued together, but easily separable by my finger. The lungs opposite to the wound were inflamed to about twice the breadth of a crown piece, and the thorax contained nearly a pint of water, without any mixture of blood.

The above operation was repeated on another sheep, which being killed the next day, the lungs opposite to the wound were slightly inflamed to the breadth of four or five inches. Not the least inconvenience in breathing had been observed.

The same operation was again repeated, but I could not carry my finger round on the inside as formerly, and I imagined that the pleura was not quite divided; but in attempting to tear it with my nail, I soon found that I had made way into the substance of the lungs.

The sheep was now untied, and did not seem to be much affected by what had been done. The next day it was very languid, did not like to stir, and breathed quick. On the following day it was unable to stand, breathed very quick, and seemed to be dying. It was now killed, and we found an extensive ecchymosis, which covered the whole breast; but, though the lungs were wounded, there was very little emphysema, which I suppose was owing to the cellular membrane being loaded with blood. Upon opening the thorax, the lungs were found universally adherent to the pleura in both cavities, and no force could separate the adhesions; in attempting it the butcher always tore the lungs, which on the wounded side were considerably inflamed. I understand that it is not a very uncommon occurrence in sheep to have the lungs perfectly adherent

throughout to the pleura, which the butchers term being *grown*.

I next opened, in the same manner, *both cavities of the thorax*. The wound on each side was large enough to admit two fingers to pass through the pleura. The sheep continued to breathe with perfect ease and freedom, and seemed to feel no inconvenience for four hours afterwards; when it was killed. When the abdomen was opened, I perceived that the diaphragm was more tense on one side of the thorax than on the other, and by pressing upon this part I could feel the lungs at a little distance from it, which proved that some air had been admitted by the wound on that side.

I think it will from hence appear clearly, that the danger of suffocation from air being admitted between the lungs and pleura, if the wound be of a moderate size, is not much to be dreaded *; and certainly still less
so,

* Bonetus gives an account of a man who received a large wound under the left breast, through which a part of the lungs protruded, three fingers breadth in size.

Having had no chirurgical assistance for two days, the protruded part became mortified, and was afterwards cut
off.

so, if the wound be quickly closed by future or other means. But if, as many have recommended, the wound be kept open by dossils of lint imbued with irritating substances; if canulæ, or syringes, be intro-

off by the surgeon; and, what is very wonderful, he adds,
 “ partem autem hanc lanci impositam vidimus pendere cir-
 “ citer tres uncias.”

“ Huic homini (velut ostendit sectio post sexennium
 “ ipsi adhibita) accreverat duntaxat pulmo in ipsa plaga,
 “ quocirca etiam nihil inde perceperat incommodi præter
 “ levem tussiculam, sed non ita molestam, quin potuerit
 “ cùm illa non tantum quocunque locorum navigare, ve-
 “ rum etiam continenter popinis ac comestationibus inter-
 “ esse, homo dissolutissimæ vitæ.”

Bon. Sepulch. Anat. Obs. xxii. de Vuln.

Hildanus also records the case of a man who was wound-
 ed between the fifth and sixth ribs, near the sternum, and
 a part of the lungs protruded through the wound, drawn
 out, as was imagined, by a turn of the sword, “ jussitque
 “ quamprimum eam lobi pulmonis partem, quæ foras pro-
 “ minebat, priùs benè vino lotam in pectus retrudendam;
 “ sed eam, dum tractaretur leviter, livescere animadver-
 “ tens, amputare fecit ferreo candente instrumento. Reli-
 “ quum verò in pectus benignè retrusit chirurgus, dilatatis
 “ priùs cuneo, ad id ex tempore parato ligneo, costis: de-
 “ inde vulnus ex arte, postea et medici præscripto, cura-
 “ tum fuit,” &c. Hild. Cent. 2, Obs. xxxii.

See Mr. Warner's Cases, 4th edition, p. 196.

duced into the cavity for the purpose of evacuating some supposed extravasated fluids *; or if injections be thrown in with a view of attenuating such fluids, or cleansing the cavity, then certainly all the evils that have been enumerated are justly to be apprehended. Almost the whole of the danger from wounds of the thorax, where the lungs are not injured, seems to arise from inflammation, and its consequences; and it is less surprising that such wounds should have been reckoned extremely dangerous by the most eminent surgeons, than that any patient should have survived the treatment which was advised and generally adopted.

The practice of some was right, though founded on false reasoning; but the greatest number, taking for granted, that in those wounds a quantity of matter must necessarily be formed, acted accordingly.

Fab. ab Aqua pendente, says, “ Quidam
 “ tamen volunt non esse aperta foramina re-
 “ linquenda, sed glutinanda, *ne calor vitalis*
 “ *expiret*, et aer frigidus, ac corrumpens in-
 “ grediatur: mihi tamen probatur ut aper-

* Warner's Cases, p. 172, 173.

“ tum teneatur vulnus ; nec enim tam fa-
“ cile materia per urinam, et os vacuari
“ potest, quemadmodum per foramen vul-
“ neris, è quo statim, via expeditissima, fit
“ totius materiæ vacuatio.”

Lib. II. cap. xxiii.

ARTICLE XXIV.

Cases of Hydrophobia.

BY J. SHADWELL, M.D. C. M. S. OF BRENT-
WOOD.

Read FEBRUARY 21, 1790.

THE numerous remedies which medical annals furnish for the hydrophobia, and the infrequency of success in the cure of it, point out how little dependence is generally to be placed upon medical testimony.

In the recital even of those cases wherein the treatment has been reputed to have overcome the hydrophobia, death has usually ensued, either a few hours after the cessation of that symptom, or, at farthest, upon the following day, which rather indicates that the

the powers of nature were exhausted by the disease, than that a cure was effected by the medicine.

The idea of preventives conveys something too absurd for serious discussion, for, as among ten persons bitten by the same dog, the infection will not probably affect more than one, the celebrity of such medicines or applications hath arisen from the supposition only of averting an evil, which I dare affirm would, even without their aid, have never existed.

Every symptom has more or less varied in the different objects of its fury, but no one more so than that of the madness. To prove this assertion it were an easy task to extend this paper with quotations from tribes of authors; but the learning of the members of this society will readily supply the absence of such references.

In regard to the affection of the mind, a very striking contrast is furnished by the two patients, the subjects of this paper, who came under my observation. During the agony with which the convulsion agitated and writhed the body of the first, his mind retained her faculties almost wholly un-

clouded, and he wished for death, as the sole emancipation from hopeless pain and misery. Sense, during the continuance of each paroxysm, forsook the other; through the first days, except when interrupted for the exhibition of the remedy, or in the paroxysm, he preserved a fullen silence.

Of the dogs which occasioned these calamities I have carefully collected every possible account; deeming all attention to this animal of the utmost importance to the safety of individuals;—of an animal too, who, educated in the bosom of man, is thus unhappily perverted into his most formidable enemy.

Several writers have alledged that, previous to the canine madness, the dog always grows melancholy and fond of solitude; that he rejects first solid food, and that after this progression, the hydrophobia commences. In this concluding and highly infectious state, wherein he is said to exist only thirty hours, he knows not his owner, and indiscriminately attacks all he meets. In general it may perhaps be the case; but in the first instance the dog had the preceding moment eaten bread and milk, his usual breakfast,

breakfast, and turned immediately upon the following unhappy victim of his fury; he next attacked and bit his master, an aged man, both in the hand and leg; upon this he ran to a farmer's about two miles distant, and bit two dogs (both of which have since gone mad), and two children; thence he returned home again, where, after biting a pig and killing a fowl, his further ravages were fortunately prevented.

C A S E I.

On Sunday the 19th day of December, 1790, I went to see Joseph Wyburn, a youth of fifteen years of age, who had been bit in the left hand by the dog just above described. At some distance from the house his shrieks were very distinctly heard. I inquired when they had first perceived him to grow ill, and was informed, that on the Tuesday night preceding he complained of pain in his left ear, which being imagined to be merely a cold, they advised him to go to bed.

Upon Wednesday morning he complained

cf

of the pain extending down his neck to the tonsils. They observed that on this night he seemed melancholy, and rather avoided their company; he drank however some warm beer, and going to bed, slept well.

On Thursday he attended the horses, his usual employment, but appeared, according to their phrase, very comical and odd in his behaviour. In the night he alarmed his master by sudden shrieks; and rushing into his chamber, declared there were thieves in the house, and that there were others endeavouring to steal horses out of the stable; and pointed to lights, which he swore he saw passing to and fro, and described the dresses of the people: this upon inquiry being found to be totally groundless, caused, for the first time, suspicion in his master's mind; but they pacified him, and he returned seemingly contented to his bed.

On Friday morning, upon offering milk, he turned from it with shuddering, and said he could drink tea; this being procured, he rejected it with horror, and began by clinging to the mantle-piece, to writhe his body; from thence he hastily turned round from the air, and, to the astonishment of the spectators,

tators, he ran up stairs as fast as could be conceived, backward, in order to prevent, according to his own words, the air from stifling him. In his chamber he fell into a most violent convulsion, which lasted some minutes; being entirely debilitated by the spasm, he made a few drops of urine, the last evacuation he had, and sunk into a swoon. In this state he was conveyed to his bed, where, being attacked by the spasm, four stout young men with difficulty mastered him: they confined him by sheets formed into broad bandages, leaving the fore arm only at liberty: different kinds of food, liquid and solid, were repeatedly offered; the former was rejected with the utmost horror, though he complained of violent thirst, and seemed pleased with the idea of drinking.

On Saturday all the symptoms were exacerbated, and the master began then to suspect the futility of the sea-bathing, and of the Ormskirk medicine, both which had been tried upon himself and the boy, under the strongest assurance of perfect safety. I shall omit any farther detail of the vain attempts by the
master

master and his friends, to force sustenance down, until the Sunday evening when I first saw him.

Fancy cannot paint a more distressing scene.—He lay writhing his body into every posture which his confinement permitted; but which the violence of the spasms and convulsions in a great measure subdued. The pupils most amazingly dilated; the nails of the toes and fingers perfectly bleached; the saliva streaming from each side of the mouth; and every muscle in a state of great rigidity! The mournful silence of the family was every instant interrupted by his shrieks; his pulse was extremely low, and the skin cold to the touch; yet he complained of burning oppression and lancinating pains, as if of pins and needles, about the region of the stomach. I requested him to shew me his tongue; after several efforts, which evidently caused pain, I obtained a transient glimpse of it—Nothing particular appeared but a lead coloured stripe running along the middle of it.

Although from the duration of the attack I had no hopes, I resolved however to try the mode of cure described in the second
volume

volume of our Memoirs. Oil was procured with the utmost speed, and I had him immediately anointed from head to foot; I then directed some oil to be presented to him in a wine glass; the sight of it produced convulsions. I afterwards had it put into a mug, and, with the assistance of three men, endeavoured to force some down his throat; this effort augmented all his sufferings, and with tears and cries he entreated us to desist. As previous to his misfortune he had known me, I reasoned with him, and begged of him to try; he consented, but upon the oil being cautiously and gently advanced towards him, he wept bitterly, turned his head away from it, and declared his desire rather to die than to attempt any further endeavours at drinking. After repeating the unction again, I quitted him late at night, leaving directions to the attendants to rub him repeatedly all over, and, if possible, to get down some oil.

Early on Monday morning I visited him. They had anointed him three times in the night; but the attempts to make him swallow proved futile, and only made him outrageous, for upon seeing me he declared he
would

would bite and spit at the person who endeavoured to force it down. He complained to me of great stoppage in his throat, and load at his stomach, and said he could vomit if carried into the air. On the opening of the window he fell into convulsions; the rigidity of the muscles was the sole alteration I could perceive. Finding by the total want of pulse, and the lividness of his skin, &c. that death was advancing with rapid strides, I agreed to desist, but Doctor Sims, who was then on a visit to me, and accompanied me to see him, proposed enemmas of oil and fat mutton broth; this intention was only once effected with the utmost difficulty; and after some violent paroxysms, the saliva streaming more copiously than ever from one side only of his mouth, he quietly expired that night at half past eleven o'clock.

During the whole disorder he had no priapism; he scarcely ever lost his memory or recollection; for a moment he sometimes raved about dogs, declaring he would kill them; but he knew the by-standers, and being questioned, repeated their names, and pointed to each. I sent to his father for
permission

permission to open his body, but ignorance and prejudice refused this satisfaction.

The wound on this boy's hand never tumefied; nor appeared inflamed; he said it felt rather sore.

From the Saturday until the fatal evening of his dissolution he never swallowed any thing; but he retained his sight, notwithstanding the pupils of his eyes were so vastly dilated.

I mentioned a pig being bitten by this dog in the ear, which made it bleed copiously. Nine days from the time of its receiving the wound, it alarmed the people by displaying unusual agility: it repeatedly sprang off the ground to the incredible height of a dozen feet, as they said, and afterwards, bending its fore legs underneath its belly, it stretched out its neck, which it rubbed strongly against the ground by forcing itself along the yard with its hinder legs. In that attitude they killed it.

From this case, which in some symptoms disagrees with others I have perused, but accords in its tragic catastrophe, I have the pleasure to turn the attention of the Society to the recital of another, which in its conclusion, I believe, almost original.

C A S E II.

John Cumbers, a drover, aged twenty-two, was, on Saturday the 18th December, 1790, bit by his own dog between the thumb and the index of the left hand. He continued well until the Monday week following, when his appetite was observed to decline; and he became low-spirited and melancholy, sighed frequently, and complained of failure in his sight.

Wednesday the 29th he complained of violent pain in his head; that evening he was seen standing in the street as if rooted to the ground, for a quarter of an hour, his eyes being motionless, and their pupils greatly enlarged. The person who first observed him, endeavoured to rouse him from what he supposed a trance, by feigning to strike his face with a small stick, which he advanced close to his eyes, but without any effect. His sister entreated him to return home; without replying he rushed violently into his house, seized his mother, and bit her head; her outcries alarmed the neighbours, and several men ran to her assistance,
some

some of whom he bit, but who with difficulty overpowered him, and kept him in his bed. That night Mr. Weld, an ingenious surgeon at Romford, was called in, who found him raving without an interval of reason. The straight waistcoat was judged necessary. Towards morning he became calm.

On Thursday he was very melancholy; his eyes were fixed, and the pupils much dilated. About seven o'clock in the evening the convulsive paroxysm recurred, and continued an hour; but he passed that night more composed.

On Friday morning early I saw him; there was then a peculiar rigidity observable, particularly about the muscles of the lower jaw; he rejected liquids and solids with horror, and was visibly affected by the cold air. Upon inquiring what treatment had been adopted, I found the mother had procured some trivial herbs, ground-ivy, &c. recommended by her acquaintance; the infusion made from them she had been unable to get him to bear the sight of. I proposed to Mr. Weld the treatment I had endeavoured to adopt in the case of Wyburn.

Oil was directly sent for, and, putting it into a pewter tea-pot, I desired it to be administered. He struggled furiously, and bit off the spout: he was then anointed from head to foot. The next trial for the internal exhibition of the oil proved rather more successful: it was poured into a pewter pap-boat, and his mouth being forced open, some little of it obtained a passage: notwithstanding these difficulties, the internal and external exhibition of the oil was assiduously persisted in. The paroxysm at eleven o'clock that night recurred with great violence.

Saturday, the first of January, 1791, he was quiet, except when drink was offered, or that dogs were mentioned in his hearing, which evidently produced great disturbance in him. He was rubbed repeatedly all over; and in the night a degree of sense returned, and he drank, but with much uneasiness, a little quantity of water, and relapsed into his usual state about an hour after.

On Sunday morning the symptoms continued similar; but towards the afternoon he began to shew signs of returning reason: he called for drink; broth being presented to

to him, he rejected it with evident marks of horror; but what enlivened my hopes, he swallowed some water not long after. Upon his mother's questioning him, whether he knew her? he with tears shook his head, and exclaimed, "Lord have mercy upon me." At eleven o'clock that night the paroxysm returned, but in a slighter degree.

On Monday he was perfectly composed, and his mother had, without his knowledge, loosened the straight waistcoat; finding himself at liberty, he begged to be confined again, for fear of doing mischief.— There was no return of the paroxysm that night.

On Tuesday he was remarkably affected by noise and cold air, which he avoided by covering his head with the bed-clothes.

Wednesday and Thursday afforded no particular alteration.

Friday a further progress in amendment took place; his countenance appeared better, the pupil of a more natural size, and he took sustenance without fear.

On Saturday the recovery seemed to advance rapidly; but he discovered great anti-

pathy to the person who was the principal instrument in administering the remedies.

On Sunday every symptom of hydrophobia and the convulsions ceased; he was perfectly collected, and complained of unusual soreness, chiefly about his jaws.

During the illness, from the day I first saw this patient, most plentiful frictions of oil were employed, his whole body from head to foot being repeatedly anointed with it; between three and four ounces of it were exhibited internally, the dose being increased with the facility of administering it.

In the earlier stages of the disorder I had besides clysters of fat mutton broth frequently injected, both as a means of sustenance and succedaneum for oil.

In this patient the bite assumed a slight appearance of inflammation, which subsided gradually with the recovery; the pulse never varied, but continued at 45 during the whole confinement; very high coloured urine was passed the second day in a small quantity, but there was never any erection of the coles. He remained costive until the first clyster was given, to which an evacuation

uation very soon succeeded. The oil was continued to be used ten days after the absence of every symptom, but a great degree of debility attended his recovery: perfectly unconscious of any occurrence during his illness, the time that passed between its commencement and cure now presents a blank only to his mind.

This dog, which was of the cur kind, discovered the symptoms of madness first, by shunning people, and refusing food; his eyes watered exceedingly, and the fiercest mastiff fled in dismay before him. Nor was this effect confined to one dog; for he ran at several, all of which shewed the strongest marks of apprehension, and, when bitten, howled in the most pitiable manner. He then fled some distance to a farmer's yard, where he bit the mastiff, and other dogs, who, upon receiving the wound, uttered a yell, and betrayed the greatest fear and anxiety; soon after which he was killed.

I have thus related every symptom which in this last case was observed both by myself, and confirmed by the joint attention of Mr.

Weld, a gentleman whose skill and humanity I seize this method of publicly acknowledging.

To the splendid abilities and profound learning of Doctor James Sims the medical world is indebted for the revival of a practice, whosever it be, that has simplicity and ease to recommend it, considerations peculiarly advantageous, as the objects most obnoxious to this disaster move in the humbler walks of the community. For myself, I am happy and proud to have been the instrument of its first successful application, and of the honour of communicating it to this Society.

P O S T S C R I P T.

Since I delivered in to the Medical Society the above Memoir, a case of hydrophobia has occurred at Sudbury, in which it was asserted, that the exhibition of the oil had increased and exacerbated the symptoms.

Anxious of having the experiment repeated in an accurate manner, I beg leave to state the treatment, which will shew that the practice in this instance adopted tended
to

to invalidate nothing advanced in favour of the oil.

The patient was first bled to the amount of sixteen ounces; then ordered to take two grains of opium every three hours, and the inside of his thighs and legs were directed to be rubbed every morning and evening with six drachms of strong mercurial ointment, and frictions of oil to his neck and chest every hour, until an oil bath could be prepared, into which he was immersed that same evening, and staid in it ten minutes.

This method being widely different, cannot, I presume, be adduced as an argument against that recommended in this paper.

ARTICLE XXV,

On the Paracentesis.

BY JAMES SIMS, M. D. &c. PRESIDENT OF
THE MEDICAL SOCIETY OF LONDON.

Read NOVEMBER, 8, 1789.

THE objections to the common mode of performing the paracentesis are numerous. A worse perforating instrument than the trochar can scarcely be contrived; for which reason considerable force is obliged to be used in driving it through the integuments, which being usually done by a stroke, it goes with a jerk into the cavity. In this mode no one can be certain how far it will penetrate; and I have known it, even in
skilful

skilful hands, penetrate into the substance of the spleen and other viscera. To avoid this danger I remember a celebrated anatomist recommending the perforation to be made, prior to the use of the trochar, with a lancet through the skin, which gives the principal resistance, thus preferring a complicated, but safer operation, to a more simple but dangerous one.

The use of the canula afterwards is perhaps not less objectionable: by its means more water is drawn off than the contraction of the integuments can compensate; therefore formerly many persons died under the operation. As this event was supposed, not unjustly, to take place from the sudden removal of the pressure upon the adjacent vessels, it has been proposed, and almost universally adopted, to make a pressure on the abdomen, by the hand, or by means of rollers, bandages, or laced waistcoats. How dissimilar such pressure to the natural, and how deficient in equality and uniformity! It is true it abated the danger of instantaneous syncope and death; but that it took away the more slow effects of the inanition may be doubted. What adds to the danger also is the common preference
given

given to a large canula, on account of its being less liable to obstruction. Whenever the canula is obstructed, which mostly happens from the application of the intestines to its orifice, a probe is introduced for their removal, without any thought of the probable, though remote consequences, of the application, and it may be said irritation of such unusual extraneous matter to their peritoneal coat. And even where no probe has been introduced, the point of the canula must come in contact with that surface, when the water is nearly evacuated. About the same time likewise cold air is perhaps mostly admitted into the cavity, which is thought by many to be a very pernicious application.

The place where the operation is performed, which is half-way between the umbilicus and the upper anterior spinal process of the ileum, is not unexceptionable, the thickness of the integuments preventing an accurate perception of any enlarged or adhering viscus underneath. But the course of the epigastric artery is still a greater objection. It may be made a question whether there be not so great a variety in its course
in

in healthy bodies as to prevent even a good anatomist from being able to point out its exact situation in any one body before dissection: but, admitting that he could do so in a healthy body, the case is different in the ascites, where from distension the situation of parts is so much altered as not improbably to bring the artery to very nearly the place where the operation is directed to be performed. That this is sometimes the case I know from having lost a very dear relation by that artery having been wounded by the trochar, and from my knowing some other similar events, I have reason to think that misfortune not unfrequent, even in very skilful hands.

From which of the former causes the almost constant bad success of the operation is derived I shall not pretend to determine; but have found, that in vastly the majority of cases a fever arises after a few days, with those symptoms which may be supposed to point out peritoneal inflammation, and which cuts off the patient about, or soon after, the end of the second week. Were the proportion of the deaths to be accurately stated, it may be doubted whether any practitioner would
4 choose

choose to perform the operation, and also whether more would not recover if left entirely to themselves. The common people at least are so convinced of this, that it is with great difficulty they are brought to submit to it. But unfortunately in medical records the few successful cases are detailed at full length, whilst all the others are consigned to total oblivion.

Alarmed at the frequent miscarriages of the operation which I beheld, and greatly shocked at the loss of the relation I have just mentioned, I ventured, upwards of twenty years ago, when practising in the country, to recommend an entire change in the operation by using the lancet alone at the umbilicus.

The first hint to this practice I took from a case of Ascites, which luckily occurred whilst the grief for the before mentioned fatal hæmorrhage was yet strong on my mind. In this case the old cicatrix at the umbilicus opened, and, permitting a free passage to the water from within, on the least effort to cough the fluctuation was felt under the skin, which being slightly punctured with a lancet, the whole water collected in the abdomen was evacuated. Upon consider-
ing

ing this case maturely, I resolved to carry the practice one step farther, and to have the puncturè made through the peritonæum in the next cases that might occur, should there be no similar opening at the spot; and, of seven cases wherein this advice was then followed, four recovered perfect health.

On my first coming to this city I proposed the method to several practitioners, but without effect; and I did not find myself so well established in the public confidence as to authorise my insisting on the operation. I have lately, however, had it performed in three cases, by Mr. Norris, an ingenious surgeon of this place. In the first it proved completely successful. The second was as bad a case as I ever saw: a very small delicate lady, who had above forty quarts of water in her abdomen; the integuments were grown so thin as to threaten bursting; she had not been out of bed for many months; her pulse was extremely quick, and scarcely to be felt; and her stomach would not retain any aliment.—It is needless to say that this case terminated fatally. The third was the case of a woman who had been repeatedly tapped before, and has been also several times since.

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The operation which I allude to is very simple, being nothing more than thrusting in a common lancet at the umbilicus, until the water issues. The orifice should not be large, nor should the water be forcibly prest out, but allowed to come away just as the contraction of the integuments occasions. Some water even mostly remains in the abdomen; but this is afterwards absorbed in those cases that terminate favourably. The evacuation is gentle, and continues a day or two, sometimes six or eight. The part where the orifice is made being tendinous, does not close while there is any pressing force exerted by the muscles; and there is scarcely a drop of blood lost.

The pressure occasioned by the water upon the contents of the abdomen, and even in some measure of the thorax, is not suddenly taken off; so that there is no occasion for rollers, or a laced waistcoat. If we suppose with some, that the mere injury done to the membrane lining a cavity constitutes the danger, we may as readily suppose it to be avoided by this mode, as the part injured is only the cicatrix left after the falling off of the navel-string in the fœtus, and therefore very different from any other part of the peritonæum.

Having

Having given this concise history of what I have seen of this operation, I submit it to the consideration of the medical faculty, hoping that it will appear not unworthy of a farther trial. At the same time I must freely declare, that I know not one objection to this mode that does not more forcibly apply to the common one; whereas in elegance, simplicity, ease, freedom from hæmorrhage and pain, and in a number of other respects, it seems vastly preferable.

It is to be noticed, that this operation is totally different from the perforation at the umbilicus recommended by some early writers, but since laid aside, in which a canula was used: the objections, therefore, to the latter, are not applicable to this operation.

ARTICLE XXVI.

*Case of Laborious Parturition, with the Con-
sequences.*

BY M. WILKINSON, SURGEON, OF SUNDER-
LAND.

Read APRIL 4, 1791.

IN the month of July, 1748, Elizabeth Lawrence, a married woman, low of stature, but of a good and healthy constitution, then 32 years of age, fell in labour of her first child. The presentation was natural, and the membranes had broken early on the second day: this she observed was occasioned by the rude examinations of the midwife then attending.

On

On the afternoon of the third day she became greatly exhausted, the pains having left her; the child's head had advanced pretty early into the cavity of the pelvis, in which position it still remained, without being much altered by the pains.

From the beginning of the labour, except on the first day, she had made no water. The custom, which at that time was in use, and still prevails among the common people, of drinking large quantities of spirituous liquors in their gruel, with a view to promote labour pains, had greatly increased the secretion of urine; her abdomen became sore, and greatly distended. Unfortunately no notice was taken of this by the gentleman called to her assistance, of course the introduction of the catheter was neglected.

The cessation of the pains, narrowness of the pelvis*, and impracticability of applying the forceps, seemed to render it necessary to open the child's head. This, it seems, was literally the case, from the patient's description of the long scissars, and other instruments.

* On dissection the pelvis appeared small.

After some degree of exertion the head was brought forth ; yet the grand difficulty, occasioned by the shoulders, required the united assistance of two females to that of the accoucheur : at length, by repeated efforts for the space of two hours, the delivery was at last effected ; but, at the very instant the shoulders protruded, she felt something give a crack within her, and immediately a sudden gush of water followed, equal to four quarts, or upwards. The abdomen instantly subsided, and the patient felt herself easy.

The placenta followed, a very short time afterwards, with little or no hemorrhage.

Being put to bed, she found herself very wet, her urine continuing to run off constantly, so that a great number of cloths were necessary to absorb the moisture.

On getting up two days after, for the purpose of having her bed made, she felt at that time an inclination to make water, but was surpris'd that it came away in an involuntary manner, and that she had lost the power of retention.

On the third or fourth day, she found herself much worse, being seized with rigors,

gors, accompanied with heat, thirst, and restlessness; the whole of the parts of generation internally, as well as the external labia, became much inflamed and tumefied. Suppuration next followed, with a considerable discharge of foetid matter from the vagina, and external parts; many sloughs were thrown off, one of which was so large as to induce the gentleman attending to suppose it the urinary bladder. The swelling having by this time subsided, and the parts being greatly denudated of their covering, the smarting occasioned by the acrimony of the urine became more severe, frequently occasioning a troublesome hemorrhage. Strong uterine contractions, which she compared to labour pains, coming on at the end of a fortnight, produced a prolapsus as large as her fist. In short, after a variety of sufferings, she found herself, at the expiration of six weeks, so much better, as to be able to walk about the house, and get to the door; but the constant dribbling of urine and prolapsus vaginæ still remained. Her situation was the more distressing, as the stools, particularly when soft, passed from a communication through the rectum

into the vagina. Several attempts were made to reduce the prolapsus, but the irritable state of the parts, and contractions of the uterus, always prevented her from using a pessary.

After the expiration of three years, she was attacked with what she called grinding pains in her belly, back, and loins, accompanied with excessive sickness and retching; for which she was bled, and the menses coming on soon after, she found herself relieved: the time of their continuance was three or four days.

Another year being fully completed, she was taken ill as before, but became better by bleeding, and the return of the catamenia, which continued upon her a whole week. Three weeks afterwards they again returned, but from that period entirely left her.

Her state of health, after this, was somewhat tolerable: now and then she was attacked with pains in the back and loins; sometimes she was seized with diarrhœa, accompanied with frequent tenelmsus, more particularly after being costive.

The

The prolapsus vaginæ became habitual, but was much diminished in bulk; sometimes she could reduce it with her fingers, but observed, that it never continued up longer than a quarter of an hour at a time. Among the variety of means made use of as an external application, she found the greatest benefit from alum water.

In this deplorable situation she lived till February 2, 1789, being nearly forty-one years after her misfortune; at which time she died, at the advanced age of seventy-three.

It was with the greatest difficulty that I obtained leave to open her body; but, at length being allowed, I removed the whole contents of the pelvis as low as the *anus* and *os externum*. On examination of the parts, I found a communication between the rectum and vagina sufficient to admit my thumb to pass. The fore part of the vagina, the posterior surface of the bladder, just below the opening of the ureters, as also the whole of the urethra, were gone, and the remaining part of the anterior surface of the vagina adhered across the *ostinæ* to the posterior surface; so that the

os tinæ was wholly obliterated; and on introducing the finger into the vagina, it was conducted forward to the fundus of the bladder, which was pretty perfect.

The left Fallopian tube had a tumour adhering to it about the size of a moderate golden pippin, and seemed full of fluid; but I did not open it*. The ovaries seemed quite sound, as well as the uterus; the rectum appeared diseased in its internal coat.

From a review of the case, and further information obtained from the patient, there is great reason to suppose her labor was brought on prematurely.

The too early rupture of the membranes not only prevented the gradual dilatation of the os uteri, and external parts, but, by lessening the bulk of the uterus, perhaps forced it too soon in contact with the pelvis and surrounding parts; hence, the order of nature being deranged, and the abdominal muscles prevented from co-operating with the action of the uterus by the over dif-

* The parts are in the possession of that ingenious anatomist Mr. John Hunter.

tention of the bladder, the pains became not only irregular and less powerful, but the patient's strength was soon exhausted.—How far the early emptying of the bladder by the catheter might not have contributed to restore the contractile power of the uterus so as to have effected the delivery, I will not pretend to determine, yet certain it is, that the most of the accidents which took place, particularly that of the laceration of the bladder, would have been prevented, and the delivery rendered much easier and safe.

The succeeding inflammation, and large suppuration, which took place after the delivery, are not at all to be wondered at when every thing is properly considered. Hence it follows, that, in all these cases where the use of instruments seems necessary, great skill, as well as a careful attention to what may appear of the most trivial nature, ought never to be neglected.

In a consequent point of view, the case I have related is indeed truly curious; the wonderful power in the constitution, by enabling this patient to support life to so great an age, under the pressure of such a train of

accumulated injuries, seems not only astonishing, but affords us a convincing proof of the inexhaustible resources of nature.

Although accidents of this nature are by no means uncommon*, and what may not be expected from an unskilful use of instruments, or imprudent efforts to accomplish delivery? yet I believe there are few cases of this kind, whose catastrophes have been so lenient, or prolonged, or where a more ample field for examination and speculation has been afforded.

* See Mauriceau, Lamotte, Smellie, &c.

ARTICLE XXVII.

The Histories of two Cases of Bronchocele.

BY J. C. LETTSOM, M. D.

Read AUGUST 13, 1787.

IN Derbyshire, and in other northern parts of England, and particularly in marshy situations, the Bronchocele is prevalent; and I recollect, that, for the last thirty years, preparations of burnt sponge have been tried by subjects of this disease.

In young people it has been found successful in many instances, but it is rarely efficacious after the subject has passed the thirtieth year: in some instances it is also totally ineffectual in young subjects.

Some

Some of the warmest advocates for the utility of burnt sponge recommend a combination of burnt sponge with vegetable alkaline salt.

When this plan has failed me, I have ordered a grain of calomel to be added each night, attending to the quantity, to prevent a ptyalism; and where the preceding formula has not proved successful, I have sometimes known the addition of the mercury effect a cure.

The daughter of Colonel ———, rather under twenty years of age, came from the neighbourhood of Norwich, to reside in London, with a view of being under my immediate attention on account of this disease. The tumour was about the size of an hen's egg, and spreading laterally, rendered it more unpleasing to the sight. I stipulated that she should reside in town three months, under an expectation of dispersing the complaint within that period.

I began with the burnt sponge and calomel, and continued it till a disposition to ptyalism appeared. The unguentum cæruleum fortius was also applied externally to the swelling, but at the end of two months
my

my endeavours were unsuccessful. As the young lady was otherwise in good health, and the tumour not very considerable, added to the trouble the patient had undergone fruitlessly, I felt much chagrin from the failure. In this situation my recollection suggested the benefit I had experienced from soap and camphor in instances of tumefied glands of the throat; this was strengthened by an observation I had read in Marsden's History of Sumatra*, who mentions several species of camphor, and particularly the camphire oil, procured in Sumatra by the following process:—A transverse incision is made in the tree to the depth of some inches, and then cut sloping downwards from above the notch, till a flat horizontal superficies is left: this is hollowed out, till it is of a capacity to receive about a quart; a bit of lighted reed is then put into the hollow, where it remains for about ten minutes, which acting as a stimulus, draws the fluid to that part.

I ordered a plaster, of four parts of soap-
cerate and one part of camphor, to be spread

* Page 123.

on soft leather, and applied to the tumour, and twice a day to bathe the part (taking off the plaster) with saponaceous liniment, prepared with double the quantity of camphor. The effect of this plan was so extraordinary, that in less than one week from the first exhibition of it, the disease totally subsided; and after the space of some months, I have been informed, it has not shewn any signs of recurrence.

Before this patient was perfectly relieved, I was applied to by a young woman about twenty years of age; but, before I saw the good effects in the preceding case, I had given such a quantity of calomel with the burnt sponge, as affected the gums slightly, which deterred me from prosecuting it; and I was encouraged from success to adopt another mode: this I did with very little variation from the former, but not with the same rapid success, for it was by persevering in this plan for a month, at the least, before the disease was subdued; and indeed the swelling never totally subsided, but it remains so trivial, as to exhibit no eyesore.

In this case, instead of using the mercurial ointment to the throat, I combined the em-
plastrum

plastrum mercuriale in the soap and camphor plaster, which constituted the principal difference of treatment. I have not since had opportunity of gaining further experience on the subject, but the remedies are so simple and easy of application, as to give encouragement to future experiment.

ARTICLE XXVIII.

Of a successful Termination of an Omphalocele.

BY J. C. LETTSOM, M. D. &c.

Read DECEMBER 10, 1787.

M. G. a female about thirty years of age, and four months in pregnancy, after severe exertion, suffered a navel rupture; the magnitude of the hernia was upwards of three inches. After a few days continuance, symptoms of strangulation succeeded, such as excessive pain, vomiting, a quick and hard pulse, and enlargement of the abdomen. Copious bleeding was immediately used, very large clysters were repeatedly injected, and fomentations of emollient herbs were applied to the tumour.

All these means proving abortive, the surgeon, eminent in his profession, who was employed with me, proposed the knife, as the last resource for relieving the miserable patient: he was aware at the same time of
the

the almost universal fatality of the operation, and though the instruments were introduced into the patient's bedchamber, it was proposed first to try the application of ice to the hernia, for the space of some hours, without intermission.

As it was not attended with any increase of pain in the part, its application was strictly adhered to. In four hours, when we again attended, we perceived a sensible diminution of the tumour; and the strangulated intestine continuing to contract little by little, at length totally returned to its natural site. The patient, at the regular period, was delivered of a healthy child, and, though some years have since elapsed, she has enjoyed a good state of health.

Intense cold, long continued, will sometimes destroy the living power, and induce sphacelus: this, however, may be guarded against by occasionally removing the ice; but should a sphacelus actually take place, the integuments in such cases may mortify, without at the same time injuring the intestine, as happened in one instance of inguinal hernia, lately communicated to me. After repeated attempts, directed by skilful surgeons, to reduce the hernia, had proved abortive,

abortive, it was proposed to try the application of ice for four hours incessantly ; after which period a consultation was again had. The hernia continued in the same state ; but, as it was suspected that, from tenderness, or some other motive, the ice had not been suitably applied, a remonstrance upon such neglect was earnestly urged to the family : the son of the patient, roused thereby to more assiduity and perseverance, applied the ice in such quantity, as when the surgeons again met, they found the integuments were perfectly frozen, and sphacelated : in this unhappy aspect it was concluded to perform the operation by the knife instantly. To this end every thing was prepared, and the operator had the instrument in his hand ; but, careful to ascertain the position of the parts, he laid down the knife to examine again minutely the diseased parts. In the act of handling them the strangulated intestine suddenly extricated itself, and returned into the abdomen ; and thus the necessity of the operation was prevented. The sphacelated integuments indeed suppurated, but the patient gradually recovered.

A P P E N D I X.

A Fistulous Abscess in the Urinary Bladder.

BY STEPHEN LOWDELL, SURGEON,
and F. M. S.

Read JUNE 5, 1784.

IN January 1780, a gentleman, aged about sixty years, who had enjoyed a long series of health, and led a regular and temperate life, began to complain of flatulencies and pains in his bowels, with stools more frequent and loose than usual.

During the months of February and March he took many doses of rhubarb, and also testaceous, cretaceous, astringent, aromatic, and tonic medicines, occasionally, for these complaints, but without any material or

lasting benefit. In April a new complaint supervened, which was an inclination to make water more frequently than usual; and *he thought* he made, upon the whole, a larger quantity than was customary; but, upon a close observation, it was found that he did not. He now complained also of pains in his hips, and at times in the penis and testicles. The pains in his hips were attributed to a truss which he had been obliged lately to wear on account of a recent hernia, and those in the penis and testicles to an irritating cause in the bladder; nothing amiss being discoverable in the external appearance of those parts. The urine was now generally turbid, more or less, when first made; and after standing some time, deposited a mucous or purulent sediment, at first of a white, and, after some time, of a brownish colour; the urine was also at one time a little bloody, at another like pale coffee, but not often. Sitting down on a chair, unless very gradually, slipping in walking, and riding in a carriage over pavements, increased his pain.

These symptoms being looked on as indicative of a stone in the bladder, the medicines

abroad, and died at the latter end of that month.

The purging continued, more or less, through the whole of the illness, having never less than two stools in twenty-four hours, and never more than five or six. The pains were always so tolerable, and his appetite so good, that he was very able, and chose to go out about his usual business every day, from the beginning of his complaints till about the middle of August. The stools which he voided latterly were generally like the grounds of beer in consistence, but of a dark dirty olive colour, and very offensive smell. The largest quantity of feces in the urine was about the beginning of June, soon decreased in quantity, but some degree of them was discoverable to the last.

On opening the body several pints of the same matter, that was voided by stool, were found in the pelvis, which being taken out, a portion of the colon was found strongly adhering to the fundus of the urinary bladder, between both which there was a communication by means of an aperture large enough to admit one or more fingers; there was no stone, nor any calculous substance
whatever,

whatever found in the bladder. By the said aperture the matter found in the pelvis, as well as that which was voided in the urine, had escaped from the colon.

April 3, 1786. Dr. LETTSOM communicated the *History of a Case of Canine Appetite, with Vomiting, in which 379 Pounds of solid and fluid Aliment were taken into the Stomach in the Space of Six Days.* By HENRY WASTELL, Surgeon, London.

WITH this immense quantity of nourishment, which was always taken voraciously, and soon after ejected, the patient became emaciated.

The recovery was effected by giving food boiled down to a jelly, in small quantities, frequently repeated; by which means the tone of the stomach was gradually restored, and at length common aliment retained.

October 7, 1787. Mr. PEARCE, Surgeon, communicated the following *Cases of Præternatural Menstruation*.

A girl in her thirteenth year was scalded in the ankle, which produced a troublesome ulcer in the part. At the time of menstruation the discharge was by this ulcer alone, and has continued so, at regular periods, for some years: the discharge is guttatim, and is regularly preceded by pain in the head and loins.

A laundress in the Temple, who is married, has never had children, and was healthy and regular till an accident happened which laid the foundation of her present complaint; she had last winter a fall down stairs, and struck her loins against the edge of a pail which she was carrying; a large discharge of uterine blood came on, attended with a prolapsus: this continuing and increasing, alarmed her greatly.

By the advice of a nurse she applied cold vinegar to the prolapsed uterus, and drank it in large quantities; the hemorrhage was suddenly stopt and succeeded by mania. It should

should have been observed, that at the time of cessation the profuse discharge had continued about a fortnight.

By medical treatment the mania went off in about a week, and a discharge of frothy blood, in copious streams, without any cough or other effort, took place from the mouth and nose. This discharge has ever since recurred regularly at the usual periods of menstruation, preceded by a slight tumefaction at the hypogastric and lumbar region; but no uterine evacuation has since taken place: the prolapsed uterus is suspended by a pessary.

The hemorrhage frequently occurs at other than the stated periods, especially when the exercises of her employment are unusually fatiguing; her legs swell occasionally, and she is much weakened by the discharge when profuse.

She occasionally applies to me to take a small quantity of blood from her arm, by advice of the practitioner under whose care she is; is but little fallen away from being rather fat, and soon recovers her complexion after the hemorrhage ceases.

October 27. Dr. SQUIRE, F. M. S. communicated the following *Case and Dissection*.

A middle-aged gentleman, about seven years previous to his death, complained (to use his own words) of a darting pain frequently shooting from the right ilium obliquely towards the region of the bladder, and of being very uneasy when lying on his right side: his urine at that time had the appearance of white coloured flakes floating in it, but so light as not to subside to the bottom. He complained of irritation, and pain at the neck of the bladder, and soreness in the urethra, with a frequent desire of making water; his efforts to that purpose being followed by a very small discharge of urine, and often without any. These symptoms were more urgent when in bed. From the first attack his disorder increased, for the space of between three and four years; but during that length of time he was so happy as to experience some comfortable and considerable intervals of ease. In the summer of 1774, the symptoms recurred with more force than he had at any time before felt them.

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The discharge now was of a dark brown coloured viscid mucus, which subsided in his urine, and was so ropy and tenacious, that it was with difficulty separated from the bottom of the containing vessel. Added to his former complaints he had a forcing on the neck of his bladder, and at times a suppression of urine for many hours, with a perpetual desire of making water; but, after repeated trials, the discharge was very inconsiderable.

Appearances on opening the body.

The abdominal viscera, in general, had their natural appearance, the stomach, liver, spleen, pancreas, intestines, &c. with the kidney of the left side; but that of the right was nearly twice the size of the other: and on opening the pelvis of that kidney a discharge issued of an opaque brown coloured fluid, of about two tea spoonfuls; the ureter on that side more dilated than the left; the urinary bladder contained above half a pint of a fluid exactly resembling what was found in the diseased kidney; the internal surface of the bladder had its natural smooth polished look, and exhibited no morbid appearance, excepting some slight inflammatory streaks.

streaks. The internal surface of the urethra was perfectly smooth, without the least vestige of ulcers or strictures.

OBSERVATIONS.

From the symptoms of this case, and the appearances on dissection, I submit the following queries.

Was not the original seat of the disorder and the cause of the subsequent complaints in the diseased kidney?

Was not the darting pain from the right side to the bladder, owing to the acrimony of the discharge from the diseased kidney?

Might not the pain, when lying on his right side, be occasioned by pressure on the distempered kidney?

Might not the irritation and pain with the forcing on of the neck of the bladder, frequent desire and difficulty of making water, with soreness in the urethra, proceed from the acrimony of the fluid discharged from the kidney into the bladder?

Might not the discharge of mucus be owing to the same cause above mentioned, inflaming the internal surface of the bladder, it being a well known fact, that great discharges

charges happen from various parts of the human body from inflammation, solely without ulceration, or even loss of substance?

Would not the symptoms of this case have induced practitioners to imagine the seat of the disorder to be sought for in the urethra, neck of the bladder, or internal surface of that viscus?

Can the appearances mentioned warrant any other opinion, than that the disease originated from the distempered kidney, and was the cause of all the subsequent symptoms?

September 15, 1788. *Account of a Rupture of the Urethra, and of a Solution of a Catgut Bougie in the Bladder.* By ROBERT WARING DARWIN, of Shrewsbury, M.D. F.R.S. and C. M. S.

Many cases have been related to me of a disease supposed to have been a catarrh of the bladder, or a suppuration of the prostate gland. In one, the patient died tabid from the purulent absorption; in another, from a sudden erysipelas and mortification of the scrotum and parts in vicinity; and in another, the patient was recovered by the use, as was supposed, of a grain of opium taken at first

twice a day, but afterwards increased. The case I am now going to relate, gave me further light into this kind of complaint; and has persuaded me that it is probable no such disease as a catarrh of the bladder ever exists.

Mr. ———, about forty years of age, had during many years laboured under a difficulty of making water, insomuch that for two or three years together he never passed his water without previously introducing a bougie. About five years ago, he had at intervals a great quantity of a purulent sediment in his water; generally some clear urine came first, and then a tea-cupful or more of thick matter, which was sometimes so thick as to have the appearance (as he expressed it) of liquid chalk. This matter always came along with his urine, and was attended with considerable pain; but sometimes, for a month or two, the quantity of the discharge would be less, and again at times much increased, along with the difficulty of making water and pain.—On drying some parcels of this matter on paper, it had a chalky appearance, which induced the patient to suspect it was the gout in the bladder.* He had, during three years, occasionally, cold shivering
ing

ing fits, which were termed ague fits; and for which he took peruvian bark, as he supposed, with advantage; but was always free from hectic fever: which circumstance was ascribed to the ready discharge of the matter.

During the long continuance of this disease many things were tried, and he consulted the most eminent surgeons in London without information or advantage. A stone was suspected, but not discovered; as an eminent surgeon in London endeavoured, in vain, at this time, to introduce even a bougie past the obstructed part of the urethra, and the prostate gland was said to be hardened and enlarged. He found some relief by using a warm fomentation every night for an hour or two, by taking small quantities of opium, and by supping upon a pint of milk, flavoured with bitter almond and sugar, in which was dissolved half an ounce of isinglass.

After about five years the disease manifested itself by a permanent tumour in the perinæum, which broke externally, and the urine came along with the matter by the orifice. After it thus broke, he could never introduce a bougie beyond the wounded part,

part, so that the cure was left to unassisted nature. The urine through the wound lessened by degrees; and, after some months, the hard sinus which was there formed, gradually disappeared, after having healed superficially, and opened again, many times: and, what is a very uncommon event, the obstruction in the urethra at the same time vanished by degrees, and he has now, for more than a year, been perfectly free from all complaint; and not only makes water freely, but is able to ride on horseback with ease, which he had not done for many years.—

I think proper to add, that the above patient had almost from his infancy been troubled with ascarides; which were once supposed to have been subdued by a spontaneous diarrhœa, but recurred in some weeks.

+ 1. From this instructive case I think it may be fairly concluded, that the stricture or caruncle in the urethra was the original cause of the whole disease; that by the obstruction there given to the exit of the urine, the force to exclude it became exerted more violently; and thence the part of the urethra behind the stricture became distended, till it was at length ruptured:— After this, the
urine

urine was pressed into the cellular membrane, and dissected its way, till a large surface became ulcerated. The same efforts which were used to exclude the urine, would press the matter out of this extensive ulcer; and some urine would also at times be pressed into it. Hence the matter always appeared mixed with the urine, and the smarting pain was urgent at the same time.

2. We may conclude, with great probability, that the patient who died consumptive from the absorbed matter, as mentioned above, might have been saved for the present by proper punctures to have given exit to it; and that the erysipelas and mortification in the latter patient, might also have been prevented or cured by a puncture or two, so made as to have evacuated the intermuscular or anasarcaous urine, the irritation of which was probably the immediate cause of the erysipelas and consequent mortification.

3. That the cure of these cases, supposed to be catarrhs of the bladder, or suppurations of the prostate gland, may most successfully be undertaken by the assiduous use of bougies of catgut, which should be gradually enlarged

enlarged till a free passage for the urine be obtained. And if any tumour from extravasated urine can be perceived and opened externally, the patient will be saved and the cure facilitated; since by these means sufficient time might be gained to diminish or destroy the stricture, or caruncle, by the use of bougies. The patient whose successful case I have described, when the urine passed in part through the ulcer, and he was able to force some through the narrow part of the urethra, voluntarily and carefully stopt the farther violent exertions of the vesical and abdominal muscles, and was always very solicitous to let the urine pass on in a small stream, that less force might be exerted against the ruptured part of the urethra. This he thought contributed much to his cure.

4. Could the irritation of the ascarides in the rectum inflame the membrane of the urethra by sympathy, and thus be a remote cause of the stricture or obstruction? I have twice remarked a polypus in the nose in children, who were both much tormented by ascarides; which, as well as other intestinal

tinal worms, occasioned by sympathy an itching in the nostrils.

5. Were not the shivering fits owing to the urine insinuating itself farther into the cellular membrane, and thus producing new suppurations? and the more, as they never recurred after the ulcer was open, and permitted the passage of the urine through it?

Solution of a Bougie in the Bladder.

The patient above described, who had been accustomed to use bougies always before he made water for two or three years together, fell asleep with one of them in his urethra. The bougie was simply a piece of catgut, which from its softness, when moistened, is liable to press forwards without being perceived. On waking next morning he missed the bougie, which could no where be found by the most diligent search. He continued the use of bougies as formerly, always before he made water; and thought he frequently felt a pressure about the neck of the bladder. At the end of about four months, some filaments began to come away with his

urine, and sometimes stopt the stream of it for a time. Afterwards larger pieces of the catgut were voided of an inch long or more, which were untwisted and separated as if by putrefaction; and in a few months the whole was thus evacuated. He put some catgut into a bottle of water, which became very putrid, and, upon shaking the phial, observed it to separate gradually into similar pieces.

This circumstance furnishes us with a powerful argument in favour of the use of catgut bougies, in preference to those made of linen, since if by any accident one of them should slip into the bladder, it will dissolve (being an animal substance) by spontaneous putrefaction; and probably by that very process prevent the formation or deposition of the calculous matter upon it, which is so liable to incrust other extraneous bodies that have accidentally got into the bladder.

1788.

January 1. *The following Relations, communicated in a Letter to Dr. Lettsom, by Mr. RICHARD How, of Apsley, in Bedfordshire, were read.*

The daughter of a clergyman at Nottingham was, until she arrived at the age of thirteen years, of a very dark complexion, with hair black as jet; when, to her great surprize, on rising one morning, she observed a lock of her hair, about an inch and a half in breadth, to be changed perfectly white. Previous to the change she had enjoyed a good state of health, and at that time had no indisposition, or received any fright to which it might be attributed. Soon after a similar change took place on the opposite side of her head, the left; and, continuing to alter, her hair appeared in stripes of black and white, and, gradually changing, in about seven years it became all over white. Her complexion underwent a similar metamorphosis, and at length became perfectly fair; a beautiful mixture of red and white.

Her eyebrows still continue black, the lashes are white. The colour of her eyes,

L 1 2

which

which were black, has not undergone any alteration.

She has not enjoyed so good a state of health since the change as before; she is now, 1787, about twenty-five years of age.

I have within these few days been informed of an extraordinary girl at Shefford in Bedfordshire, and requested a friend to procure me the particulars. By his account it appears, there had been much exaggeration in the report; I shall confine myself to a simple relation.

Maria Seeley is about eight years old, her father of a brownish complexion, the mother rather fair, as are four of the five children now alive out of seventeen. Maria's face is of a swarthy colour, with long dark hair on one side of her head, short frizled, and lighter on the other; her mother says her body is of two colours, the one side very brown, the other fair: she can give no account of the cause whence this remarkable difference proceeded, not being conscious of any thing particular, as a fright, &c. having happened during her pregnancy, whereby it might be occasioned. Enclosed are specimens

mens of the hair. The girl was some time ago in London, and seen by a gentleman of the faculty, who said, if her parents would stay with her some time, he did not doubt getting them a considerable sum; but they would not consent to expose her as a fight. This the mother told my friend.

January 11. *The following Extract of a Letter from CAPTAIN CARDIN to Dr. LETTSOM, was read.*

Having, during the course of several voyages to the coast of Africa, experienced the very great excellency of the powder of Ipecacuanha in eradicating the dysenteries or fluxes so incident to that climate, I have taken the liberty to transmit some small remarks thereon to you.

About four years past, I was some time trading in the Senegal River, when most of my officers and crew were afflicted with this cruel disorder, and several of them were reduced to a most emaciated condition; at this time I recollected this powder had been recommended to me, and was induced to try it—nor was a month elapsed before I had recovered entirely the health of all my crew.

In my next voyage I was equally successful; and, although I had most of my people, at different times, totally incapable of ship duty, yet by the application of this a cure always succeeded: and, though I have used the trade ever since, I have never once been disappointed by it.

The manner I administered it was, if the disorder was violent, attended with excruciating pains, I gave the patient four grains of this powder in a cup of weak tea, with fifteen or twenty drops of laudanum going to bed; this caused a sickness at the stomach, though not sufficient to excite vomiting, and the patient generally found much relief in this dose.

The next morning, if the patient was easier, I reduced the quantity to three grains, and then to two, morning and evening; which I continued till every symptom of the disorder was eradicated, enjoining the patient to make his general diet of rice gruel.

I am, Sir, your very humble servant,

J. CARDIN.

St. Thomas Apostle,
Jan. 11, 1788.

April

April 7. *Case of the Humerus of a Child torn from the Scapula by a Mill. Communicated by HENRY GORE CLOUGH, M. D. and F. M. S. Old Compton-Street, Soho.*

MARY FILBY, aged eleven, was brought to the Middlesex Hospital on the 27th of April, 1779, with her left arm and scapula torn from her body, by means of the arm being caught in the wheels or pullies of a callender mill (in endeavouring to get at a shuttlecock, which was accidentally thrown on the top of the mill while at play), by her arm winding round it.

There had been a considerable quantity of blood effused on her clothes that were wrapt round her at the time; but when she was brought to the hospital, which was near half an hour after the accident, the hæmorrhage had entirely stopped, owing, as was supposed, to the considerable retraction of the vessels within the integuments; she had, however, sufficient strength to allow her to walk across

the court from the coach to the hospital, being nearly the distance of 32 yards*.

The integuments were pretty evenly divided, and a sufficient quantity of skin was left to form a good cicatrix; the clavicle was left in its natural situation, but that end which articulates with the processus acromion scapulæ, was laid bare as far as its periosteum, with the cartilages and some loose

* Though much cannot be adduced from this extraordinary and singular case, yet it seems here worthy of remark, and deserves to be recorded with those other two cases which are analogous to it, namely, the one, as described by Mr. Cheselden in his *Anatomy of the Human Body*, wherein he observes, “that a cure was completely effected, without the least appearance of any hæmorrhage and without any blood-vessel being taken up;” the other, as described to have more recently happened, by Mr. James Carmichael, surgeon at Port Glasgow, in the fifth volume of the *London Medical Commentaries*, in the year 1776, who there remarks, “that not a drop of blood had ensued on this division:” in both cases, as well as the one here alluded to, it seems also worthy of observation, that little or no hæmorrhage should have ensued from the body sustaining so great an injury as the loss of so principal a member; and more particularly in this instance which I have here related of this girl, “to have been able to walk so great a distance *after the accident.*”

cellular

cellular membrane, &c. Over the extremity of the clavicle, or rather posterior to it, was left a narrow, irregular flap of skin, about an inch and an half in length. The large vessels were not to be seen, but some nerves were drawn out of the arm, the principal of which hung down about eight inches or more in length*.

The arm, which was not brought to the hospital for some considerable time, being carried to a neighbouring surgeon, was not without some little difficulty obtained. I procured a drawing to be made of it. On examining it, the integuments were found to be divided in the axilla, close to the tendons of the latissimus dorsi and pectoralis major muscles, and the separation carried on a little obliquely upwards to the middle of the deltoid muscle, about a quarter or one eighth of an inch from its insertion to the processus acromion scapulæ; from thence it was continued, nearly in a straight line, as far back as the middle of the teres major muscle, and

* In the case above mentioned by Mr. Carmichael, the nerve, which also hung from it, was four inches in length;

then directly downwards into the axilla, keeping close to the tendon of the latissimus dorsi.

The skin was divided almost as evenly as if it had been done by a scalpel*.

The pectoralis major was torn through about an inch and an half from its insertion into the os humeri and latissimus dorsi muscle, just where the tendon begins to be blended with that of the teres major, and about an inch of the pectoralis minor was left attached to the processus coracoides scapulæ; the anterior portion of the deltoid, which is attached to the clavicle, was torn through so low down, as to expose the capsular ligament of the joint immediately over the groove formed in the head of the humerus for the passage of the tendon of the biceps muscle; the middle portion remained fixed to the processus acromion, the posterior portion was detached from its insertion the whole length of the spine of the scapula, which was entirely divested of its periosteum, and appeared rough, as if the part of the bony matter

* In the same case the soft parts were divided as circularly down to the bone as if done with a knife.

had been torn up with the muscle. The supra-spinatus muscle was detached from the whole of its insertion at the basis of the scapula, and from the spine, about an inch forwards. The infra-spinatus was also detached at the basis, for an inch below the spine, and from the spine it was detached nearly two thirds of its length; both these muscles were jagged, having some of their fibres irregularly turned up, while others remained at their insertions. The subscapularis muscle was detached from its insertion at the basis of the scapula, more than one third of its length, beginning at the superior angle, and some layers of its fibres were turned up, and jagged in the same manner as those of the infra-spinatus muscle; the ligament passing over the semilunar notch in the superior costa scapulæ, and that going from the processus coracoides to the acromion, were both laid bare; the superior angle of the scapula, and that portion of its surface from which the muscles already mentioned were separated, was entirely divested of its periosteum; the whole length of the scapula was laid bare, as if it had been scraped, and for

two

two thirds of its length the cartilaginous edge was torn off.

There was a fracture running from the superior costa scapulæ midway between the angle and the femilunar notch, obliquely downwards and backwards to nearly the middle of the basis.

A small portion of the inner condyle of the humerus was broken off, and on examining the artery in the arm, it was found to be considerably retracted within the integuments, and appears to have been divided immediately below the subscapularis muscle, and just before it sends off the large branch in which surrounds the head of the humerus. As the trapezius muscle is inserted into the spine of the scapula nearly its whole length; the rhomboides-major and minor into the whole of the basis externally; the serratus-major into the whole of the basis internally, and also folded strongly round the angles, the levator scapulæ into its superior angle; it is a curious circumstance, that notwithstanding the strength of all these insertions, as also of their various directions, that the scapula should be brought away without a single fibre of either of the above muscles accompanying it,

it, but the bone entirely stript of its periosteum at every part of their attachment.

April 27. The treatment of this case, which came under Mr. Wyatt's care*, was merely such as to moderate the symptomatic fever, keeping the body open by clysters, and giving her the haust. salin. limoniat. 6^{ta} quaque hora, et in haust. nocturn. tinct. opii gtt. xv. ad xx.

May 4th, Tuesday. The superficial dressings were now removed (being a week since her admission), when the skin which covered the scapula was found to have granulated, and united by pressure of the bandage; the nerve, which was also drawn out of the arm, had begun to granulate; all, except a quarter of an inch near the extremity where it was torn off, was sloughing away.

6th and 8th. The superficial dressings were continued as before, the wound still granulating, and forming a good cicatrix.—Hauustus et enema continuantur, 6^{ta} quaque hor.

* N. B. Mr. Wyatt was of opinion, why the principal nerve was drawn out to such a length was, from that part of it at the elbow being caught by the small portion of the condyle, which was before mentioned to *have been fractured*.

10th. A slight degree of fever came on, with a quick pulse.—*Hauftus repetantur.*

18th. The symptomatic fever was this day more considerably abated, and the pulse regular, and continued so till the

27th, when the wound, having properly digested, and completely cicatrized, in less than six weeks she received her discharge from the hospital, being then in a state of convalescence.

EXPLANATION of the PLATE,

From the Drawing of the Arm* now in the Possession of
H. G. CLOUGH, M. D. and F. M. S.

FIGURE I.

Shews the Front View of the Arm.

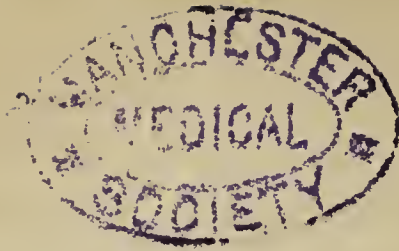
- A. A. A longitudinal incision, made through the integuments, shewing the retraction of the brachial artery.
- B. B. The adipose, or cellular membrane.
- C. C. C. The abrasion of the cuticle, on several parts of the arm.
- D. D. The subclavian nerve.

* The arm from which this drawing was taken is in the possession of Mr. Wyatt, surgeon, Essex Street, to whom I am under infinite obligations for his permission in publishing this case in these Memoirs, she being his patient.



Fig. I.

Fig. II.



- E. The superior angle of the scapula, divested of its periosteum, and laid bare from all muscular attachment, with the cartilaginous edge torn off.
- F. A fracture, running from the superior costa scapula obliquely downwards, and backwards near to the middle of the basis.
- G. The inner condyle of the humerus broken off.
- H. H. { The lacerated ends of the several muscles lying
H. H. { on the inside and outside of the scapula, with
their fibres irregularly turned up.
- I. The brachial artery.

FIGURE II.

- A. The head of the humerus.
- B. B. The abrasion of the cuticle.
- C. The adipose membrane.
- D. The fracture of the scapula.
- E. E. The lacerated and jagged extremities of the several muscles.

April 7. *Case of a Man who took by Mistake two Ounces of Nitre instead of Glauber's Salt.* By WILLIAM FALCONER, M. D. F. R. S. C. M. S. &c. Bath.

WILLIAM WEETCH, a robust, healthy man, aged 26 years, by trade a blacksmith, having been accustomed to take in the spring a dose
of

of Glauber's salts, took for them, by mistake, on the 8th of May, 1786, two ounces of nitre dissolved in about half a pint of warm water. It affected him almost immediately with great pain of the stomach, which soon extended to his bowels. In about half an hour's time he began to vomit, which he continued to do with great violence, but found from it no relief of his pain, but rather an increase. To ease this he took two glasses of brandy, but without any good effect. After the vomiting had continued two or three hours, he began to throw up blood, which he did to nearly a quart in quantity. He was soon bowed forward, and unable to raise himself without violent pain. An apothecary was then sent for, who gave him oatmeal gruel and butter in large quantity, which afforded him some ease. He had no purging after it, but was, on the contrary, costive, for which he had several clysters injected. His urine was not affected any way, nor had he any pain in the urinary passages. When he was admitted into the Bath Hospital, which was on November 3, 1786, he was troubled with great pain and soreness of the stomach, attended with much
flatulence,

flatulence, and a flux of saliva in the mouth. His urine was in small quantity, but his body regular in point of stools. His pain and flatulence were worst at night, which often prevented his lying down. In other respects he was tolerably healthy. He was ordered to drink the Bath waters in small quantities, taking a little tinct. cardam. with each glass. He also took a drachm of spir. nitri dulcis, with half a drachm of elix. paregor. twice a day to excite the urinary secretion. He used the bath twice a week. On the 14th of February, 1787, he was discharged *cured.*

September 15. *Extract from a History of a Sphacelated Scrotum.* By JOHN CHURCH, M. A. Surgeon, and F. M. S.

This patient was seized with pain and heat about the anus, which were succeeded by inflammation, that surrounded the anus, and extended downwards along the perinæum to the scrotum: this was the second attack of his complaint; the first which he had was a year before, and gave way speedily to bleeding, purging, and saturnine lotions;

the same method was adopted on this occasion, but without the like good effects: the inflammation increased rapidly, and the plan was changed for warm fomentations, and cataplasms, to expedite suppuration; but this event did not take place; for on the tenth day appearances of mortification came on, and the tumefaction greatly increased, and took in the whole of the scrotum, which became much enlarged: his pulse was languid and irregular; his thirst and anxiety great. The gangrenous parts were scarified, warm fomentations were continued, and fermenting cataplasms applied. Bark with wine, and cordial confection were liberally taken. On the twelfth day there was great debility; his extremities were cold, and the skin was covered with a clammy moisture. The gangrene now occupied a space of three inches on one side of the anus, under and on both sides of the scrotum, up to the penis. A thin and very foetid discharge issued from the scarifications. On the fourteenth day a disposition to separate took place, and by the 19th the sloughs were removed, which were formed of the whole scrotum, and coats of the testes; these were left naked; and

and they had a diseased, pale, and unfavourable appearance: about this time inflammation and pain occurred in the right groin, five inches in extent, in the direction of the spermatic chord; the next day a livid spot appeared in the middle, which sloughed off in a few days, and with it was drawn out a long string of a sloughy substance, too firm and thick to be cellular substance, and which left a sinus the length of a probe, but which healed without trouble. At this time he was also attacked with a diarrhœa and tenesmus, which were long troublesome, but they gave way to rhubarb, philonium, opiates, and cordials. In about a month the edges of the remnant of the scrotum began to adhere to the testes, which threw out granulations from their surface, and were soon healed and covered, without any other inconvenience than a slight disagreeable sensation, from the tightness of the parts: towards the end of his cure, he had a violent cough, and expectorated a pint of white frothy mucus daily, which much reduced him, but it gave way to bark and myrrh, and he perfectly recovered.

Prior to this disease he had been subjected to vertiginous complaints, but ever since has been free from them.

September 15. *The following Case of Pemphigus, by J. UPTON, was communicated by Dr. LETTSOM.*

Mrs. D——, aged thirty-four years, rather of a delicate constitution, on the 22d of November, 1787, complained of a considerable itching, and uneasy sensation on different parts of the surface of her body; and on the same evening, three large vesicles, containing a serous fluid (some of which were as large as the section of a lemon), appeared upon her left hand and arm, attended with some tumefaction of the subjacent parts, and much pain. The heat of the body, pulse, and appearance of the tongue, were natural. Upon discharging the fluid from the blisters, the pain became easier, and by the use of emollient applications, the symptoms disappeared. She was four months gone with child, and previous to this attack, had suffered much fatigue both of body and mind, which brought on languor, a bad appetite, headache, profuse uterine hæmorrhage, and much consequent debility; from this state she was recovering when this cuticular affection took place. On the 23d of the same month, a
fresh

fresh crop of vesicles appeared upon the arm and chest, attended with heat, quick pulse, and a great dejection of spirits. Bleeding, a spare regimen, and a cooling plan, were used till the 26th, when her pulse was much quickened, her strength diminished, and she had no sleep during the whole time. By further medical advice a more generous diet, and an opiate were directed.

On the 27th the symptoms were increased, and a blister was applied between the shoulders.

On the 28th she was much relieved, and in better spirits: she continued in this manner with little alteration, unless a vesicle appearing now and then, on different parts, until

December 1, when she complained of soreness in her throat, extending to the stomach, with depraved taste, and difficulty in swallowing her food: she had great languor, not much increase of bodily heat, but had a pain on the stomach and bowels on external pressure. She was ordered the bark with a nutritious diet; which plan was continued until near the middle of the month, when she had a gradual but slow re-establishment

of her health. In the latter stage of her pregnancy she appeared uncommonly large in her body, and had swelled legs, with a scarcity of urine. During labour, and previous to the rupture of the membranes, a considerable quantity of water was discharged from the uterus; likewise the child, after birth, vomited a great deal of the same fluid, and had its whole skin in a state of œdema. Sauvage gives a history of this disease under the title of *Pemphigus major*; but does not mention its ever attacking the alimentary canal.

I once before saw a case of this kind at Edinburgh, under the care of Dr. Gregory, where the patient had it in a severe manner both externally and internally, and had been afflicted with it once before.—Both times it was preceded by a vomiting of blood. The vesicles, putting on a gangrenous appearance, led the doctor to order the bark and wine freely; but she could not use them in any large quantity, because of a soreness in her throat, which grew daily worse, until she was obliged to be nourished several days by glysters, and take opiates; after which she gradually recovered.

We

We have here two cases of a singular disease, not frequently occurring, nor fatal, but difficult of cure, viz. an external vesication of the skin with fever, and an uncommon languor and lowness of spirits, arising in a convalescent, or previous debilitated habit; and I am of opinion that the application of blisters at different intervals will relieve this languor and lowness in a manner similar to their effects in miliary fever, as well as prove a necessary anticipation of nature's operation in forming vesicles, which, on appearing, always relieved the disorder.

September 29. A Case was read to the Society by Mr. STEPHEN SMITHWARD, Surgeon and F. M. S. of an *Obstruction of Urine which terminated fatally, in consequence of Stricture.*

THE patient, who was a middle-aged man, had been for some years afflicted with complaints in the urinary passage, attended with partial suppressions of urine, evidently referable to a contusion in perinæo; from which, when the symptoms were more than commonly urgent, he was relieved by warm bathing, opiates, and anodyne clysters. Af-

terwards, on the obstruction increasing, nature effected her own relief by the separation of a slough which covered a fistulous orifice communicating with the urethra, through which the urine escaped.

Some years before his death he used bougies, but without advantage, as they never reached the bladder. At length several fistulous openings formed; which, though they obviated any considerable distention of the bladder, yet, by the inflammation accompanying them extending itself to the contiguous parts, there forming abscesses, induced a train of symptoms, which destroyed him.

ON DISSECTION

The urethra was found perfectly obliterated for half an inch, at the distance of two or three inches from the glans.

September 29. Was read, *a Case of Calculi passing through the Bladder into the Rectum.*

By J. JOHNSTONE, M. D. C. M. S. of Worcester.

Mr. A——, of Hardwich-forge, the father of a numerous family, had for many
years

years suffered the most excruciating pains from gravel and stones in the bladder; and received no relief, but rather aggravation of pain, from the use of the late celebrated lithontriptics: the largest doses of opium, whether taken into the stomach, or by clyster, hardly gave any respite from pain.

Some years passed in this torture: he began at length, in searching his stools, to find pieces of gravel voided with them. I saw some of these pieces, and was perfectly convinced by their appearance, that they had come from the bladder, and had forced their passage through it and the rectum. Thebaic tincture was daily injected in oily clysters to quiet the pain, till these pieces of gravel came away in his stools; and he has ever since been free from the pains which had tormented him for so long a time.

This kind of natural lithotomy, if I may so express myself, is, I believe, not very common; but no one who saw this patient in the least doubted that the stones, which had given such pain in the bladder, had cut their way through the bladder and rectum, and, being discharged with the stools, the

wound through which they passed had perfectly healed; for he is now a very healthy and vigorous old man.

October 6. A Paper, by Mr. BAKER, Apothecary and F. M. S. was read, containing *Various Cases of Fatality from the natural Small Pox, in Families, where inoculation, when practised, had been uniformly successful:* from which the following is extracted.

THE following dismal Case is the third of diseased joints after the *natural small pox*, which has come within my knowledge; and which I beg the Society's permission to lay before them:

Edward Hughes, born in the work-house of St. Bride, a healthy fine child, except having a little soreness in the eyes (whether from cold in the birth, or from what cause I know not), which continued troublesome till he was about two months old, when he got quite well of that complaint; and continued a very thriving child to every appearance of perfect health, till the age of rather more than five months, when he was seized with the natural small pox, and was then with the mother

ther out of the house, so that I have her account only of that disease: she says he was a little feverish for a day or two; and that the small pox came out so kindly, that she did not trouble me or any one else. The pustules were few, large, and full of matter, and were every where perfectly dried off by the ninth day, about which time the left elbow became inflamed very much; and after a few days a large suppuration took place in the cavity of the joint, which seemed, from the quantity of matter, to have perfectly separated the natural attachment between the bones: hardly had this gone its length, but a similar one took place in the other elbow, not less violent than the first.—In this state the child was brought to me, October 2d. Poultices of bread and milk had been applied by the direction of the gentlemen of St. Bartholomew's hospital, where it had been taken for advice. It had then considerable symptomatic fever: saline, and gently opening medicines were now given, and the poultices continued.

About the 10th of October the tumor on the left elbow broke, and discharged a great quantity of smooth well-digested pus; and left the
bones

bones so completely separated, that the fore arm might have been twisted round; and seemed almost in danger of being torn off by accident, from the total loss of substance, except diseased skin, and cellular membrane, which were very loose and flaccid, from the previous tumefaction. Scarce had the mischief begun in the right elbow before similar inflammation appeared in both knees, and in each wrist. The sufferings of the poor little object are not to be described: it gradually languished in this miserable state till October 17th, when it died, aged about seven months.

The day after its decease, on opening the abscess in the right elbow, which was first examined, about three ounces of pus, free of the least fœtor, was discharged, the cavity of which extended upwards, and round the os humeri, one third of its length downwards more than half the fore arm, including the ends of the bones formerly making the joint, of which the capsular and articular ligaments, with the cartilages, were quite destroyed, not a vestige of them being left.

The left elbow, which had discharged purulent matter some days before death, was
much

much in the same state, only that the disease in its ravages had gone a step farther; for, added to the above account of the other elbow, the ends of the bones had begun to be rough and discoloured; the discharge, we supposed, was as large as from the right. In the right knee the abscess was very large, though unconnected with the joint extending backwards on the head of the tibia, which, on its upper and posterior part, was separated from its epiphysis, and was ragged and corroded. The joint itself was in a perfect state.

In the left, as in the right knee, the abscess was unconnected with the cavity of the joint. The pus was rather larger in quantity, and laid chiefly on the upper end of the tibia, which entirely separated its epiphysis. The cavity of the joint did not appear much diseased; neither was it entirely free from somewhat like inflammation; and the synovia, which did not exceed its usual quantity, appeared as if a small quantity of pus was mixed with it; still retaining much of its natural feel. The cartilages and ligaments were found, smooth, and but little altered.

The right wrist became the next object of
our

our inquiry, when a small quantity of the same smooth pus was found: the cartilage of the radius was corroded, and the end of the bone a little discoloured.

The left wrist was in the same diseased state, but in a greater degree.—The articular cartilages and ligaments were destroyed; and the radius more diseased than that of the other arm; the joints formed by the heads of the thigh bones and those of the ancles were examined, and found perfectly healthy, as well as the abdominal and thoracic viscera; but the mesenteric glands were rather larger and harder than they are commonly found: the body was not emaciated; for upon its surface was a very considerable quantity of healthy looking fat in the cellular membrane; nor did the epiploon want its share.

October 6. *A Case of an Ulcer of the Bladder communicating with the Rectum*, by Dr. JOHNSTONE, of Worcester, was read.

Mr. WYLDE, keeper to Lord Foley, aged about sixty-three years, consulted me about fourteen years ago, for a prophylactic method

thod to prevent the consequences of being severely bit by a mad dog; and, that method having happily succeeded, I learnt from him that he had, many years before, been subject to a diarrhœa, which continued to waste his strength and flesh in a slow and gradual manner.

In 1772 it grew worse, and with very particular circumstances: besides near twenty motions to stool every day, he often distinctly perceived flatus, or wind, discharged from the penis along with his urine; and a fortnight or three weeks before his death, he made no urine at all: it probably came away by stool. At last purulent matter was constantly observed in his stools. An ulcer in the rectum, the cause of the diarrhœa, had evidently, at length, perforated the bladder; and he died about the beginning of August, 1772.

December 15. *Case of a Rupture of the Bladder opening into the Pelvis,* by JAMES JOHNSTONE, M. D. &c. was read.

THE Reverend Benjamin Fawcett, long the worthy minister of a dissenting congregation

gation in Kidderminster, had complained of gravel; at least for years had made water with pain and difficulty.

After a journey in July, 1780, this pain and difficulty in voiding urine became extreme; and the discharge of urine sometimes stopped altogether: he had also perpetually a quick feverish pulse, constant thirst, restlessness, and want of appetite, with nausea, and frequent vomiting. About three weeks before his death, his limbs became dropsical, and a circumscribed tumor was observed to rise from the hypogastrium, the seat of the bladder, nearly as high as the navel, which was believed to be the bladder itself distended with urine. He rejected the use of the catheter, as in one or two trials he had suffered extreme pain from its introduction, though directed by a very skilful hand: he took every kind of medicine adapted to remove inflammation, and promote the discharge of urine, with very little benefit.— External pressure in applying embrocations seemed useful.

In the last three days of his life the discharge of urine became absolutely suppressed, and the abdomen much tumefied:

he

chose to submit to his fate rather than to the pain he felt in attempting to introduce the catheter; and he died on the 18th of October, 1780, in the sixty-sixth year of his age; when the body was opened: but a catheter being first introduced, three pints of urine were drawn off, of a highly putrid smell, which stained the catheter like sulphur. The substance of the bladder was much thickened, and had a fleshy, rather than a membranous appearance; it adhered on its forepart to the peritonæum, under the muscoli recti, almost as high as the navel; and a circular hole, of the diameter of an inch and a half (which was smooth on its edge, and without any appearance of a recent laceration), was found in the left side, and opened to a cavity in that region of the pelvis, in which a large quantity of urine had lodged when the bladder was full. No calculus was found either in the bladder or in this præternatural cavity. The ureters and kidneys were much enlarged: a great quantity of putrid urine issued from the pelvis of each kidney when cut open.

An inflammation of an old date had probably occasioned the adhesion of the bladder.

This prevented its regular evacuation, because the necessary contraction could not take place: hence issued the rupture and fatal ischury.

October 13. *A Case of extraordinary diseased Enlargement of the Parotid and Submaxillary Glands, &c.* was communicated by T. POLE, Surgeon, and F.M.S.

ELEANOR CRANFORD, about 47 years of age, naturally of a weak, delicate constitution, in about her thirty-sixth year, first perceived the commencement of this disease by a small tumor in the situation of the left parotid gland, which continued gradually to increase, though by very slow degrees, for several years; but within the latter seven months of her life it increased more than in all the preceding years, though at no time had been very painful until the last twelve months, during which she has suffered severely; but the pain was not situated in the tumor so much as in other parts of the head; and laudanum was her only relief, of which she took in general from four to six ounces a week. Her pulse during life was

was low, weak, and quick, and frequently had a recurrence of febrile paroxysms in the evening, with an increase of pain in the head. She had the catamenia regularly, until the last two or three years, during which period they entirely left her.

Her own opinion is, that the disease originated from a blow she received in the part; which carries with it at least the appearance of probability. At length the tumor increased to so prodigious a magnitude that it compressed the trachea, œsophagus, and blood-vessels, and brought on a gradual suffocation, and which, after eleven years from its commencement, put a period to her miserable existence.

After death the tumor was dissected from the face, and weighed ten pounds and a half: it appeared to contain every kind of substance which usually fills steatoma, carcinoma, meliceris, atheroma, and lipome: in short it was a mass of putrescent matter inclosed in cysts, one or two of which had, before death, broken, and discharged its contents into the mouth; and no doubt must have greatly distressed her.

It appeared to have originated in a disease

of the parotid gland, and to have gradually seized on other glands of the face and neck. It consequently had numerous attachments; and, from its vicinity to the left carotid artery (to which it appeared to be connected), the circulation must have been much impeded.

The tumor hung so low as to lie upon the left side of the thorax, and formed a considerable depression in the ribs upon which it rested; and the highest part of it was nearly upon a level with the crown of the head; it almost closed the left eye, and pressed the nose toward the right side of the face; it considerably elongated the left ear by dragging it laterally from the temporal bone.

The dimensions of the tumor are as follows:

| | Feet | Inches. |
|-----------------------|-------|---------|
| Largest circumference | - 2 | 9 |
| Longest diameter | - - 1 | 1 |
| Transverse diameter | - 0 | 11 |

November 10. Dr. ZENCKER's, (from Berlin,) *Observations on some Species of Deafness*, successfully treated, sent to Dr. SIMS, and communicated to the Medical Society.

SIR,

MEN deprived of the sense of hearing lose a great deal of the happiness of human life; and therefore an attempt to restore this faculty must be laudable; or even a hint on so interesting a subject may deserve further investigation.

In perusing the Memoirs of the Medical Society of London, vol. I. containing so many valuable and useful observations, I met with a treatise on deafness, published by you; and deeming the communication and promotion of knowledge the chief purpose of this institution, I take the liberty of offering an observation taken from the late Mr. Schmucker's (a famous German surgeon) collection of chirurgical works relative to this kind of disease.

A man living in Silesia was for a long time deaf of both ears: all remedies applied by a skilful physician having proved ineffec-

tual, he was left without relief, bearing his misfortune philosophically. An inflammato-ry swelling afterwards rose at the mastoidæal processes of each temporal bone: poultices and a gum plaister were applied; fluctuation was felt; and, after opening, a good pus was discharged; two days afterwards the pus became thin and ill-coloured, the surgeon discovered with the probe the bone naked and rough: the next day a decoction of bitter herbs was injected, and the injected matter partly came into the mouth: and in repeated trials still more freely; the injection was carried on; four or five days after, the patient could hear a little; the power of hearing increased every day; a fortnight having elapsed, he could hear perfectly at that ear, and the wound soon closed. Encouraged by the success attending this case, the surgeon, on the patient agreeing to his propositions, cut through the skin covering the mastoidæal process of the other temporal bone, and penetrated with the perforating trepan the external bony lamina covering the mastoidæal cells: the above mentioned injections were had recourse to, which also
found

found their way through the eustachian tube to the mouth; the patient soon began to hear likewise at that ear; and a fortnight after the hearing of this ear was as well as that of the other, and the wound was healed up.

This account, given as well as I remember, not having the book at hand, would be sufficient to raise your attention; but I beg leave to add a few remarks:—the organ of hearing may be divided into the external and the internal part, separated by the tympanum; in both may reside the cause of the loss of this noble sense. Thick ear-wax in the meatus auditorius externus may easily be removed, and hearing restored; but various and very obstinate are the affections of the internal ear, that is composed by the cavum tympani cohering with the mastoidæal cells and the eustachian tube, by the vestibulum, cochlea, and canales semicirculares. Mr. Cruikshank in his lectures mentioned that he cautiously had destroyed in dogs the tympanum, malleus, and incus; notwithstanding which, the dogs retained the power of hearing: from thence he infers, that, when the stapes remains at the foramen-ovale, and the auditory nerve is unhurt, the hearing itself

can continue, though lessened; but destruction of the stapes, the nerve, the vestibulum, cochlea, and canales semicirculares, is attended by an irrecoverable loss of hearing. Now I approach nearer to the cause of deafness resulting from the faults of the eustachian tube, through which the currents of air, occasioning sound, get into the cavum tympani, by way of the mouth and nose. The several affections of this tube, and their origin, are very well explained in your treatise, and the proposed method of cure found successful in many instances, by expelling the air through the tubes, the mouth and nose being closed, claims a right of further experiment. But would not the effort of such a kind of expiration prove many times dangerous to the lungs and brain? I at least observed in such a trial a very great uneasiness, nay pain in the brain.

Mr. Wathen's method of injecting into the tube by the way of the mouth or the nose, can certainly be very seldom applied, because few patients can suffer the tickling of the nose in getting in the pipe of the syringe; and the most skilful surgeon will miss very often the opening of the tube. But the injection

jection through the mastoidæal cells finds very easily the way to the cavum tympani, and further to the eustachian tube, attenuates and detaches the thickened glutinous humour, and also the internal coats may be strengthened, even small cohesions may be separated by the force with which the injection is thrown in. In the disease, called fistula lacrymalis, the injection of quicksilver in the obstructed nasal canal is proposed: could we not, perhaps, expect greater success from its injection into the obstructed ear? But I am doubtful whether the undivided mass of the quicksilver, prevented from the passage through the cohering tube, could be absorbed, or remain as a heavy and hurtful body: watery medicated fluids are doubtless absorbed, and can perhaps be of use even in the affections of the other and more noble internal parts of the ear.

Permit me to subscribe myself,

SIR,

Your most humble servant,

J. G. ZENCKER, *from Berlin.*

Holborn, No. 53.

November

November 17. *Abstract of a Case of Morbus Niger*, by Mr. KEY, Surgeon, in the Borough, communicated by Dr. LETTSOM.

The subject of this case was a man, who had for some years suffered much inconvenience from abscesses in the loins, about the region of the kidneys, which had been occasionally opened; purulent matter had been discharged with the urine; a stone passing into the bladder seemed to have occasioned these symptoms; but as he would not submit to an examination, it was not known with certainty till after his death. A tumour had likewise formed on the anterior and upper part of the scrotum, which had terminated in suppuration, and which on being opened discharged a large quantity of fœtid dark coloured pus.

A short time previous to his death he was seized with slight shiverings and tremors, which were succeeded by a very quick pulse, and a copious vomiting of dark coloured bile, accompanied with a fluid resembling blood; his stools had the same appearance; this discharge continued to increase till a period was put to it by his dissolution,

On

On dissection the liver was found of the natural size; but in appearance it resembled the spleen, and likewise wanted that firmness, which is usual in that viscus; on cutting into it, it had the appearance of a sponge filled with bile and blood. The gall bladder was twice its usual size, and filled with bile almost black. The stomach and intestines contained a large quantity of a fluid similar to that he had vomited, and which had evidently passed from the gall bladder through the ductus choledochus.

The kidneys, ureters, and bladder, were very much diseased; one kidney was invested with a very hard fleshy substance, which was evidently the effect of inflammation, and readily pointed out the seat of those abscesses which had been formed in the loins. A calculus was found in the bladder, which weighed more than one ounce and a half. The other viscera were in a healthy state.

January 9, 1789. *Abstract of a Case* communicated to the Society by Mr. THOMAS EDWARDS, of Peckham, Surgeon.

The patient was a woman near 70 years of age, in whom, from long confinement to her

bed, a large sphacelation had taken place on the region of the os sacrum ; from this she was recovering, by the assistance of fomentations, and the internal use of bark, when a severe and obstinate diarrhœa attended with hiccough came on ; to relieve this complaint, twelve scruples of the species of scordium with opium, a mixture of chalk-julep with one hundred drops of thebaic tincture, and thirty grains of solid opium were given daily, and continued for near a fortnight before any change took place ; the slough then gradually separated, part of the bone exfoliated, the diarrhœa ceased, and the patient soon recovered perfect health.

Extract from a Description and Dissection of a diseased Spermatic Vein, by THEOPHILUS DYSON, Surgeon, and F. M. S.

A lady of a thin but healthy habit, and who had borne several children, was first attacked with a pain on the left side of her abdomen in 1762, after being shook in a coach ; there was no enlargement, or tenderness to the touch ; she was also frequently troubled with pains in her stomach and intestines,

testines, which were suspected to arise from worms, and for which medicines were given; and she discharged several of the round kind. About three or four years after she took fern root powdered, and voided a tape worm about six yards long. These complaints left her, excepting the pain in her side, which irregularly recurred with violence, and gave a sensation as if something was alive, and upon applying the hand a pulsatory *motion* was felt; during several years she took the advice of a great many practitioners, who generally treated her for worms, without any diminution of this pain, or sensation; violent purges increased them, and kept her thin. She continued in this state until her death, which happened in 1785, and which was in her 82d year. Thus far Mr. D. acknowledges himself indebted to Mr. Price, of Fore-street, and then proceeds to state the appearance which he discovered upon opening the body. The omentum he found nearly destitute of fat; the intestines free from fæces, air, or *worms*: upon displacing the intestines from the left to the right side, an enlarged vessel appeared running from the kidney towards the pelvis, about

about the size of a finger; on tracing it on the uterus, he found it to be the spermatic vein, which passed on from the uterus and joined the left emulgent vein; he removed it and laid it open; and through its whole extent it was filled with a grumous substance; it appeared laminated; every other part of the uterine system was in a sound state.

December 29. *A Case of Encysted Tumor successfully treated by Electricity.* By WM. TURNBULL, A. M. Surgeon to the Eastern Dispensary, and F. M. S.

In the month of June last, the parents of Isaac Levy, a fine healthy boy, between eight and nine years old, consulted me for a tumor, about the size and figure of a sparrow's egg, situated in the middle of the cheek, perfectly detached from the surrounding cellular substance, which had first made its appearance three months before, and gradually increased from the bigness of a small pea, to that above mentioned. On first seeing it, I declared it encysted, possessing all the leading traits

traits of those swellings termed so; viz. *a hard, incompressible, circumscribed, and moveable tumour, free from pain and without discoloration.* I advised the immediate excision of it, as the only method of relieving my young patient from this growing deformity. The mother rejecting this proposition, determined me to make trial of some remedies before we had recourse to the knife, more with the intention to amuse, than expecting any good resulting from them. In my attempts to remove this tumor, I had two ends in view, the first was to administer such medicines as might be productive of its dissolution, and in case no success should attend the attempt, I might in the next place have recourse to those applications which would bring on the suppurative process. For the first of these purposes smart purges of calomel were recommended to be given him every two days, at the same time directing the part affected to be frequently anointed with the saponaceous liniment. This practice was pursued with attention for a month, but the swelling rather increasing than diminishing, I was induced to use the second method proposed, by endeavouring to produce
a sup-

a suppuration. In order to effect this, the Peruvian bark, with small doses of calomel, were prescribed; the tumor was kept constantly covered with gum plaister. This plan was likewise faithfully followed for six weeks, but proved equally abortive with the former. Nothing now appeared to me, more than what had been done, that possibly could be of any service in this case, but electricity; when I proposed to his friends, that he should be placed under the care of that ingenious medical electrician Mr. Lowndes, who passed vibrations through the substance of the tumor every other day for three weeks and upwards. From the second application of the electrical aura, the happiest consequences were to be expected, for there was a sensible diminution of the swelling, even from so short an application, and in the course of the period alluded to, the tumor had entirely subsided.

It must create pleasant sensations in the breast of every admirer of electricity, when on reflection it appears, that experiments with the electric matter not only afford an agreeable pastime, but when judiciously applied

plied, has the power of removing many diseases incident to human nature; and that while its various phænomena can gratify the soul of the philosopher, they banish the pain and anguish of the suffering individual.

1789.

May 3. *A Memoir, containing a Selection of Cases of Dropsy, effectually cured by Gum Guaiacum; with Remarks on the superior Utility of Stizolobium in Worm Cases.* By RICHARD CHAMBERLAINE, Surgeon, of Jamaica, and C. M. S.

The hint of exhibiting gum guaiacum in dropsy, the author acknowledges to have been taken from an account of its good effects, published by a Mr. Burke, assistant surgeon to the military hospital, South Carolina, where dropxies among the soldiery, during the last war, had been very prevalent and fatal.

Mr. C. had tried it in several cases of dropsy with good success: he particularizes two; viz. of two new negro girls both labouring under universal anasarca, joined with ascites. Without any previous medicine, he exhibited a strong solution of gum

guaiacum in rum, the quantity, a table spoonful twice a day in ginger-tea; it promoted the secretions, particularly sweat, in a very extraordinary manner; purged briskly, and proved considerably diuretic. To her who was worst, frictions of camphorated oil were applied: she recovered rapidly; the other was cured solely by the gum guaiacum.

Eleven, selected from a very great number of worm cases, wherein the stizolobium (cowhage) had proved singularly beneficial, are related. From a white child about two years of age, after every medicine of the shops had been tried in vain, it brought away stools almost entirely consisting of ascarides; and a teres "of a most enormous size." From another child, two tape-worms were expelled by the same medicine, the one by the mouth, the other in the usual way: tin, aloetics, calomel in large and small doses had been previously tried in vain. A negro child belonging to Dr. Langley of Kingston, to whom it was exhibited almost in articulo mortis, passed upwards of an hundred worms, some of which, according to Dr. Langley's report, were eighteen inches in length.

No inconvenience whatever arose from the
exhibition

exhibition of *very large doses* of the cowhage, in several cases wherein Mr. C. ventured to make the experiment.

May 25. *Cases of Dropsy treated with Digitalis Purpurea; and of Chorea Sancti Viti with Flowers of Zinc.* By JOHN WRIGHT, M. D. one of the Physicians to the Infirmary at Bristol, and C. M. S.

Dr. Wright relates, that soon after Dr. Withering had favoured the world with his publication on fox-glove, it was tried in the Bristol infirmary, and in private practice, and sometimes with success.

Two cases are given wherein trial was made of this medicine with some appearance of advantage.

The first is that of a lady aged upwards of fifty, who in consequence of having experienced variety of troubles for upwards of two years, suffered severely in her health. Frequent vomiting, and an uncommon degree of flatulency, which had reduced her so low as to confine her to her bed, were so far removed for a short time by the use of ape-

riants and stomachics, as to enable her to go into the country ; soon after which she became dropfical. The *pilulæ scilliticæ* gave temporary relief, but at the end of six months from the first attack of her dropfical complaints, she was suddenly seized with *dyspnæa*, and frequent though ineffectual efforts to vomit, with continual nausea, violent cough, and spitting, and excruciating pain in the side and belly, particularly when she coughed. Her lower limbs had lost the power of motion, and in a great measure their sensibility, and felt cold to the touch. Abdomen much enlarged, urine in small quantity, pulse intermitting and uncommonly weak, and the patient in momentary danger of suffocation. Dr. Wright was induced from certain circumstances to try the *digitalis*, which he gave in doses of *gr. j. folior. exsiccat.* with *pulvis aromaticus* ; and increased to *gr. ij.* The various changes which took place during the course of a month, are related with much accuracy : at the end of which period, she was so far recovered as to be able to manage her household affairs, and walk abroad. Tonics, after this period, were

were recommended, but in vain; and though indicated (says Dr. W.) it is impossible to prove that they would have secured her from a return of the dropsy, by which in a few months afterwards she was carried off.

A sudden and unexpected shock, to a susceptible mind, and a constitution naturally very delicate, gave rise to a dropsy in the second patient, a lady of sixty. The symptoms, if possible, were worse than those of the last mentioned patient. One grain of the powder of the leaves of digitalis, three times in twenty-four hours, was the dose. Before she had taken six doses, her disease yielded to the power of the medicine, and she enjoyed good health for several months afterwards. The necessity however of having recourse to it, as Dr. W. is informed, has returned several times since the first attack, but a few doses always answered her expectations in banishing the symptoms. It must not however be concealed, that about a year after her first using the digitalis, she was seized with hemiplegia; but from this she hath recovered, as far at least as paralytic patients do in general. But this latter disease, the doc-

tor thinks, it would not be fair to ascribe to the digitalis ; the palsy, he observes, attacks persons of all ages and constitutions, and the cause of it hath hitherto eluded the most skilful pathologists. In this state of ignorance concerning the cause of palsy, little stress can be laid on an instance or two, in which it succeeded the use of fox-glove. He adds,

“ No other instances of the like kind occur to my mind ; but I recollect the case of a patient being seized with hemiplegia, which deprived him of almost all the use of his understanding, as well as speech and power of motion, who had just recovered from a dropsy attended with a violent dyspnæa, by the use of squills and gum ammoniacum.”

The flowers of zinc have been for some years generally used in the Bristol infirmary in the chorea Viti. All the cases in which it is known to have been tried are given in the following table :

Names.

| Names. | Age. | Admitted | Discharged | State. |
|---------------|-----------------|----------------|-----------------|---|
| Job Marshall | 8 | 1784 Feb. 2 | 1784 May 19 | Cured |
| Will. Stadden | 13 | 1785 Jan 24 | Feb. 5 | Cured |
| Mary Brighton | 11 | March 10 | April 9 | Cured |
| Tho. Mathews | 16 | March 14 | — 11 | Cured |
| Mary Gardner | 9 $\frac{1}{2}$ | May 9 | May 19 | Improper— the particular reason not specified. |
| Eliz. Jones | 17 | 1786 Nov. 9 | 1787 Feb. 5 | Cured |
| Mary Higgins | 14 | 1788 June 2 | 1788 June 23 | Relieved |
| W. Phillips | 15 | — 5 | Sept, 6 | Cured |
| W. Haycock | 12 | July 11 | Aug. 16. | Cured |

From hence it should appear, that the flores zinci are in general successful; but two cases are subjoined to prove, that zinc is not an infallible remedy in this convulsive disease.

The first is that of a boy of seventeen, who had several years before received an injury on the head that required the aid of the trepan; but had been very well until three months before the case was drawn up, when he was attacked with chorea Viti. Zinc, with a decoction of bark, for a time promised a complete and speedy recovery; but after continuing them a month, the disease gradually returned without any known cause, and rose to an extraordinary height. The greatest benefit this patient received was

from opium and camphor, to the use of which, together with a medicine, in which the virtues of the bark in substance, decoction, and tincture, are combined, his recovery is attributed.

The other two cases are those of two girls, both about seven years old. The one was perfectly cured of the chorea, by zinc, in a few weeks; but not long afterwards fell into a hydrocephalus which proved mortal. The other child, notwithstanding the regular use of zinc in as large doses as the stomach would bear, suffered severely, having lost almost entirely her speech, and the use of one arm and leg. Recourse was then had to the cold bath and decoction of bark, which relieved the patient, who, at the time the paper was written, was nearly restored to perfect health.

June 22. *Case of Strangulated Hernia.* By
WM. LIVINGSTON, M. D. C. M. S.
Aberdeen.

The subject of this case was a youth about 14 years of age, who, from some violent exertion on Feb. 1, 1786, had an inguinal hernia

nia produced; on the 9th a gangrene took place, and on the 12th he was received into the Aberdeen Infirmary, at which time Dr. L. first saw him; when he found that the scrotum, hernial sac, and the strangulated intestine were sphacelated, and an opening formed, through which the fæces were discharged, considerable tumefaction, and tension about the abdominal ring; the frequency of his pulse was not much increased; the parts were covered with common dressings, and cataplasms; bark with wine was given. About ten days after the sphacelated parts separated, and came off, which enlarged the opening, and gave a greater vent for the fæculent discharges; there was but little alteration in the next fortnight, except that his pulse was more quick, the quantity of wine was then increased, and an anodyne was given at night.

About the fourth week from his admission, the granulations were healthy; the intestinal discharges were less thin, and some small quantities came per anum, which increased as the opening in the scrotum and intestine became less; and in seven weeks after he was received into the infirmary; there remained

only a superficial ulcer, and the whole of the fæcal discharge passed by the natural passage, and his cure was completed in the first week in May.

The Doctor saw him when he wrote out this case; there was only a small thickening on that side of the scrotum; no appearance of protruded intestine; he thought the testicle rather diminished.

Case of morbid Retention of Urine, with a Description of the Parts diseased after Death.
By the same.

The patient, who was 74 years of age, had been for several years, occasionally subjected to a retention of urine, but hitherto had received relief from the catheter. On the 23d of May 1789, he was admitted into the Aberdeen Infirmary. He had not passed any urine from the 18th; had suffered much pain; his strength was much exhausted, and his pulse was frequent and feeble; there was tension about the region of the pubes, and the abdomen generally distended; he had no stool for four days. The catheter
was

was used, and about a quart of urine came off, but suddenly stopt; this did not appear to relieve him; stools were procured by an enema; the abdomen was fomented, and wine was given him; on the next day the same quantity of urine was drawn off, but without any relief; his strength gradually failed, and he died on the 25th.

Ten quarts of water were found in the cavity of the abdomen; the bladder was empty; its internal coat appeared to have been inflamed in several places, and at the fundus, in the center of a livid spot, a circular hole was discovered large enough to admit the fullest sized black lead pencil: the prostate gland was double its natural size, and its substance was scirrhous. Dr. L. considers this state of the prostate gland to have been the cause of this disease.

July 27. *History of a Case of Ascites with Anasarca, relieved by the application of Common Oil, assisted by Friction.* By WILLIAM CHAMBERLAINE, Surgeon, Secretary to the Medical Society.

The patient was a lady near sixty. The disease, which had yielded to no internal remedies,

medies, was very far advanced, and attended with a bad cough* ; the abdomen, thighs, and legs, distended to a size surpassing credibility. The patient had been confined for several weeks to her bed, and was unable to bear the least motion: all medicines had been laid aside, and death patiently waited for, when, almost in *articulo mortis*, frictions with common oil were recommended; from the exquisite pain felt when any part of the skin was touched, the oil was *very gently* applied, without friction for the first two or three days: after that period she could bear gentle friction, which by degrees she became enabled to endure in an increased degree: in a week from the first application of the oil she passed urine in very great quantity, and the swelling of the abdomen and limbs began to subside; in a fortnight she could bear to be taken out of bed, and to sit six or eight hours in a chair: in a month, to walk up and down stairs without assistance, and soon after to go abroad. No medicines whatever were used during this process.

* This case seems to form an exception to the generally just observation of Hippocrates.

* Ἰδρωπιονία νῦ ἐκείνη, ἀνελεπίστος ἐστίν.

Hippocr. Aphorism. § VII. 47.

August

August 24. *Two Dissections communicated by*
Mr. MACMILLAN JAMESON, Surgeon, in
the Island of Jamaica. Port Royal, Dec.
29, 1788.

The number of years that men will live in the West Indies, with diseased livers, and the length of time frequently before hepatitis proves fatal, especially the chronic, or that species which affects the substance and internal parts of the liver, is very generally known, and requires no comment. Three cases have occurred to me lately, within a short time of each other, which evince this; and confirm me in an opinion that hepatitis is here a more frequent disease than generally imagined.

It is also of some importance to be able to distinguish between hepatitis and other diseases, as it is treated in a different manner from most others, which cases of this kind may lead to.

I shall omit relating one case of hepatitis that was confounded with dysentery, as I did not see the patient till the last extremity,

nor

nor could I obtain the particulars of his treatment.

Thomas Piddle, a seaman, in the naval hospital, at Port Royal, aged 28 years, of a very sanguine, florid complexion, was seized about eight weeks before his admission, with a violent pain in the region of the liver, attended also with a pain in the shoulder of his right side, dyspnæa, and other inflammatory symptoms, for which the surgeon of the ship had at first bled him, afterwards applied blisters to his side, and used different antiphlogistic remedies.

The 26th of Nov. after his admission into the hospital, these symptoms continued to increase with greater violence, the pain in his side became more fixed, attended with great anxiety and a considerable fever. It was not till after his arrival at the hospital that I had an opportunity of seeing him; he was then put under a mercurial course, on the supposition of his having a hepatitis, which was continued till the mouth and gums were affected. The mercury was accompanied with opium, and other antispasmodics, as the urgency of the symptoms required, but without

out success, as he grew daily worse till the 29th of December, when he died.

Appearances on Dissection.

The cavity on the right side of the thorax was filled with a thin brownish coloured fluid, which burst out freely on making an incision, and had the appearance of bloody serum in dropsy, mixed with purulent matter. The whole of the pleura lining this cavity had a rough sodden appearance; but there was no abscess or suppuration penetrating the mediastinum, or diaphragm, nor any communication between the diseased part, and the left cavity of the thorax or abdomen. That portion of the lungs occupying the right side of the chest, was almost entirely destroyed, and the small part of it which remained, appeared like a congeries of the larger branches of its vessels, adhering together, and scarcely more than two ounces in weight. The left portion of the lungs was quite sound; the only appearances which deviated from a natural state were, a great flaccidity, and darker colour than usual; and I could not discern on the left side any of those adhesions of the lungs to the
pleura,

pleura, or tubercles, so common after inflammation in the thorax.

Having always supposed this disease a hepatitis, I was rather surpris'd at the appearances in the thorax; and also, on opening the abdomen to find the liver only a little enlarged; and it was not until I had cut deep into its substance, that I discovered an abscess in the lower and posterior part of the right lobe, which contained a very thick yellow pus, part of it in coagula, very bland, and inoffensive to the smell (perhaps from its not having been expos'd to air.) This matter had not destroyed any of the exterior part of the liver, so as to diffuse itself into the abdomen; and although the external appearances were so different from what might have been expected, yet that part which was in contact with the matter, had a rotten spongy appearance. The gall bladder was enlarged, and almost empty.

From these appearances, I am of opinion; that the abscess in the liver was not the cause of this man's death, although during his life it was mistaken for the entire cause; for the abscess was not very large, and the rest of the liver was sound; but that the immediate cause of his

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his death was from the destruction of the lungs, and the quantity of matter which filled the right cavity of the thorax; and it is a query how far these diseases were connected with each other, or if at all. The deceased having belonged to prince William Henry's ship, he had been alternately from cold to warm climates (Halifax, Newfoundland, the Windward Islands, and Jamaica) in a short space of time. The hepatitis might have originated in the warm, and the inflammation of the thorax in the cold climate; especially as I could not presume, from the appearance of the left cavity of the thorax, that there were any seeds of consumption, nor the man of a consumptive habit; neither did I understand from himself that previously he had much cough or expectoration.

CASE II.

JANE HENDERSON, a soldier's wife of the royal artillery, aged 29 years, had been at Gibraltar two years and a half before her arrival at Jamaica; she was apparently a very strong, healthy woman, but at times addicted

to the free use of ardent spirits. On her first complaining to me she was near her full time of pregnancy, and said that she had, for six months before, been much troubled with a pain in her right side, difficulty of breathing, and a small short cough, &c. which she attributed to the fatigue of washing linen, and a trifling fall she had from the platform in the barracks a considerable time before. I took as much blood from her as the nature of her situation and the climate would admit, and gave internally mild aperient medicines, with pectoral emulsions, &c. On examining her side, I could not observe any preternatural appearances, but she complained of much pain on its being pressed.

I was sent for two nights after this, to visit her, and, on my arrival at the barracks, found her delivered, and in fits, which continued, with very little intermission, till about two o'clock next morning, when she died.—The child was born alive, but died in a few minutes afterwards, and appeared to be nearly full grown. The attendants informed me, that, during the efforts of labour, she complained that something had
given

given way within her, and was immediately after that, seized with the convulsions.

ON DISSECTION

Part of the liver was found much enlarged, but the rest appeared tabid, and more than half destroyed by a large abscess, the matter of which had deluged the abdomen, and was lying on the surface of the viscera. The diaphragm was very much inflamed, and that part of it which was in contact with the diseased liver had suppurated, and an abscess opened a communication with the right cavity of the thorax, where a considerable quantity of the matter was lying. The contents of the pelvis were no ways different from the appearances after a natural labour.

I imagine that the abscess of the liver had burst, and effused itself, during the efforts of labour, at the period when she complained of something giving way within her.—The quantity of matter was very great, and quite different from that in Piddle's case, as this was thin, dark-coloured, and extremely offensive.

October 26. *A Case of Angina Pectoris cured by the Use of white Vitriol*, communicated by WILLIAM LEE PERKINS, M.D. of Hampton Court.

SAMUEL NEWMAN, aged 35, a coach-maker, of rather a weak habit of body, had laboured for about a year under the following complaints: a violent pain extending from the breast-bone to both the arms, attended with an intolerable sense of stricture in the chest, difficulty of breathing, sense of suffocation, great anxiety, and restlessness, palpitation of the heart, and irregularity of the pulse. These complaints would sometimes attack him several times in the day. They were exasperated by the least exercise; and he was frequently obliged to desist from walking, and was become totally incapable of following his occupation. Various remedies had been for a long time employed by able practitioners without success.

September the 6th, 1787, he was admitted as a patient at the Ossulston Dispensary, under the doctor's care, who, having also
employed

employed several of the usual remedies unsuccessfully, had recourse to white vitriol, the good effects of which he had often experienced in spasmodic diseases.

He directed it for him the 14th of September in the quantity of a grain morning and evening, with a quarter of a grain of opium, and some aromatics, increasing the quantity as the stomach would bear it.

By the 17th the white vitriol was increased to two grains and a half each dose: the opium was now taken alone in the dose of half a grain every other night.

On the 1st of October the paroxysms recurred less frequently, and with less violence; and he could bear gentle exercise without inconvenience.

On the 10th he had so little of his complaint that he was able to begin to work at his business; and

On the 20th he was perfectly well.

November 16. *A severe Spasmodic Affection, successfully treated.* By BENJ. SAY, Surgeon, and C. M. S. Philadelphia.

THOMAS SAY (my father), who is now in his eightieth year, was afflicted during thirty

years with severe spasm, usually termed the cramp, which seized at first, sometimes his feet, at other times his legs and hands, &c. until within these last eight or ten years, when they principally affected his stomach and breast. The disorder at first attacked him but once in three or four months, until within these last four or five years, when they recurred very frequently, and at irregular periods. The effects produced upon the system were very dreadful, especially when the lungs were attacked, which happened at last two or three times in a week. During the paroxysm he groaned exceedingly, and complained of an amazing tightness in the chest, comparing it to being screwed in a vice, which after a short time, perhaps in ten or fifteen minutes, would suspend his breathing entirely; then he would lie as if perfectly dead, with the mental faculties completely lost; but the greatest singularity of this case was, that, when he was at the worst, and during this apparent suspension of life, the circulation did not seem to be the least impeded, the brachial arteries possessed their usual pulsation, the blood circulated through the jugulars, and through the whole arterial
and

and venous system, as in health. Frequently, after lying in this torpid state two minutes, he gradually recovered, like a man awaking from a sound sleep, continued somewhat easy for a few minutes, and then passed through similar dreadful symptoms again. He frequently went off in a convulsion.

Various causes were assigned for this dreadful disorder, and equally various were the remedies from time to time administered. Several eminent physicians were consulted, who ordered venæsection, tonics, mercurials, anodynes, and antispasmodics; all of which, as well as every other kind of treatment which promised any advantage, were persevered in, without his receiving the smallest benefit from them; so that in the last autumn I attended him closely three days and nights, expecting each to be his last.

He had laboured under an hernia scrotalis for a great number of years past, which at times proved very painful to him; but appeared to be distinct from, and to have little relative connection with, the above disease; although frequently when he was afflicted severely with one, the other was produced: I at

length recommended him to wear a truss, expecting thereby to give relief, at least, to one distressing complaint; accordingly about four months ago, he consented to wear one; the use of which has been attended with success beyond my most sanguine expectations, and equal to my wishes; it has relieved him from the most painful and alarming symptoms that could afflict the human frame; and he has not had more than two or three very slight spasmodic fits since he applied the truss, and had not one in which the breathing was suspended.

Sept. 14. The following Case, by WILLIAM LUXMORE, Surgeon at Uxbridge, and C.M.S. was read.

A BLACKSMITH, about twenty two years of age, was attacked with the *genuine* Devonshire colic: after the usual remedies had been exhibited, viz. Laxatives, injections, fomentations, &c. evacuations and ease were procured, but a complete amaurosis immediately succeeded; the pupils were largely dilated, without the least sensibility of the iris to the strongest and most *sudden* candlelight, opened on the eyes in a *purposely* darkened room;

room : on account of this local nervous affection, I applied a large blister plaster interscapulas, and gave him liberal doses of volatile salt of amber, and valerian in powder, with strong mustard whey : to my agreeable surprise, in twenty-four hours, the optic nerves had perfectly recovered their functions, and, as I was informed by the patient, as instantaneously as they had been suspended: he afterwards felt, as *is usual in this disorder*, a tingling down the spina dorsi, which was succeeded by a slight degree of paralysis in the wrists; this, however, was soon removed, and he quite recovered.

November 23. A Paper was read to the Society, sent by Mr. BRADFORD WILMER, Surgeon at Coventry, and C. M. S.

It related the case of a healthy young man, who had fallen on a glass vessel, and received a wound in the upper part of the thigh; which bled so profusely, that in the space of an hour he lost nearly a gallon of blood. The hæmorrhage had frequently returned during ten days; and, in consequence of it, when Mr. Wilmer first saw the patient, he was become

come weak, pale, and emaciated, and the whole limb was much swoln and indurated. From the situation of the wound, which seemed to penetrate through the rectus muscle, Mr. Wilmer suspected that the blood came from that branch of the crural artery which is spent on the external muscles, and given off, soon after the artery emerges from Poupart's ligament. Being desirous of accomplishing a cure without an operation, Mr. W. at first directed cloths wetted with a solution of crude sal ammoniac in vinegar and water, to be kept constantly over the whole limb; the Peruvian bark with elixir of vitriol to be frequently administered internally; and with these twenty-five drops of laudanum to be given every night, to promote sleep. Notwithstanding these remedies, the wound bled frequently during the next eight days; on the last of which a small stream of blood burst from the wound, and was carried to a considerable distance; the limb at the same time continuing greatly swoln. Mr. Wilmer, therefore, now abandoned all hopes, either of procuring the absorption of the extravasated fluid, or of healing the wound in the vessel, without an operation;

operation ; and on the following day, in the presence of Messrs. Cole, Renn, Whitwell, and Bullock, he performed the following. The tourniquet being applied above the external wound, he made an incision the whole length of the tumour ; and cutting through the muscles, discharged at least four pounds of blood ; part of it being fluid, and part coagulated, and the whole highly putrid. The tourniquet was now tightened, and afterwards slackened ; but, notwithstanding these changes, the cavity filled fast with blood ; and it was soon perceived that this blood issued from an aperture in the crural vein. A small dossil of lint was applied upon it, and over this pieces of soft dry sponge, one over the other, so as to project beyond the surface of the external incision ; the whole being kept on by a flannel roller. The same internal remedies were continued as before : the dressings were not completely removed till the seventh day from the time of the operation : no hæmorrhage afterwards issued ; and in process of time the wound was perfectly healed.

In the course of the cure the patient suffered much uneasiness from the lodgment
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of hardened balls of excrement in the rectum; and in two days no less than twenty-four such balls were discharged in consequence of injecting soap glysters every six hours.—The long continuance of the patient's confinement on his back produced an inflammation over the os sacrum, which ended in a large and troublesome flough. A very large suppuration also took place in the upper part of the right arm. And after this, when the patient was reduced to an extreme state of debility, he was attacked with severe rheumatic pains in the ancles, knees, and wrists. All of these complaints required very close attention: they were treated with great propriety: the wounds gradually healed: the patient recovered his usual strength; and at the time the paper was written remained perfectly well.

1790.

May 3. A Paper was read, written by Mr. PHILIP WERNER, Navy Surgeon, C. M. S. and Surgeon to the British Factory at Algiers, containing Nine Cases which occurred to him at Algiers.

THE first was an ascites in a boy of ten years of age, after an ill-treated tertian, in
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the cold fit of which he had always a severe pain in his belly and the region of the bladder. This disorder was cured in a month by giving him daily about half an ounce of cream of tartar dissolved in barley water.

The second was a case of a man of 50 years of age, who had been troubled with a scrotal hernia for 20 years. This, from exercise and inattention, increased so much as not to be reducible, and brought on the usual symptoms of strangulation. A Turkish Tabib rubbed it with an ointment, and on the third day burnt it in five or six places with a piece of lighted touchwood. When the author was called in, the tumor was twice as big as his head, with total constipation, vomiting, &c. He took away a pound of blood immediately; and in the evening eight ounces more. By means of a horizontal posture, suspension of the tumor, emollient glysters, saline draughts, with laudanum, together with cold embrocations of aq. veget. min. and vinegar, the symptoms disappeared; the tumor lessening much, though never so as to be reduced again as it had been with ease before this attack.

The third was a case of a very large hernia, which, whenever reduced within the abdomen,

domen, caused most excruciating pains, vomiting, &c. that were relieved upon it coming out again.

The fourth was a case of scrotum enlarged to the diameter of three feet, without the patient's health being affected. It had been ten years increasing to that size.

The fifth was a case of hernia not reduced until the 10th day. Witchcraft, nostrums, ointments, and fire, had been tried in vain, and the author did not succeed better; at first by copious bleedings,, warm baths, cold applications, laudanum, injections of tobacco smoke, &c. at last clysters of the infusion of tobacco, frequently repeated, brought away copious white frothy inodorous stools, and the patient was relieved.

The sixth was the case of iliac passion in a soldier who had lived in camp three months, principally upon cuscusu. Besides the usual means which were tried for his relief, immense quantities of dry hardened excrement were brought away with a small round wooden spoon. The belly was rubbed frequently with castor oil, and emollient clysters given, but in vain, as he died on the third
day

day of their use, which was the 18th of the disorder.

The seventh was a similar case, occasioned by the patient's having eat an immoderate quantity of prickly pears. On the fifth day he was insensible, with cold extremities, and he had not passed urine the whole time. The same means were used as in the last. Sixteen ounces of blood were taken away. Two pints and a half of urine drawn off by the catheter, and by the use of the wooden spoon, and rubbing the belly with castor oil, large quantities of hard *scybala* were brought away, and the patient being relieved was walked up and down the room, supported by two men, when more of the same were voided, and he was cured with the assistance of a laxative of sal. cath. largely diluted and wrought off with camomile tea.

The eighth was of a patient who had laboured for many years under such severe paroxysms as by the superstitious natives of Barbary were imputed to witchcraft. In these paroxysms the pains he underwent were most excruciating throughout the whole intestinal canal. Some of the symptoms leading Mr. W. to suspect that worms might be in part
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the cause of his malady, he made trial of the *stizolobium*, or cowhage. On the third day he was relieved by a copious stool, with a great many worms of the genus *ascaris lumbricoides*, which came away alive, and strong. The cowhage was continued for some days, and every fourth day a dose of jalap was interposed. From the first discharge of worms he had not any more fits, and in a few days was perfectly restored to health.

The ninth was also a worm case, with some uncommon symptoms; which had baffled for more than twelve months the power of every known anthelmintic, until Mr. Werner gave the cowhage, which brought away “near half a pint of the largest lumbrici he had ever seen.” The same being continued, lumbrici were passed with every stool, for several days longer: tonics were afterwards prescribed; and the patient, restored to perfect health, requested that Mr. Werner would permit him to have some of the same medicine for his children, who were also great sufferers from worms. This being complied with, and the cowhage given freely, its beneficial effects were soon evinced. All of them passed worms after the first or second dose; and by persever-

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ance in the use of it for a very few days, all their bad symptoms went off.

Dec. 12. A Case was sent to the Society by Dr. PERFECT, of Malling, C. M. S.

THE subject of this case was a woman, in whom the catamenia did not appear till she had entered her forty-seventh year, when the discharge came on, preceded for several days by indisposition, as rigors, lassitude, stupor, pain in the loins, &c. and returned at regular periods till her death, which happened in the fifty-seventh year of her age, and was occasioned by a convulsive cholera.

She was a widow when the catamenia appeared, having been married many years, but had never been pregnant, and had enjoyed good health after her husband's death, although she lived chiefly on animal food, and indulged in malt and spirituous liquors, and used but little exercise.

1790.

August 2. *History of an Abdominal Tumor accidentally cured*, communicated by Mr. STEPHEN LOWDELL, Surgeon, F. M. S.

IN autumn 1777, Miss ———, aged about 21 years, began to complain of an affection of her stomach, viz. nausea, cardialgia, and pain, which sometimes occasioned her to vomit about a tea-cupful of a cold, clear, insipid lymph, after which she always found relief.

These symptoms continued more or less until the beginning of December, during which time she had a constant recourse to Anderson's and Hooper's pills, on a supposition that her complaints arose from a deficiency of *menstruation*.

She had never menstruated before her 18th year, and since that period, very sparingly both as to time and quantity, for the most part going three or four months without any appearance, and that very trifling.

In this month she was frequently troubled with pains in the bowels, and loose stools, sometimes tinged with blood, which were attributed to the use of the pills. At the latter end of the month she had symptoms of
a fresh

a fresh cold, succeeded with morning sweats, which produced great languor and weakness.

In January 1778, perceiving herself growing weaker, with loss of appetite, continual sickness, &c. she applied to a physician, who advised her to lose blood, and take an emetic; but finding no relief, she was ordered to keep in bed, which was adhered to for about three weeks.

On her first rising, and being dressed, she found her waist considerably more increased in size than usual. This, she was informed, arose from her weak state, and would subside as she gathered strength. Recovering very slowly, change of air and exercise were recommended. These were followed during the summer of this year, but without any alleviation of her disease, the sickness, &c. of the stomach still continuing, accompanied with an oppression and fulness, especially after eating. The swelling, which she first discovered in January 1778, had never diminished, but, on the contrary, kept increasing in a slow progressive manner.

There was no sensible decrease of urine, nor did she bring off her stomach any of the

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lymphatic

lymphatic fluid above mentioned, since the tumor of the abdomen first appeared.

Finding the tumefaction continually increasing, and her menses as seldom and sparing as before; in June 1780, she consulted Dr. S——, who prescribed pil. plummeri, tinct. amara, vin. chalyb. Pyrmont water, &c.

These medicines were continued two or three months, without any material benefit. In November following she applied to Dr. F——, whose prescriptions were nearly similar to the above, with the addition of a more generous diet. She pursued this course likewise about two months, and in the spring of 1781 menstruated regularly every three weeks.

She now soon grew better in all her complaints, except the swelling of the belly, which was at this period increased to a size as that of a pregnant woman on the eve of delivery.

Even under the pressure of increased bulk she was extremely active, and could take pretty severe exercise without fatigue.

The abdomen, though so large, was not so tense, as is commonly the case in *Ascites*,

nor

nor, on examination, could any undulation with certainty be discovered.

On the 4th of October, 1781, riding in an open chaise, she was by accident thrown out, and fell on her face; at which time she felt an acute pain across her stomach. This went off instantly, and she perceived no injury from the fall, except some slight scratches on the face.

On Monday, the 4th day from the accident, she began to make urine oftener than customary, and in a larger quantity. From this day till Wednesday, she continued to have frequent calls to make water, and the quantity which she evacuated during those three days, was computed at 18 quarts.— From this time the swelling began to abate, and continued abating until Thursday evening, when it entirely vanished. This discharge soon made her very weak and faint, and, although living generously, she remained in this state many days.

It is worthy of remark, that from the time the swelling first began she had no appearance of the complaint in her stomach till the autumn 1781; from which time to the middle of November she had frequent

returns, and from that period to March 1782 she had not the least remains of her enlarged belly, menstruated regularly, and in every respect enjoyed good health.

R E M A R K S, &c.

The water in this disease was three years and nine months in accumulating, and during its rise, progress, and termination, no symptom of disease appeared in any abdominal viscus.

The suddenness of the cure, after the violent concussion, which the viscera experienced from the patient's fall, induces me to believe, that previous to this accident the contents of the tumor were confined in a cyst, void of any absorbents, and that on its being ruptured, the water was dispersed among the intestines, and readily imbibed by these vessels, and conveyed to the kidneys.

As the disease was entirely removed, we would imagine that the water was contained in one cyst only; though this does not appear always to be the case in encysted dropsies. Van Swieten, from Aretæus and Æti-

us,

us, gives us histories of dropsy, where the water was contained in numerous vesicles, in the cavity of the abdomen.

One instance of this kind, was a woman in St. Thomas's Hospital, whose case was supposed to be ascites, and was attempted to be relieved by the trocar; but on perforating the abdomen, a very small quantity of water came away.

The puncture was repeated two or three times without any happier event. No further attempt was made that way. Internal medicines were of no avail, and the patient expired.

On examining the body, the cavity of the abdomen was filled with hydatids, round and pellucid, like balls of glass; varying in size, the largest not exceeding a hen's egg, and the smallest a large pea.

As the cure before us was evidently accomplished by the concussion of the abdomen, is it not a persuasive argument for employing such concussive means as may be safely applied in dropsies supposed to be encysted, viz. *emetics, jumping, and riding on horseback?*

March 17. Dr. MITFORD, of Poole, C. M. S. in a Letter to Dr. LETTSOM, communicated the following *Case of Fæces passing through the Urethra, with a Dissection.*

JOHN LEER, ætat. 62 or 63, of a full habit of body, and living a sedentary life, by profession, an attorney, on the 26th of July, 1788, complained much of borborygmi, producing such noise as to be heard at a considerable distance, and rendering it very disagreeable for him to go into company: he had lost flesh considerably, attended with debility, being able to use but very little exercise; and had something of a cadaverous appearance in his countenance. He complained of pain, though by no means excruciating, in his loins, and sometimes about the umbilicus, particularly just before the borborygmi took place, on which the abdominal pain instantly left him.—Appetite bad, attended with sickness after taking food, particularly fluids; frequent loose stools of a frothy whitish appearance; urine natural; pulse 60, regular, but low, without any preternatural heat.

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The symptoms first made their appearance more than six months ago in a slight degree, to remove which he has at different times had recourse to the spirituous tincture of rhubarb, Daffy's Elixir, &c. in large quantities: his symptoms were now increased to an alarming degree. Previous to this attack he experienced a good share of health, and knows not what to impute his present complaint to, unless his constant habitual free use of spirit and water, and his sedentary mode of living.

He now began a course of the pillul. gummof. with steel medicines, and gentle aperients at proper intervals.

About the ninth of August, in addition to his other complaints, he was much troubled with hiccups, for which bolusses of musk and camphor, with an infusion of quassia, were prescribed, to which this truly troublesome and alarming symptom soon yielded, but was succeeded by a costiveness, accompanied with great lowness of spirits and restlessness, until relieved by an enema: at this time he complained of increased pain in the loins, as also a pain in passing his urine, on which his medicines were changed
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for the sal. diuret. dissolved in the infus. amar. simp. The following day I was not a little surprised when they shewed me, for urine, in a glass rummer, a liquid stool; I concluded there had been some mistake, but from this time he frequently brought off liquid fæces by the urinary passages, and at other times air mixed with the urine, causing it to bubble (as the patient himself remarked) like liquor from a cock when the cask is almost empty. These symptoms clearly evinced a preternatural communication between the intestinal canal and urinary bladder, though, on very particular enquiry, I could not find he had ever experienced any complaints which could lead to a suspicion of an inflammation either in the bladder or intestines. When the contents of the intestines had found this very uncommon passage, his former symptoms mended much; the borborygmi almost disappeared: his spirits grew better, and his appetite mended for several days; he then ventured to walk a little way, after which he found much fatigue, and from this time a lassitude with debility increased fast on him; he lost his sleep, and complained of pains very generally

nerally over the body, grew weaker every hour, till, on the 3d of September, he sunk into the arms of death without a groan.

We obtained liberty from the friends of the deceased to dissect the body; and the following account was given me by one of the ingenious gentlemen who operated.

Appearances on Dissection.

On opening the abdomen we observed a portion of the ileum firmly adhering to the fundus of the bladder, with a slight appearance of mortification, and, on dividing the inosculation, a passage was discovered from the intestine, through which the excrement might have freely passed, though very little was found in the bladder. The peritonæum was slightly inflamed, the mesentery and almost the whole of the intestines considerably so: the coats of the bladder and ileum were much thickened, and at the adhesion somewhat ulcerated; the intestinal canal was rather obstructed from its thickened coats at the diseased part; but in every other respect (the inflammation excepted) in a natural state.

December

December 6. *A Case of a fractured Cranium, attended with a Loss of a small Portion of the Brain,* communicated by WILLIAM FRENCH, Surgeon, Harpur-street.

MISS DAVISON, aged 10 years, in the month of January, received a large lacerated wound on the side of the head by a fall from a window 10 feet high, upon a flint pavement, where she lay speechless and motionless. The wound was washed and superficially dressed by a surgeon of Twickenham, where the accident happened. About five hours afterwards, Mr. FRENCH saw her with this gentleman, and discovered a fracture of the cranium, with a considerable depression extending from above the orbitary process on the left side, across the coronal suture towards that angle of the parietal bone where it is connected with the frontal and temporal bones; a small portion of the brain adhered to the dressings which had been applied, and about as much as would fill a tea-spoon was lying loose in the wound. There being a necessity to remove her to town, it was done with every precaution that
very

very evening. She was then bled, her bowels emptied by glysters, and a saline draught with a mild opiate given every four hours. The next morning after the accident, finding the senses recovered, and that she suffered very little pain, he determined, in consultation with another surgeon, to do nothing but attend diligently to what the symptoms should indicate, dressing the wound with a soft digestive, observing a strict diet, and continuing the saline medicines; the next day, finding the pulse too full, six ounces more of blood were taken away, there appeared no necessity for more active measures; the same course of medicines and diet was pursued for a month, during which time several small fragments of bone were discharged with the dressings, and in about six weeks she perfectly recovered, the injured scalp every where adhering, with very little deformity.

1791.

March 21. *Case of Fractured Skull* (with a Plate). By J. BLOUNT, Surgeon, of Birmingham, and C. M. S.

THE tedious process of nature in producing a substance for the scalp, has induced surgeons

surgeons to revive the practice of saving it in the operation of the trepan: but the originality and merit of the practice of laying it down immediately on the bare membranes, or on the brain itself, and producing an union by the adhesive inflammation, is solely due to Mr. Mynors*, of Birmingham; and the following case is another † instance of this very superior manner of treating fractures of the skull.

John Newey, aged 12 years, was on the 7th of February, 1791, kicked by a horse on the forehead. I found a wound across the forehead somewhat more than an inch above the left eye, through the scalp and pericranium about $2\frac{1}{2}$ inches long, answering in shape to the form of the fore part of the horse-shoe, and discovered a fracture of the frontal bone, with considerable depression, accompanied with the usual symptoms. Mr. Mynors obliged me with his assistance in applying the trepan. The wound of the scalp was dilated and separated from the pericranium, sufficiently to bring the fracture into full view, and to allow of removing such parts of the

* Vide Mynors' History of Trepanning the Skull.

† Vide London Medical Journal, vol. v. p. 278. vol. vii. p. 152. vol. xi. p. 376.

bone as were thought necessary. The portion of fractured bone was of an irregular circle, $1\frac{1}{4}$ inch in diameter, the lower edge was about an inch above the left superciliary process, and the right side immediately over the longitudinal sinus. The fractured portion of bone (which was depressed more than equal to the thickness of the skull, occasioned by the fracture of the internal table; extending nearly an inch in diameter, more than the outer), together with several small fragments, were removed. The flap of the scalp was brought forward, *and laid in contact with the naked dura mater*; the edges of the wound were carefully confined in the most perfect apposition possible. At this time his pulse had recovered its natural fulness. The pain of his head was gone, and he soon fell into a comfortable sleep. Saline aperient medicines were directed till the 11th of the month, when the wound was examined, and the most complete union was found to have taken place. On the 16th the wound was again examined, and there did not appear to be any necessity of removing the dressings, but with a view of supporting the newly united parts; this was the last application.

The

The history of surgery, as far as I know, does not afford a case of fractured skull cured in so short a time, with so little trouble to the surgeon, or pain to the patient.

EXPLANATION OF PLATE VI.*

Fig. I. The letters C A B D are an exact representation of the cicatrix; that part between A and B shews the extent of the wound made by the accident; from C to A on the one side, and from B to D on the other, shews the direction, and how far the wound was extended by the knife.

Fig. II. Is an exact representation of the fractured portion of bone that was removed.

1792.

June 4. *The following Remarks on the Bite of a Mad Dog, from Dr. WHITE, of St. Edmundsbury, to Dr. LETTSOM.*

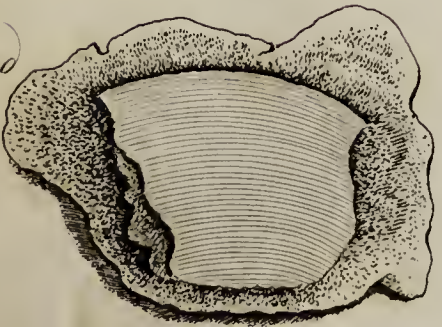
IN the last nine months this part of the country has been terribly infested with mad dogs, during which time it has been my misfortune to be applied to by several persons who have been bitten; and as the

* The Plate which accompanies this Case was presented to the Society by the Author.

Fig 1st



Fig 2nd





poet feelingly expresses himself, I have been “anxious and trembling for the birth of fate.” Seven of these miserable objects were bitten by dogs quite unprovoked, and with every appearance of madness. Three did not apply till the third day, two on the second day, and two in a few hours after the accident. Three others have also been with me for advice, who were bitten by a cow that had the hydrophobia. All of these, except two, had the injured parts wholly dissected out; the wounds well washed first with cold then with warm water; and the surfaces touched with lunar caustic: and I am in hopes, from the interval which has elapsed, that they are freed from danger.

One of the excepted two was bitten about eight months ago in the palm and on the back of the hand; in which case as much of the wounded part as could be with safety was removed, and the process of ablution was continued for near two hours; nothing having been done externally until the day I was consulted, which was the third from the accident. This person is in perfect health and spirits. In the other instance, the tooth of the cow had penetrated

the end of the finger through the nail, on which account I thought myself warranted to deprive the patient of the first joint.

It is now five months, or more, since I was consulted about a foal which had been bitten by a mad dog five days before, through the wing of the left nostril. The wounded part was much torn. I ordered it to be cut out, and no other means were used. The animal is at this time perfectly well. A valuable horse, a cow, and two pigs, were bitten by the same dog, on the same day, to which internal remedies only had been administered; they all died mad within the month.

Similar collateral circumstances were also proofs of the dogs being mad in five out of the seven instances before mentioned, on which external means only were employed.

Two persons on whom excision and ablu-tion had not been performed, and to whom medicines of false repute had been given, fell wretched victims to their credulity.

This brief detail of accidents that have lately fallen under my direction, together with the remembrance of four cases of hydrophobia, which I have been called to in
the

the course of my practice, have given rise to the following suggestions.

That the virus may be exterminated by excision many days after the injury.

That the first sensible mark of its action is a pain in the injured part.

That the consequent symptoms and sensations have a much nearer relation to spasm than inflammation.

That the lymphatic system is not affected in like manner to what it is from the insertion of variolous, or any other infectious matter, supposed to be carried into the habit by absorption.

Admitting these premises, Is it not probable that the virus lies dormant till the previous symptom of pain in the bitten part comes on?

Might not excision and ablution afford relief *at that period?*

May not the future progressive symptoms be produced by irregular excitement on the nervous system *only?*

Is it absolutely impossible to give relief by excision and ablution, when the patient is afflicted with *hydrophobia?*

As the virus is most commonly, perhaps solely, generated in animals that never perspire, will the cow, or any other kind of creature not subject to that restriction, produce, or in the accidental hydrophobic state communicate this disease?

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