An enquiry into the causes which have most commonly prevented success in the operation of extracting the cataract : with an account of the means by which they may either be avoided or rectified : to which are added, observations on the dissipation of the cataract, and on the cure of the gutta serena : also, additional remarks on the epiphora, or, watery eye : the whole illustrated with a variety of cases / by James Ware, surgeon.

AN ENQUIRY INTO THE CAUSES WHICH HAVE MOST COMMONLY PREVENTED SUCCESS IN THE OPERATION OF EXTRACTING THE CATARACT;

WITH AN

ACCOUNT OF THE MEANS

BY WHICH THEY MAY

EITHER BE AVOIDED OR RECTIFIED.

TO WHICH ARE ADDED,

OBSERVATIONS ON THE DISSIPATION OF THE CATARACT,

AND ON THE

CURE OF THE GUTTA SERENA.

ALSO,

ADDITIONAL REMARKS ON THE EPIPHORA; OR, WATERY EYE.

The Whole illuſtrated with a Variety of Caſes.

BY JAMES WARE, SURGEON.

LONDON:
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MDCCXCV.

PREFACE.

THE author of the following pages having ſeen the operation of Extracting the Cataract performed by a great variety of perſons, has not only had opportunities of obſerving the ſucceſs and happy conſequences which reſult from ſkill and dexterity, but, too frequently, has had occaſion to lament the fatal evils which ariſe from an improper treatment of this diſ-

A order.

order. In this country, he believes, it will be admitted, that the late Baron de Wenzel was, without exception, the moſt ſkilful operator of his time; and that his ſon, the preſent Baron, in a Treatiſe on this ſubject, with which he has favoured the world, has, with candour and fidelity, related the manner, in which the operation was performed by his father, and himſelf, both in the ſimple ſtate of the diſorder, and when complicated, as is frequently the caſe, with various other diſeaſes of the Eye. The Baron has in this work confined himſelf, principally, to a deſcription of the mode, in which the

operation

operation might be beſt performed; and he has rarely deviated from this line, either to mark the errors of former operators, or to point out the accidents to which thoſe are liable, who, adopting his father's plan, have not, at the ſame time, attained his father's dexterity. In the various departments of Surgery, however, as well as in thoſe of common life, it is of no ſmall importance to be acquainted with the miſtakes of others. Under this impreſſion, the author has, for a long time, made it his cuſtom, to commit to writing every accident or miſtake that has fallen within his obſervation; and

as he has frequently found that a review of theſe memoranda has been beneficial to himſelf, in this particular branch of Surgery, he hopes he may render ſome ſervice to the Faculty at large, by arranging them in a regular order, and by offering them, in their preſent form, to the notice of the public. This has been his object in the firſt of the following Tracts.

The ſecond Tract is on the Diſſipation of the Cataract. Inſtances of cures, accompliſhed in this way, have repeatedly occurred to the author, when the diſorder has been produced by an external cauſe

cauſe ; inſomuch that he indulges the opinion, that, under ſuch circumſtances, the operation will rarely, if ever, be neceſſary. The three caſes which are deſcribed at length, under this head, were publiſhed in the third volume of the Memoirs of the Medical Society of London. Of theſe, it is true, one only was produced by accident; but in the Notes, which the author has now added, notice is taken of many others which were diſſipated, and where the ſight was reſtored, without any operation whatever. The two caſes, in which the Cataract was produced without a known cauſe, and in which

which the ſight was recovered without the aid of an operation, are the only inſtances of this kind, of which the author has obtained a ſatisfactory account. He is unable, at preſent, to draw any practical inference from them; and relates them as extraordinary caſes, the account of which, at ſome future period, he hopes may lead to publick uſe.

The greater part of the third Tract, on the Cure of the Gutta Serena, was alſo publiſhed in the third volume of the Memoirs of the Medical Society of London. What is now added conſiſts only of the ſeventh and eighth caſes.

They are ſelected from ſeveral obſervations of the author, on the ſucceſsful treatment of this diſorder.

The laſt Tract is on the Epiphora, or Watery Eye. It contains a few remarks, in addition to thoſe the author publiſhed on this ſubject, in the year 1792. His chief object, in introducing them here, is to recommend, under the particular circumſtances that are mentioned, ſome variations in the mode of cure. Theſe are ſanctioned by a deſcription of ſix caſes ſucceſsfully treated.

New Bridge Street,
Jan. 1, 1795.

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AN
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THOSE professional men, who engage in the operation of extracting the Cataract, are seldom so wholly defective in judgement as to be unable to discriminate between the cases to which this operation is adapted, and those in which it is improper: Nor can their knowledge of the structure of the eye, and of the general rules by which the operation ought to be conducted, be often justly called in question. Admitting, however, that they possess these necessary quali-

 fications,

fications, it is yet poſſible, if they have not had an extenſive experience in this branch of ſurgery, that they may happen to be inattentive, at the time of operating, to ſome minute circumſtances, relative to the operation, which, though apparently inconſiderable, are in their conſequences highly important, and which, by a timely attention, might have been ſo regulated as not materially to interfere with its ultimate ſucceſs.

In order to impreſs the mind of ſuch perſons with a juſt ſenſe of the importance of theſe accidents, I propoſe in the following pages to give ſome account of the moſt conſiderable of them. And in doing this I mean to claſs them under the following heads; viz. ſuch as ariſe,

Firſt, From making the inciſion through the Cornea too ſmall:

Secondly, From wounding the Iris with the Cornea knife:

Thirdly, From ſuffering a portion of the vitreous humour to eſcape:

Fourthly,

Fourthly, From extracting only a part of the Cataract, and leaving the remainder behind in the eye:

Fifthly, From ſuffering foreign bodies, after the operation, to preſs unequally on the ball of the eye:

And, Sixthly, From prematurely expoſing the eye to the action of too ſtrong a light.

The firſt accident I propoſe to conſider is that of making the inciſion through the Cornea too ſmall.

It muſt be obvious to every one, that if the inciſion of the Cornea, through which the Cataract is to be extracted, be not ſomewhat larger than the Cataract itſelf, a degree of violence will be required to bring the Cataract through it; and in conſequence of this, if the Cataract be not altered in its figure, the wound in the Cornea will be forcibly dilated, and the edge of the Iris which forms the rim of the pupil be compreſſed between the Cornea and the Cataract, and be liable either to have ſome of its fibres ruptured, or to be otherwiſe ſo much injured as to excite a conſiderable degree of inflam-

mation, and ultimately to hazard a contraction or a cloſure of the pupil.

This accident is in general occaſioned by the inattention of the operator to the natural unſteadineſs of the patient's eye, and by his omitting to uſe proper means to fix it, at the time that the Cornea knife is carried through the Cornea. In conſequence of this omiſſion, as ſoon as the inſtrument has pierced the Cornea on the outer ſide, the eye moves inward toward the noſe; and before the point of the inſtrument can reach the inner ſide of this tunic, the greater part of it is hid from the operator's inſpection; and he is afterwards obliged to continue the inciſion without ſeeing what he is about. Hence it often unavoidably follows, that he is under the neceſſity of bringing the knife through, on the inner ſide of the Cornea, much anterior to its connection with the Sclerotica: and ſometimes it has been brought out, from the ſame cauſe, directly oppoſite to the pupil.

But the unſteadineſs of the patient's eye is not the only circumſtance which may cauſe

the inciſion through the Cornea to be made too ſmall. This defect in the operation may ariſe from the inattention of the operator to various other circumſtances. It may, for example, proceed from his commencing the inciſion through the Cornea below the tranſverſe diameter of this coat; in conſequence of which, notwithſtanding the point of the knife be carried properly through the anterior chamber to the inner rim of this tunic, and its edge be afterwards brought down, ſo as accurately to divide the Cornea at its inferior connection with the Sclerotica, the inciſion will ſtill be too ſmall, as it will not take in nine-ſixteenths * of the circumference of this tunic; which extent the inciſion ought always to occupy, in order to give the Cataract good room to come through it. Formerly, indeed, I was inclined to think it adviſeable to make the inciſion through the Cornea ſmaller than is here mentioned, in order with the greater cer-

* By the expreſſion, nine-ſixteenths, I mean ſomething more than half the circumference of the Cornea.

tainty to avoid wounding the Iris; but then I always took care to enlarge the inciſion with a pair of curved blunt pointed ſciſſars, before any attempt was made to extract the Cataract. I often ſucceeded very ſatisfactorily in this mode of operating: but have now long ſince relinquiſhed it, a greater ſhare of experience having enabled me to ſecure the Iris from being injured, though I make the inciſion through the Cornea ſufficiently large, with the Cornea knife alone. This mode of compleating the inciſion with one inſtrument, and at one time, appears to me greatly preferable to the former mode; ſuch an inciſion being more likely to be ſmooth, and to heal by the firſt intention, than one which is made with two different inſtruments. I might alſo add that it is more expeditious; but this is of little moment, if the ſucceſs of the operation be not at the ſame time rendered more certain by it*.

When

* In three caſes of the Cataract which have lately come under my notice, the Cornea was not only remarkably flat,

When the inciſion through the Cornea is made too ſmall, that is, when it does not comprehend nine-ſixteenths of the circumference of this tunic, be the cauſe of the accident whatever it may, this inciſion ſhould be enlarged, before any further progreſs is made in the operation; and the enlargement, as I have above mentioned, will be beſt accompliſhed by means of a pair of curved blunt pointed ſciſſars. The ſciſſars may be introduced with more eaſe on the outer ſide of the Cornea, where the knife firſt punctured this coat, than on the inner ſide; the in-

flat, but the Iris appeared to project forward in the anterior chamber of the aqueous humour, forming a convex inſtead of a plain ſurface. In caſes of this deſcription, the anterior chamber is ſo ſmall that if an attempt be made to compleat the diviſion of the Cornea by one inciſion, ſo as to include in it half the circumference of this tunic, it will be found extremely difficult, if not impoſſible, to carry the point of the knife from the outer to the inner rim of the Cornea, without wounding the Iris. Under ſuch circumſtances therefore I would adviſe the operator to include only one third of the Cornea in the firſt inciſion, and afterwards to enlarge the aperture on the outer ſide by means of the curved ſciſſars.

ciſion being generally ſmoother here than at the place where the inſtrument came out. The operator however ſhould on no account attempt to uſe a pair of ſciſſars, or any other inſtrument, whilſt the eye is hid from inſpection under the upper eyelid; but ſhould always wait until the Cornea be brought fully within his view. From inattention to this circumſtance I have ſeen a ſurgeon, whilſt enlarging an inciſion through the Cornea, entangle a part of the Iris, together with the Cornea, between the blades of the ſciſſars; in conſequence of which, both theſe coats of the eye were divided and a violent inflammation ſoon enſued, which prevented the ſucceſs of the operation.

Again; Although, the operator carry the point of the Cornea knife accurately through both the inner and the outer ſide of the Cornea; yet the inciſion may be made too ſmall in conſequence of his bringing the edge of the inſtrument through, before it has reached the inferior margin of this tunic, where it is united with the Tunica Sclerotica. This, though a fault, appears to me to be much

leſs

leſs injurious than that of bringing the point of the knife out, before it has reached the circumference of the Cornea on the ſide next the noſe; ſince, in general, a wound of this kind affords a much ſmaller reſiſtance to the extraction of the Cataract than one made in the laſt mentioned way. But if, from either of theſe cauſes, difficulties occur in bringing the Cataract through, the inciſion muſt be enlarged by the uſe of the curved ſciſſars. It ſhould be remembered that though the inciſion of the Cornea be made ſufficiently large to allow the eaſy extraction of the Cataract through it, yet if it be not near the circumference of the Cornea, the opaque ſcar it occaſions will be a blemiſh when the cure is completed: And if it do not extend below the level of the pupil, it will be apt to entangle the edge of the Iris, and to alter the figure of this aperture. I was once preſent at an operation when the inciſion through the Cornea appeared to be accurately made, and to have its full dimenſions; but upon examining it afterwards the opening into the anterior chamber was found much too ſmall,

and

and the Cataract could not paſs through, until it was enlarged by the ſciſſars. In the inſtance to which I allude, the Cornea was remarkably tough, the knife cutting through it with as much difficulty, as if it had divided a piece of horn; and, from the apparent ſcar on the Cornea after the wound was healed, it ſhould ſeem that the Cornea was not only tougher, but alſo thicker than it uſually is*; and that the knife paſſed for a conſiderable diſtance between the laminæ of this tunic, inſtead of accurately ſeparating it from the Tunica Sclerotica around its margin.

In theſe various ways the inciſion through the Cornea may be made too ſmall; and by the methods I have now mentioned, its ſize may be enlarged. It is certainly deſirable, however, to prevent the accident; and for this purpoſe the ſurgeon ſhould particularly attend to the proper mode of fixing the

* A toughneſs of the Cornea is not an uncommon circumſtance; but the toughneſs is ſeldom connected with an increaſed thickneſs of this tunic.

eye;

eye ; and ſhould diſtinguiſh accurately between the time when preſſure may be applied with advantage, and the time when this preſſure becomes injurious. A moderate ſteady preſſure may be continued with the moſt perfect ſafety on the inner and inferior ſide of the Sclerotica until the point of the Cornea knife has paſſed compleatly through the Cornea, a little above its tranſverſe diameter, and has emerged for a ſmall diſtance beyond the inner ſide of this tunic. When this is accompliſhed, which by ſome is called the punctuation of the Cornea, the deſign of preſſure is anſwered ; and the continuance of it for a longer time would not only be unneceſſary but is alſo injurious. The knife alone will now be ſufficient to prevent any improper motion in the eye. The fingers of the operator therefore muſt be wholly removed from preſſing on the eye, and the inſtrument afterwards be ſteadily but gently puſhed on, cutting its way down, parallel with the plane of the Iris, until its edge come out cloſe to the lower margin of the Cornea, and has divided, as above mentioned,

tioned, nine-ſixteenths of the circumference of this tunic*.

The

* In two out of four caſes of the extraction of the Cataract related by Mr. Sparrow, a Surgeon in Dublin, who appears to have paid particular attention to this branch of his profeſſion, it is mentioned that he found it extremely difficult to compleat the inciſion through the Cornea, in conſequence of the eye's turning toward the inner angle of the eyelids, before the point of the Cornea knife had paſſed through the inner ſide of this tunic. Mr. Sparrow adds the following remark, which, though made by him without any ſuch deſign, appears to me fully to account for the difficulty he deſcribes. He ſays, "the ſafeſt and "beſt method of ſecuring the eye during the operation is "to have the upper eyelid drawn up by an aſſiſtant, while "the operator himſelf depreſſes the lower one, *without* "*making any preſſure whatever on the globe of the eye* *." Baron de Wenzel expreſſes himſelf on the ſame ſubject in words that have nearly the ſame ſignification. Speaking of the mode of dividing the Cornea, he ſays "l'operateur "abaiſſe en meme temps la paupiere inferieure par le moyen "des doigts *index* et *medius*, qu'il tient legerement ecartés "l'un de l'autre, *et il doit avoir l'attention la plus ſcrupu-* "*leuſe de ne faire aucune compreſſion ſur le globe, et de le* "*laiſſer parfaitement libre;* ce qui eſt le moyen le plus sûr "de diminuer ſa mobilitè, et de le fixer †." The opinions

of

* Medical facts and obſervations Vol. I. publiſhed by Johnſon, London, 1791.

† Traité de la Cataracte par M. de Wenzel, fils, à Paris, 1786, P. 78.

The ſecond accident in the operation, which I ſhall now notice, is that of wounding the

of theſe gentlemen, thus ſtrongly expreſſed, are widely different from thoſe I have long entertained on this ſubject, and I muſt ſtill beg leave to diſſent from them for the reaſons above ſtated in page 11. But, on the other hand, for the ſame reaſons, I cannot yield aſſent to the unqualified advice of Mr. Richter; who, though inclined to recommend to ſurgeons in general the uſe of Specula to fix the eye, yet, with regard to his own practice ſays, "Digitus "ille qui palpebram inferiorem deprimit, comprimit ſi-"mul paululum bulbum oculi, et ſic illius motum cohi-"bet*." As Richter does not define the time during which this preſſure on the eye ſhould be continued, it appears to me that thoſe who are influenced by his advice are in great danger of continuing the preſſure longer than is either neceſſary or ſafe. The ſame objection may be made to a ſimilar advice which was given by the celebrated French Surgeon De la Faye.† My late partner Mr. Wathen is the only author I know who has deſcribed the mode of dividing the Cornea in the way I have above mentioned§; and it had been uſed both by him and by me many years, and in a great variety of caſes, before the time that he recommended it publickly to the attention of the faculty.

* Obſervat. Chirug. faſcicul. primus A. G. Richter. Gottingæ, 1770, P. 17.

† Memoires de l'academie de Chirurgerie à Paris, Tom. vi. P. 314.

§ Diſſertation on the Cataract by I. Wathen, publiſhed by Cadell, 1785, P. 99.

Iris

Iris with the Cornea knife. The principal cauſe of this accident appears to me to be a premature diſcharge of the aqueous humour; by which I mean, the diſcharge of this humour before the knife has paſſed through the Cornea low enough to hinder the lower part of the Iris, which forms the inferior rim of the pupil, from getting beneath the edge of the inſtrument.

My meaning will be better underſtood, if it be recollected that the Cornea knife ſhould pierce the outer ſide of the Cornea rather above than below the tranſverſe diameter of this tunic, and about the twentieth part of an inch anterior to its attachment to the Sclerotica. It ſhould be carried through the Cornea nearly in a horizontal direction, and its point be brought out on the ſide next the noſe, at the ſame diſtance from the Sclerotica, as it was when it firſt pierced the Cornea. After this the knife ſhould be continued downward, ſo that the inciſion it makes may comprehend nine-ſixteenths of the circumference of this tunic. The knife, however, being neceſſarily narrow

near

near its point*, will have pierced through both ſides of the Cornea, before its lower edge will have advanced ſo far as the inferior rim of the pupil; and if, previouſly, in conſequence of any inaccuracy in the ſhape of the knife, or of any unſteadineſs in the mode of paſſing it, the aqueous humour make its eſcape, the lower part of the Iris will fall with it, and will unavoidably, paſs before the edge of the inſtrument. This is an accident, which I believe cannot always be prevented by the utmoſt ſkill or precaution of the operator. Happily, however, we have been taught that the Iris may be reinſtated after it has been thus diſplaced, and without ſuffering any injury, by applying gentle frictions on the Cornea, over the entangled part, with the point of the finger; in conſequence of which, this membrane will inſtantly retract, and reſume its natural po-

* See a deſcription of the knife I uſe in a note annexed to the tranſlation of Wenzel's treatiſe on the Cataract, Page 77.

ſition.

ſition*. In a few inſtances, where the eye has been peculiarly irritable, I have ſeen almoſt the whole width of the blade of the knife enveloped, during the inciſion of the Cornea, by the Iris projecting round its edge; notwithſtanding which, an attention to the rule above given has enabled the operator wholly to diſengage it, and to compleat the inciſion without doing the ſmalleſt injury to the protruded part. But it ſhould be remembered that though a gentle friction of the finger on the Cornea is ſufficient to diſengage the Iris from the edge of the knife, yet this membrane without care will protrude again as ſoon as the finger is withdrawn. It is therefore neceſſary to keep the

* "Le plus ſimple et le plus sûr moyen de ne point "bleſſer l'Iris lorſque cette membrane enveloppe le "Ceratome, c' eſt de faire des legeres frictions ſur la Cor-"née avec le doigt Index, tandis que le doigt Medius tient "la paupiere inferieure abaiſſée, et de pourſuivre l'incision "en laiſſant le doigt appliqué ſur la Cornée. On voit ſur "le champ l' Iris ſe contracter et quitter l' inſtrument."

Wenzel's traité de la Cataracte, P. 59.

finger

finger on the Cornea, whilſt the ſection of this tunic is going on, and until the knife has paſſed ſo low, that the Iris is unable to come forward again under the cutting edge of the inſtrument.

I have ſaid that the premature diſcharge of the aqueous humour, which is one of the moſt common cauſes of a wound of the Iris, may be occaſioned by a want of ſteadineſs in the operator in carrying the knife through the Cornea. By this remark I mean that the knife may not only be ſuffered to make a punctuation through this tunic, but that its edge at the ſame time may unintentionally be preſſed downward ſo as to make an inciſion likewiſe; in conſequence of which downward motion of the knife an aperture muſt unavoidably be left in the Cornea, through which the aqueous humour will eſcape. It will readily be conceived that if the Cornea knife increaſe through its whole length both in width and thickneſs, and if it be merely puſhed through the Cornea, no ſpace will be left, through

which any fluid can eſcape*. This is what I mean by the word, punctuation. But if at the ſame time that the knife is puſhed through to make the punctuation, it be ſuffered alſo to cut its way down, it will leave a ſpace above it, as has juſt been mentioned, through which the aqueous humour will inſtantly be diſcharged; and in conſequence of it, a part of the Iris will be brought forwards under the edge of the inſtrument. Now, notwithſtanding this accident is not without a remedy, yet as it is ſtill better to avoid the need of recurring to it, I would recommend not only to make uſe of a knife that is accurately conſtructed, but carefully to confine its action, when firſt introduced, to the mere punctuation of the Cornea: And when the knife has penetrated through both ſides of this tunic, and its edge lies clearly

* Latitudo laminæ a cuſpide ad manubrium ſenſim et haud interruptè increſcat, ut quo profundius penetrat in cameram anteriorem lamina, ſenſim latior, eo magis ſenſim dilatat vulnuſculum corneæ, illudque exactè ſemper occludat, et ita effluendi viam humori aqueo haud concedat.

Richteri Faſciculus primus, P. 21.

below

below the lower rim of the pupil, it will ſtill be proper to paſs it on, and at the ſame time to give it an inclination downward by a gentle ſteady preſſure, in order to compleat the ſection as near as poſſible to the rim which connects the Cornea with the Tunica Sclerotica. If the inciſion be made by the continued propulſion of the knife, it will be more even and ſmooth than if the inſtrument be paſſed backward and forward in a ſeeſaw direction; and the poſſibility of compleating the inciſion in this way will be admitted, when it is recollected that the broadeſt part of the Cornea knife is exactly equal in dimenſions with the ſemi-diameter of the Cornea, and that this is nearly as much of the tunic as is neceſſary to be divided in the preſent operation. It may here be objected that if the ſection through the Cornea be made tranſverſely, it will not be eaſy to compleat it, by the mere progreſſion of the Cornea knife, without entangling the point of the inſtrument in the ſkin of the noſe. A wound here cannot be of any conſiderable conſequence; but even this, trifling as it is, may

be obviated by making the inciſion obliquely, inſtead of making it tranſverſely: only let it be remembered that in whichever of theſe directions the inciſion be made, it ought always to include the largeſt portion of the circumference of the Cornea.

But it has been ſaid that the Iris may be wounded by the back of the Cornea knife as well as by its edge. Such an accident can only happen through an inaccuracy in the make of the inſtrument. And on this account, as well as others, I beg leave to recommend to operators, a careful inſpection of every inſtrument they employ, before they begin to uſe it. The back of the Cornea knife requires a particular examination. Although it is requiſite to be thin, it ſhould never be allowed to cut above the eighth part of an inch beyond its point. This with the ſharp edge of the inſtrument is fully ſufficient to give it an eaſy paſſage through the Cornea; and if it be thus conſtructed, enough of its back will ſtill be left blunt to ſecure the Iris from being injured by it.

The

The third accident in the extraction of the Cataract, which comes next under conſideration, is that of ſuffering a part of the vitreous humour to eſcape out of the eye.

The moſt common cauſe of this accident is the undue application of preſſure. It may take place either at the time that the inciſion is made through the Cornea, or at the time of extracting the Cataract out of the eye. Some eyes are ſubject to a ſpaſmodic action, which renders them more liable to this accident than others are; but, notwithſtanding, if care be taken to avoid the uſe of undue preſſure I have reaſon to believe, that, in common caſes of the Cataract, the diſcharge of the vitreous humour will rarely happen.

As to the diſcharge of this humour at the time the inciſion is made throngh the Cornea, it muſt be obvious that if preſſure be continued on the eye one moment after the inciſion through this tunic is compleated, the preſſure will be liable to rupture the tender cap-

ſules both of the cryſtalline and of the vitreous humours, and ſuddenly to force out the former of theſe, together with more or leſs of the latter alſo. It was moſt probably a dread of this accident that induced the Baron de Wenzel to diſcourage *in toto* the application of preſſure during this part of the operation. But although the reaſons above advanced will not allow me to coincide exactly in ſentiment with the Baron on this ſubject, yet I am clearly of opinion, that every kind and degree of preſſure ſhould be taken from the eye before the knife has compleatly cut its way through the Cornea. And as ſoon as the knife has proceeded ſufficiently low to ſecure the Iris from being wounded by the edge of the inſtrument, the operator, in order more certainly to avoid the counteraction of the upper eyelid, (which if conſiderable, might injuriouſly preſs on the eye,) ſhould not only take heed that his own fingers do not touch the eye, but ſhould alſo direct the aſſiſtant, who ſupports the upper lid, to remove his

fingers

fingers entirely from this part*. Notwithſtanding the upper lid be left thus free, a ſufficient ſpace will ſtill remain, between it and the lower lid, to give a full view of the progreſs of the knife: and, afterwards in compleating the inciſion, the operator ſhould depreſs the lower lid with great gentleneſs, and ſhould be particularly careful, when the Cornea is tough, to avoid dragging the eye outward; from an inattention to which circumſtance I once ſaw the capſule of the cryſtalline humour ruptured, and the cryſtalline, together with a part of the vitreous humour,

* It is rarely neceſſary for the aſſiſtant who ſupports the upper eyelid to make any preſſure on the globe of the eye: nevertheleſs where the prominence of the eye, and the ſpace between the edges of the two lids, are ſufficient to allow a finger of the aſſiſtant to be placed on the inner and upper part of the globe, without interfering with thoſe of the operator, it may be thus uſed, in order ſtill more fully to fix the eye, during the time that the Cornea knife is carried through the Cornea; but as ſoon as the punctuation of this tunic is compleated, the operator ſhould never fail to direct the aſſiſtant's finger to be immediately, and wholly, removed, as well from the eyelids as from the eye itſelf.

ſuddenly expelled, although no external preſſure of any other kind appeared to be uſed.

But a portion of the vitreous humour may alſo be diſcharged in conſequence of an improper mode of puncturing the capſule of the cryſtalline humour. The part in which it is moſt deſirable to make the puncture of the capſule is in the centre of the pupil; becauſe here the thickneſs of the cryſtalline affords the operator a certainty, that the inſtrument, with which the puncture is made, will not pierce through the poſterior as well as the anterior ſide of the capſule. But if, on the contrary, the puncture be made nearer to the circumference than the centre of the pupil, as the cryſtalline is both thinner and ſofter in this part, the inſtrument will be liable to paſs through both ſides of the capſule, and to pierce at once into the ſubſtance of the vitreous humour. In ſuch a caſe the vitreous humour (which is much leſs firm in its conſiſtence than the cryſtalline, and often almoſt fluid,) having no longer any barrier to prevent its diſcharge, is liable to be forced

forced out, in a conſiderable quantity, by the action of the eyelids alone; and when preſſure is afterwards made to bring the Cataract through, its quantity will be much increaſed, and the Cataract, inſtead of coming forward, will recede from the pupil, and either will deſcend toward the bottom of the eye, or will move to the ſide oppoſite to that where the faulty puncture is made. Every attempt afterwards to bring the Cataract through, by the application of preſſure on the eye, muſt prove not only fruitleſs but injurious; and the only way now to extract it is by having the upper lid gently raiſed by an aſſiſtant*, whilſt the operator, either with the fore finger of the left hand, or with the blunt end of the Curette, applied beneath the inciſion in the Cornea, prevents the Cataract from ſinking lower; then with the right hand let him introduce a hook under the flap of the Cornea, and with the

* This is one of the rare inſtances in which it may be neceſſary for the operator's aſſiſtant to ſupport the upper lid after the inciſion is made through the Cornea.

point

point of it carefully entangle the Cataract and bring it away. This proceſs of the operation may cauſe an additional diſcharge of the vitreous humour; but as it has been attended with ſucceſs, in two caſes that came under my own obſervation, I think it ought not to be omitted under the circumſtances that have been juſt deſcribed. As prevention of difficulties, however, is at all times better than their cure, I would adviſe the operator on no account to attempt to puncture the capſule, whilſt the eye is concealed under the upper lid, but patiently to wait until he obtains a ſight of the whole pupil. The inſtrument I uſually employ to make the puncture is a flat gold pointed needle, arched toward its extremity*. In order to avoid wounding

* The only difference between the inſtrument I uſe to puncture the capſule and that employed by the Baron de Wenzel is this: The Baron's inſtrument is flat at its extremity, whereas mine is pointed. As to the mode recommended by the Baron to puncture the capſule of the cryſtalline humour at the ſame time, and with the ſame inſtrument, with which the inciſion is made through the Cornea, this is ſo hazardous, and at the ſame time ſo unneceſſary,

wounding the Iris it ſhould be introduced under the flap of the Cornea, with its arched part uppermoſt, until its point be on a level with the center of the pupil. The end of the inſtrument ſhould then be turned inward, and be gently rubbed on the capſule of the cryſtalline until it pierce through it; which office it uſually effects without any difficulty. The operator is made ſenſible when the perforation takes place, not only by a ſenſation at the point of the inſtrument which cannot eaſily be miſtaken, but in general by the diſcharge of a whitiſh humour under the Cornea. In a few inſtances I have found the capſule of the cryſtalline humour ſo very tough that it would not admit the point of the inſtrument above deſcribed to paſs through it*; in which caſe a ſharp pointed

unneceſſary, that I think it needleſs to take further notice of it here. See a note on the ſubject in the Tranſlation of Wenzel's treatiſe on the Cataract, Page 112.

* Although, in point of firmneſs, the Cornea and the capſule of the cryſtalline humour uſually bear ſome proportion to each other, yet this cannot always be depended

ed ſteel inſtrument of the ſame diameter, and arched in the ſame manner as the gold pointed one juſt mentioned, ſhould be employed. This being much ſharper than the other will, I think, infallibly enable the operator to accompliſh the intended purpoſe.

A portion of the vitreous humour may alſo be diſcharged at the time of extracting the Cataract out of the eye: and when it happens at this time, as well as when it takes place at the times that have been already conſidered, I am of opinion that the uſual cauſe of the accident is an undue application of preſſure. Without adverting here to the application of violent preſſure, where the inciſion through the Cornea has been made of its proper dimenſions, (which preſſure in ſuch a caſe is unneceſſary as well as highly improper,) if the inciſion be made at firſt too ſmall, and if the operator omit to enlarge it in the

pended upon. I have ſometimes found the capſule tough, when the Cornea has been divided with great eaſe; and, at other times, after having experienced a great reſiſtance to the knife as it cut through the Cornea, I have punctured the capſule with the gold pointed needle without any difficulty.

way

way I have deſcribed page 7, the Cataract cannot be brought through the wound without the application of ſuch preſſure: And if the preſſure be continued one moment after the Cataract is extracted, the capſule of the vitreous humour will unavoidably be ruptured, and, in conſequence of it, the Cataract will inſtantly be followed by a greater or a leſs portion of this humour. Preſſure ſo continued is liable to rupture the capſule of the vitreous humour even before the Cataract is brought through the inciſion in the Cornea; and in this caſe, as has been before obſerved, a portion of the vitreous humour will be diſcharged on every repeated attempt to extract the Cataract; whilſt the Cataract itſelf will reſiſt them all, and will plunge deeper in the eye. Such an accident can only be rectified by firſt enlarging the inciſion in the Cornea, and then extracting the Cataract by means of a hook, in the way that is deſcribed, page 25.

It ſhould be remembered that in caſes the moſt favorable, when the inciſion through the Cornea is made of its proper ſize, and the degree of preſſure, applied to extract

the Cataract, is adjuſted in the beſt manner poſſible, the Cataract rarely comes out of the eye, at once, in a ſtate ſo compleat as not to leave ſome portions behind, which require to be afterwards extracted. Sometimes, when the Cataract is ſoft, a conſiderable portion of it is thus left; and at other times, when its conſiſtence has been firm, I have found it broken into two parts, nearly equal in ſize, one of which only has come through at firſt, and the other has required to be afterwards extracted by means of the Curette or little ſpoon. It has occaſionally been neceſſary to introduce this inſtrument ſeveral times, before the whole of the opaque matter could be extracted, ſo as to leave the pupil quite tranſparent. Great care is required in conducting this part of the operation, in order to hinder the poſterior part of the capſule of the cryſtalline from being ruptured by the end of the inſtrument; which accident would immediately open a way for the diſcharge of the vitreous humour.

A diſcharge of the vitreous humour may indeed take place, after the extraction of the Cataract, merely in conſequence of a ſpaſmodic

modic action in the eyelids, without any undue violence being done to the capſule, by the inſtruments that are employed. I was preſent a few years ago at the performance of an operation where this accident happened. At firſt I ſuſpected that the end of the Curette had been puſhed through the poſterior ſide of the capſule, in the way above mentioned, but afterwards I think I had reaſon to doubt the juſtice of this ſuſpicion. The inciſion through the Cornea, in the inſtance to which I allude, was made with great accuracy, both as to its ſize and ſituation; and the bulk of the Cataract was extracted with equal care. A ſmall opaque ſubſtance, however, being afterwards viſible behind the pupil, the operator deſired his aſſiſtant to raiſe the upper eyelid, that he might introduce the Curette to remove it. Both the operator and his aſſiſtant appeared to perform their reſpective parts, with care and ſteadineſs. But no ſooner was the opaque portion removed than a very conſiderable diſcharge of the vitreous humour inſtantly followed; and on the patient's opening his eye, a ſhort

time

time afterward, another portion of the ſame humour guſhed out. This accident might certainly have been occaſioned by the paſſage of the end of the Curette through the poſterior ſide of the capſule of the cryſtalline; but as the operator was perfectly collected, and took particular care to avoid this accident, and as the patient's eye, though irritable, was fully within the operator's view at the time the Curette was introduced, I am rather diſpoſed to believe that the ſtrong contraction of the upper eyelid, increaſed by the endeavours of the aſſiſtant to keep the lid from falling, cauſed ſo great a preſſure on the ball of the eye, as to produce the rupture of the capſule which gave room for the diſcharge above mentioned. Whatever be the opinion we entertain as to the cauſe of this accident, the caſe here ſtated tends to eſtabliſh the propriety of a rule which I laid down on a former occaſion, and conſtantly obſerve in my own practice, viz. that, after the inciſion through the Cornea is compleated, in all the ſubſequent parts of the operation, " the upper eyelid ſhould be raiſed

" ſolely

"ſolely by the fingers of the left hand of "the operator *." This may be done by him with much more eaſe, and with much greater accommodation to the involuntary action of the eyelids, (which is conſiderably greater in ſome caſes than it is in others,) than it can be by thoſe of any aſſiſtant whatever. And whilſt the upper lid is thus ſupported by the fingers of the left hand of the operator, the middle finger of his right hand is fully ſufficient to depreſs the lower lid; and with the thumb and fore finger of the right hand, the Curette, or any other inſtrument that is required may be held, and be applied to the eye with perfect ſteadineſs and freedom †.

* See Chirurgical Obſervations relative to the Epiphora, Extraction of the Cataract, &c. by J. Ware, page 63.

† In a note, page 12, I have remarked that in two of the four caſes related by Mr. Sparrow of Dublin * he found it difficult to accompliſh the inciſion through the Cornea on account of the ſtrong diſpoſition of the eye to turn toward the inner angle of the eyelids. I have now to remark that in the other two caſes, the Cataracts were ſuddenly expelled without

* Medical facts and obſervations, Vol. I. page 43.

I am aware that the diſcharge of the vitreous humour, even in a conſiderable quantity, is not always fatal to the ſucceſs of the operation; and perhaps if this could take place without making any derangement in other parts of the eye, it might tend to diminiſh pain, and inflammation, rather than to increaſe theſe ſymptoms. But the misfortune here is, that when the capſule of the vitreous humour is once ruptured, this humour flows out ſo freely, and on the application of ſo ſmall a degree of preſſure, that the operator cannot afterwards inſpect the eye with ſufficient accuracy to determine, whether all the fragments of the Cataract are removed, ſo as to leave the pupil quite clear;

without any known preſſure on the eye, either by the ſurgeon, or by his aſſiſtant; and in one of theſe a conſiderable portion of the vitreous humour eſcaped with the Cataract. Now, although all theſe caſes proved ſucceſsful under the management of Mr. Sparrow, yet I believe it will be admitted that the ſudden expulſion of the Cataract is an accident, which it is highly deſirable at all times to prevent; and I have not once met with it, in a very conſiderable number of caſes, ſince I have adopted the mode of practice above recommended.

or whether the whole of the Iris has reſumed its poſition, ſo as to give this aperture its proper figure. An inattention to theſe circumſtances appears to me to have been much oftener the cauſe of the untoward ſymptoms, which ſometimes have followed this accident than the mere diſcharge of the vitreous humour; which humour, as is well known, admits of a ſpeedy regeneration: Whereas if any part of the inner margin of the Iris that forms the rim of the pupil be turned outwards during the extraction of the Cataract, and remain long in this unnatural poſition, or, if any part of the Cataract itſelf lodge between the edges of the divided Cornea, and prevent them from cloſing by the firſt intention, they are ſufficient to excite a violent inflammation of the eye; and this moſt probably will terminate either in a contraction of the pupil, or, as I have ſometimes ſeen, in a ſuppuration and conſequent ſinking of the whole organ.

The fourth accident in the operation, of which I am next to treat, is that of extract-

ing only a part of the Cataract, and leaving the remainder behind in the eye.

It is neceſſary for me here to diſtinguiſh between a ſolid part of the Cataract broken from the reſt, and left in the eye, and thoſe ſoft and nearly fluid portions of it, which form its rim or circumference and which, in almoſt every inſtance, ſeparate from it, in a greater or in a ſmaller quantity, as the Cataract comes through the inciſion in the Cornea. The former of theſe being of a firm conſiſtence, is much leſs likely to be diſſolved by the aqueous humour than the latter; and I am of opinion that this ought always to be extracted. The latter I alſo think it adviſeable to remove, in order that the pupil, at the time of the operation, may be made perfectly clear, unleſs particular circumſtances occur to render this improper; and the moſt powerful objection to the practice is, that extreme degree of irritability to which ſome eyes are ſubject, which renders the introduction of every ſort of inſtrument, after the Cataract is extracted, not only difficult but hazardous. I uſually remove

opaque

opaque portions of the Cataract by means of a Curette or ſmall ſcoop, the end of which being introduced under the flap of the Cornea, and carried behind them, will, when withdrawn, bring them forwards out of the eye. Sometimes I have had occaſion to introduce the Curette a great number of times; and, occaſionally, when the opaque portion has been large, and has adhered to the capſule, I have been obliged to extract it with a ſmall forceps. Before the operation is concluded, it is always adviſeable to rub the end of the finger gently on the fore part of the eye, over the eyelids; which proceſs contributes to bring within ſight ſome opaque portions that may have lien concealed behind the Iris during the operation, and if unremoved, might afterwards come forwards, and intercept the light in its paſſage to the ſeat of viſion. Theſe, like the portions before mentioned, ſhould be taken away, by means of the Curette or Forceps. Inſtances indeed may offer, as I have juſt obſerved, in which theſe inſtruments cannot be employed without danger; but they

occur very rarely, and will be ſtill leſs frequent if the operator take the care of the upper eyelid into his own hands, and adjuſt with accuracy the degree of preſſure that is neceſſary to keep the lid ſuſpended. A caſe of this kind however has lately fallen under my own obſervation. I extracted a Cataract from a man whoſe eye was ſo extremely irritable, that after the inciſion through the Cornea was compleated, it was in a conſtant rolling motion, not only on every attempt to touch it with an inſtrument, but even on ſeparating the lids to look at it. In this inſtance after the bulk of the Cataract was removed, which though ſmall was perfectly round, I thought it beſt, as the pupil preſerved its proper ſhape, to deſiſt from doing more, notwithſtanding ſo much of the ſoft part of the Cataract remained in the eye as to cauſe the pupil ſtill to appear very obſcure, and to prevent the patient from accurately diſtinguiſhing any object that was placed before him. On the fifth day after the operation I inſpected the eye, and found the pupil ſtill obſcured by an opaque ſubſtance which

ſeemed

ſeemed now to protrude through it into the anterior chamber of the aqueous humour. The inflammation was inconſiderable. At the end of a fortnight, as the opaque ſubſtance ſtill continued to fill the aperture of the pupil, I directed a mixture, of one part æther and three parts diſtilled water, to be applied to the eye three times every day, by means of a camel's hair pencil. This gave at firſt an acute pain, but it ſoon went off. After uſing the æther thus diluted for three days, I dropped a drop of it unmixed into the eye. It gave conſiderable pain and excited an increaſe of inflammation; but they went off in the courſe of the next day by the uſe of a weak ſaturnine lotion. On the third day the æther was again applied; and on the fourth I had the ſatisfaction to perceive a ſmall portion of the upper part of the pupil perfectly clear. I repeated the application regularly every ſecond day, and ſometimes every ſucceſſive day, when the inflammationwas not too great to admit of it. Under this treatment, the opacity of the pupil daily diminiſhed, and at the end of five weeks

from the time of the operation, the whole of this aperture reſumed its natural appearance, and the patient recovered his perfect ſight.

I here beg leave to make a remark on the extraction of the capſule of the cryſtalline humour. An opacity in this capſule is the only reaſon that can at any time render the removal of a part of it neceſſary; and this is a very uncommon occurrence, unleſs it has been preceded by inflammation, and is accompanied with other ſymptoms which warn the operator of the circumſtance before he begins the operation. The anterior part of the capſule can alone become the object of the operator's attention; its poſterior part is neceſſarily hidden whilſt the Cataract remains in the eye; and afterwards, if it be diſcovered to be opaque, it is ſo cloſely connected with the capſule of the vitreous humour, that I believe it cannot be removed by any inſtrument, without hazarding a deſtructive effuſion of this humour. The anterior part of the cryſtalline capſule lies more fully however within our inſpection; and when an

opacity of this part accompanies an opacity of the cryſtalline humour, it uſually ſhews itſelf by irregular opaque ſpots or lines viſibly ſituated on the anterior ſurface of the opaque cryſtalline. The cryſtalline humour may indeed continue tranſparent, notwithſtanding the anterior part of the capſule be opaque; but an opacity of the capſule is more commonly accompanied with an opacity of the cryſtalline alſo. When an opacity of the capſule is the conſequence of violence done to the eye, as of an attempt to depreſs the cryſtalline, or, when it proceeds from an internal inflammation of this organ, an adheſion not unfrequently takes place between the anterior part of the capſule and the poſterior ſurface of the Iris; which adheſion uſually occaſions a contraction of the pupil, and prevents this aperture from dilating and contracting with ſo much freedom as it ought, and as it would do, if the Iris were unconfined. Such a ſtate of the eye appears to me to be a very ſtrong objection to the performance of any operation, ſince the degree of the adheſion cannot

not be aſcertained; and when the adhering parts are ſeparated, the violence which muſt unavoidably be done to the Iris, by the paſſage of the cryſtalline humour through the contracted pupil, will ſtrongly diſpoſe this aperture to contract ſtill more, and perhaps may cauſe it to cloſe entirely. If, however, from the ſymptoms above deſcribed, there is reaſon to believe that the opaque cryſtalline is accompanied with an opacity in the anterior part of the capſule, and if the aperture of the pupil has not wholly loſt its power of dilating and contracting, an operation may ſometimes, notwithſtanding, be adviſeable; but in theſe caſes it would be vain to expect ſucceſs from the removal of the cryſtalline humour, unleſs a perforation be made in the opaque capſule alſo* ; and when this laſt

* It is not unuſual with medical men to ſpeak, nor has it been unuſual with medical authors to write, in a very unqualified manner, concerning the extraction of the capſule of the cryſtalline humour; from which inaccurate mode of expreſſing themſelves we might be led to imagine that the capſule might be taken away with as much

laſt is neceſſary, it ſhould always be accomplifhed before any attempt is made to diſlodge

much eaſe as the cryſtalline humour itſelf. This however is a very miſtaken idea. The capſule of the cryſtalline humour, in an undiſeaſed ſtate, is ſtrongly attached both to the extremities of the ciliary proceſſes, and to the capſule of the vitreous humour ; and theſe attachments are very rarely ſeparated by the formation of the Cataract, or by an opacity in the capſule itſelf. Although the capſule compleatly ſurrounds the cryſtalline humour, and contains this humour, floating within it, in a kind of aqueous fluid, yet the two parts are as diſtinct from one another as a nut ſhell is from the nut it contains. The capſule of the cryſtalline, like the cryſtalline itſelf, is of a lenticular ſhape, having an anterior and a poſterior portion ; but theſe do not ſeem to be ſtrictly ſimilar to one another. Both are equally tranſparent ; but the anterior part is of a firmer texture than the poſterior ; and the poſterior part is the only one which I have hitherto ſeen injected. The veſſels of this poſterior part are derived from an artery which paſſes through the centre of the optic nerve, and is continued through the middle of the vitreous humour to be diſtributed upon it. In a few inſtances I have ſeen the opaque cryſtalline eſcape from the eye whilſt contained within its capſule ; but, when this has happened, if the eye has not been generally diſeaſed, it has been owing to the application of too much preſſure ; and it has generally been accompanied with the diſcharge of a part of the vitreous humour alſo.

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the cryſtalline which the capſule contains. This part of the operation I would recommend to be performed in the following manner. The cornea being divided in the ſame way as if the opaque cryſtalline alone was to be extracted, and the inciſion comprehending, as I have repeatedly recommended already, nine ſixteenths of the circumference of this tunic, a fine pointed inſtrument, ſomewhat ſmaller in ſize than a round couching needle, and a little bent towards the point, ſhould be introduced under the flap of the Cornea, with its bent part upward, until its point is parallel with the aperture of the pupil; the point ſhould then be turned toward the opaque capſule, which is to be punctured by it, in a circular direction, as near to the rim of the pupil as the inſtrument can be applied without hurting the Iris. Sometimes the part included within the punctures may be extracted on the point of the puncturing inſtrument; but if this cannot be done, it ſhould be taken away by means of a ſmall forceps. After the perforation of the capſule is compleated,

pleated, the cryſtalline humour may eaſily be extracted, in the way I have above mentioned, by making a ſlight preſſure with the Curette, either above or below the circumference of the Cornea. It is neceſſary to extract this humour, whether it be found opaque or tranſparent; ſince, if it be opaque, it will neceſſarily intercept the rays of light, though the capſule be removed; and if it be tranſparent, there is great reaſon to fear that the repeated punctuation of the capſule may deſtroy this tranſparency*.

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* The Baron de Wenzel, recommends an operation, in caſes where the anterior part of the capſule is perceived to be opaque, ſomewhat different from that which is above deſcribed. He ſays in his *Traitè de la Cataracte*, page 93. " Apres avoir fait la ſection de la cornée, on n'inciſe " point la cryſtalle anterieure, comme dans les cas ordi- " naires; on ſubſtitue au ceratome de petits pinces qu'on " introduit dans la pupille; on ſaisit legerement la cap- " ſule avec leur extremité; on la detache ſucceſſivement " dans toute la circonference des adherences qu'elle peut " avoir contractée avec les parties environnantes, et on fait " en ſorte de l'enlever en entier. The Baron adds, " Cette pratique ne m'a jamais paru entrainer de grandes

" difficultés

The next accident, of which I am to treat, is that of ſuffering foreign bodies of any kind, after the operation, to preſs unequally on the globe of the eye. Under this head I propoſe to conſider,—the intervention of the edge of the inferior eyelid between the ſides of the divided Cornea;—the inverſion of the edge of the inferior eyelid;—and the lodgement of one or more looſe eyelaſhes on the globe of the eye.

" difficultés dans les malades que j'ai operé de ſemblables " cataractes." This advice, however, deviates very widely both from the precept and practice of his father; who, in the year 1779 I remember to have ſeen remove a conſiderable portion of the opaque capſule, preciſely in the way I have above recommended; and at the time of the operation he informed me that in ſimilar caſes he always proceeded in a like manner. The father's mode appears to me to be preferable to that which is recommended by the ſon; ſince the capſule not only forms a compleat bag to contain the cryſtalline, but is often ſo ſtrongly attached, round its rim, to the extremities of the ciliary proceſſes, that it would require no ſmall force to remove a portion of it with a forceps, unleſs this portion were firſt, in ſome degree, detached by means of the puncturing inſtrument above mentioned.

I muſt here beg the reader to recollect that there is a concavity in the ſhape of the inner ſide of the eyelids, which anſwers exactly to the convexity of the globe of the eye; and that theſe two parts, when the eyelids are ſhut, lie in cloſe appoſition to each other. Hence it will readily be conceived that if the eye be turned downward, whilſt the divided flap of the Cornea is looſe; or if the lower eyelid be ſuffered to return ſuddenly to its natural poſition, whilſt the eye is inclined downward; in either of theſe caſes, the eyelid will be liable to rumple the Cornea, and to get between the ſides of the wound. Whoever has been much accuſtomed to the operation of extracting the Cataract muſt have obſerved that this takes place, not unfrequently in performing thoſe parts of the operation which are ſubſequent to the inciſion of the Cornea. And if, after the operation is ended, the eye unfortunately be left with the edge of the lid againſt the Iris, the Cornea at the ſame time being rumpled, and a large ſpace left open for the continual diſcharge of the aqueous humour,

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an inflammation of the moſt violent kind muſt unavoidably and ſpeedily enſue. On this account I cannot too earneſtly recommend to every operator, previous to the application of dreſſings to the eye, carefully to depreſs the lower eyelid with his finger; and, before he ſuffers the lid to riſe, to take care that the flap of the Cornea be accurately adjuſted in its proper poſition, and that the upper lid be dropped ſo as compleatly to cover it. The dreſſings are then immediately to be applied *; nor do I think it right after this to open the eyelids again, until there is good reaſon to ſuppoſe that the wound in the Cornea is perfectly cloſed. This may indeed take place within the firſt twenty four hours, but I believe no one can abſolutely aſcertain that the union is compleat in leſs than three or four days; and ſometimes the wound has continued open for a much longer time.

* For a deſcription of thoſe which I uſually employ ſee a note annexed to the tranſlation of *Wenzel on the Cataract*, Page 224.

Again,

Again; the edge of the inferior eyelid is liable to be inverted, as well as to inſinuate itſelf under the flap of the divided Cornea; and the inverſion may take place not only at the time of the operation, but afterwards alſo during the time that the eyelids are kept ſhut. In ſome inſtances the propenſity of the edges of the lids to become inverted is perceptible before the operation is performed; and when perceived it ought always to be previouſly rectified. It is a fortunate circumſtance that the lower eyelid; is more commonly affected in this way than the upper eyelid; ſince an inverſion of the edge of the former may be remedied with much more eaſe and with much greater certainty, than an inverſion of the edge of the latter. When the inverſion is recent, its cure may ſometimes be accompliſhed by bathing the looſe ſkin of the lid with a ſolution of alum, and afterwards making a large fold in the ſkin, and preſerving the fold by the application of a ſtrong adheſive plaiſter over it; extending the plaiſter down for a ſmall diſtance over the cheek, in order to make its hold the

more ſecure. But when the inverſion has continued a great length of time, I have uſually been obliged, with the ſame intention, to cut off a tranſverſe portion of the ſkin juſt below the edge of the lid, and afterwards to confine the ſides of the wound together, by means of two or three ſutures; which mode, in repeated inſtances, has effectually anſwered the intended purpoſe*. An inverſion of the edge of the eyelid may indeed take place after the extraction of the Cataract, although no tendency to this diſorder were obſerved previous to the performance of the operation. I do not believe, however, that this accident often occurs; but with a view to obviate the inconveniences to which it may give riſe, I would adviſe

* As the friction of the eyelaſhes againſt the globe of the eye is the chief cauſe of the injury which an inverſion of the eyelids is apt to produce, an accurate extraction of the eyelaſhes, by means of a ſmall pair of forceps, on the the day previous to the operation for the Cataract, may perhaps prove ſufficient to prevent the inverſion from doing any injury to the eye; but it muſt be evident that this will only prove a partial cure, as on the reproduction of the laſhes all the ſymptoms they produce will neceſſarily return.

to draw the ſkin of the lower eyelid down as often as the dreſſing on the eye is renewed; and if, from the appearance of the lid, and the pain experienced by the patient, there is reaſon to apprehend that, after the edge of the lid has been everted, it ſpeedily again aſſumes its inverted poſition, the patient ſhould be directed to apply his finger as conſtantly as he can to the ſkin on the edge of the orbit, in order to counteract the morbid propenſity. I was once obliged, in a caſe of this kind, to remove a portion of the ſkin below the lid, within a few days after the Cataract was extracted, and afterwards to connect the ſides of the wound together by means of two ſutures in the way I have above mentioned. This operation ſucceeded to the full extent of my wiſhes. The patient was inſtantly relieved from the pain which the inverſion occaſioned, and in about a fortnight from the time that the Cataract was extracted ſhe recovered her perfect ſight.

It has lately been ſaid that a long continued uſe of bandages will cauſe an Entro-

pium. If by the words "long continued" be meant only their continuance for about five days or a week, (which I believe is the full extent of time that the late Baron de Wenzel continued them for many years before his death, or indeed, that the preſent Baron recommends them to be continued, in his treatiſe on this ſubject,) I muſt take the liberty to ſay that the experience I have had inclines me to entertain a different opinion on this ſubject. In a few inſtances, as is above obſerved, I have ſeen an inverſion of the edge of the lower eyelid take place ſhortly after the operation was performed; but, if I recollect rightly, all who ſuffered from this cauſe were perſons advanced in life, and their eyelids particularly looſe and flaccid. On this account I am inclined to believe that the edges of the eyelids would have been ſtill more forcibly contracted, if their eyes had been expoſed to the light during the ſtate of irritation in which this organ uſually is for a few of the firſt days after the operation, than they were whilſt defended from it by a thin cover.

I beg

I beg leave to add that within a ſhort time I have been conſulted by two old gentlemen, each of whom had a Cataract fully formed in one eye, and a ſimilar opacity advancing in the cryſtalline humour of the other; and in both of theſe, the edge of the lower eyelids not only ſhewed a diſpoſition to this diſorder, but was actually always inverted unleſs kept out by the finger. It is remarkable that one of theſe gentlemen had ſuffered ſo little inconvenience from the inverſion of the lid, that he was ignorant of it when he firſt applied to me; the application being made ſolely on account of the dimneſs of his ſight. But, notwithſtanding this, I ſhall certainly think it my duty in both caſes to remove the inverſion before I proceed to extract the Cataracts.

Beſides the danger to which the eye is expoſed, after the operation, from the inverſion of the edge of the lid, the eye may receive injury from the improper poſition of the eyelaſhes alone; one or more of which, during the operation, may happen to bend inwards; or, becoming looſe, may

afterwards inſinuate themſelves between the inſide of the lid and the globe of the eye. I have been a witneſs to both theſe accidents; and it muſt be evident, if they are ſuffered to remain unrectified, they will produce the worſt effects. They too often ariſe from the incautious manner in which the upper lid is ſupported by the operator's aſſiſtant. In thoſe caſes, for inſtance, where the eye is ſituated deep in the orbit, it is often neceſſary for the aſſiſtant to apply his finger to the very edge of the lid, and to confine this part againſt the frontal edge of the bony orbit, in order to hinder the lid from falling. Now in doing this, if he be not careful to keep the eyelaſhes perfectly ſtrait, his fingers will be apt to bend them; and, if they are but ſlightly attached, he will, perhaps, draw them out by their roots. A recollection of the poſſibility of theſe accidents will not only teach the aſſiſtant to be cautious in his mode of ſupporting the upper lid, but will impreſs on the operator the importance of examining the eye carefully, after the operation is finiſhed, and of removing every foreign

particle lodged within the lids that is in the leaſt degree likely to give pain or increaſe inflammation. If an eyelaſh be bent inward, it ſhould be replaced in its proper poſition; and if it be broken off and lie looſe on the ball of the eye, it ſhould be removed by means of a ſmall forceps.

The laſt accident attending the operation, which I propoſe to conſider at this time, is that of prematurely expoſing the patient's eye to a ſtrong light. The ſlighteſt conſideration will convince the reader, that though the operation be performed in the beſt manner poſſible, and though it ſucceed in every part to the utmoſt extent of the operator's wiſhes, ſtill it muſt excite in the eye a degree of irritability which ſtrongly diſpoſes it to a ſtate of inflammation. The ophthalmy very often does not come on until three or four days after the operation, at which time ſome degree of it is uſuallyexpected after other operations as well as after this. Until ſuch a portion of time has elapſed, no one can aſcertain to what a height it may proceed;

and, until this period, it appears to me peculiarly desirable to avoid the application of every stimulus that has the smallest tendency to increase it. The common light is a stimulus only when it is applied to a weak eye. A sound eye not only bears it, but is pleased with it; whereas an inflamed eye, which is usually weak also, naturally shuns it. Immediately after the extraction of the Cataract, light gives no pain to the patient; and probably it would not give a great deal for a day or two; but notwithstanding this, as the eye is now in a state of irritability, and as it is liable, about the third or fourth day, without any additional cause, to suffer from an increase of inflammation, I cannot but think it imprudent to increase the risk of it, in the mean time, by an unnecessary exposure.

Another objection to the practice of opening the lids within the first two or three days after the operation, is derived from the danger of disturbing the wound in the Cornea before this is entirely closed. It is not easy to ascertain the exact time when a union between

between the ſides of the wound takes place; but if a compariſon be made between the proceſs of nature here, and that which takes place in other operations where a union between divided parts is required, it cannot be ſuppoſed that this union will be compleat in leſs than two or three days, at leaſt; and ſometimes it may require a much longer time. Although the friction of the eyelid againſt the ſides of the wound may not be ſufficient, at an earlier period, ſo to open or widen the wound as to allow the edge of the lid to inſinuate itſelf into it, (which would have happened immediately after the operation,) yet this friction may interfere with its ſpeedy and compleat union; it may cauſe the aqueous humour to paſs through the wound longer than it otherwiſe would do; and of courſe it may keep the anterior chamber longer empty. From the ſame cauſe alſo, a portion of the inferior part of the Iris is liable to be puſhed through the wound, together with the aqueous humour; whereby the round figure of the pupil may be altered, and ſometimes

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a ſtaphyloma be induced; which circumſtances will contribute to keep up the inflammation for a conſiderable time longer than it would have otherwiſe remained.

The practice of examining the eye on the day after the operation of diſcharging the matter contained within the Cornea, in caſes of the Hypopion, has been urged as an argument for a like treatment after the operation of extracting the Cataract. But it ſhould be remembered that theſe two operations differ in many material reſpects. In the operation for the Hypopion, it is rarely neceſſary to make the inciſion through the Cornea ſo large as it is in that for the Cataract; nor is the derangemement of the internal parts of the eye ſo conſiderable in the former as it is in the latter. And, beſides, in caſes of the Hypopion the inſpection of the eye, on the day after the operation, is neceſſary in order to enable the ſurgeon to obviate evils which may reaſonably be expected at that time to occur; but in caſes of the Cataract no poſſible advantage, ſo far as I have been able to learn,

learn, can be derived from this practice, unleſs extraordinary ſymptoms call for it; and on the contrary, material injury is to be apprehended from it.

I ſhould be ſorry, however, to have it inferred, from what has been here advanced, that I am an advocate for long confinement after the operation. This unqueſtionably was continued by former operators for a much longer time than we now know to be neceſſary. But in avoiding one extreme ſurgeons ſhould be careful that they do not err by running into another. The mode I always follow in my own practice, unleſs particular circumſtances call for a variation, is this. The patient is kept wholly in bed, and directed to move his head as little as poſſible, for the firſt three days after the operation. During this time a doſſil of wet lint is kept on his eyes, covered with a ſaturnine plaiſter; and this is prevented from ſlipping, by a thin bandage carried round the head, and pinned to his night cap. The dreſſing is renewed once every day, and the outſide of the eyelids waſhed with water; which

which is applied warm in winter, and cold in ſummer. At each time of dreſſing, the ſkin of the lower lid is drawn gently down, in order to counteract the diſpoſition which this part ſometimes acquires to turn inward on the eye. During this time the uſe of animal and ſolid food of every kind is forbidden; and ſoft puddings, gruel, and thin drinks, are ſubſtituted in their place. The patient is alſo deſired to talk as little as poſſible with thoſe who attend him. On the fourth day he is permitted to ſit up for two or three hours, and if he has had no ſtool ſince the operation a mild opening medicine is now adminiſtered. On the fifth, the time of his ſitting up is lengthened; and now, preſuming that the wound in the Cornea is compleatly cloſed, I uſually examine the ſtate of the eye. After this the dreſſings on the eye may be left off during the day, particular care being taken to defend it from a ſtrong light by the uſe of a paſteboard hood or ſhade, and by darkening the room to ſuch a degree, that the patient feel no inconvenience from it. He may now alſo be permit-

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ted to look for a ſhort time at large objects; but the operator will not have occaſion to be earneſt in adviſing this, as it will follow of courſe, as ſoon as the patient is able to bear it. The treatment afterwards will very little interfere either with the comfort or wiſhes of the patient, unleſs unexpected accidents ſhould render a variation neceſſary. Many on whom I have performed the operation, have been perfectly well in leſs than a fortnight; and in a great variety of caſes, the inſtances are extremely few in which the inflammation has continued ſo long as a month. The mode of treatment above recommended will not be thought rigorous, nor the confinement tedious, when the importance of the object which theſe are calculated to promote is taken fairly into the account; nor do I believe that this object can be ſafely attained in any eaſier way*.

* It may be proper to add, that I uſually give the patient a purge on the day, previous to the operation, in order that his bowels may be leſs likely to diſturb him for two or three days afterwards. And, if he be of a plethoric habit, eight or ten ounces of blood ſhould be taken from his arm immediately after the operation is performed.

ON

THE DISSIPATION

OF

THE CATARACT.

AN INSTANCE

OF

RECOVERY OF SIGHT,

BY THE

DISSIPATION OF A CATARACT,

WHICH HAD OCCASIONED

BLINDNESS IN ONE EYE FOR *ELEVEN* YEARS:

WITH A HINT GROUNDED ON IT,

Reſpecting the Mode of Cure in ſimilar Complaints *.

MR. L. a merchant at Quebec, in October 1776, when 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

* This paper on the diſſipation of the Cataract was read before the Medical Society of London, October 27, 1789;—and the Supplement that is annexed to it on the 7th of June, 1790.—The Notes are new.

acute for the preſent, went off without the aid of any medical application whatſoever. As the patient 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 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 cryſtalline, 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

ceiving no good effects produced by the uſe of this medicine, it was ſoon laid aſide. In the year 1777 he came to England, and conſulted the late Dr. Fothergill, who, on examining the eye, entirely concurred in opinion with the phyſicians before mentioned—that the cryſtalline 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. The other was alſo inflamed, though in a much leſs degree. The latter complaint, however, ſeemed gradually to abate of itſelf till the 14th, when

its violence returned in both eyes. At that time, the pain in the left eye was particularly ſevere, and extended over the temples and forehead. The following treatment was now uſed. The patient was let blood in the arm; bliſters were put behind his ears; a fomentation of chamomile 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, did not, for the preſent, meet with the ſucceſs which might have been expected from them. For, notwithſtanding their uſe, the inflammation and pain continued 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

nuing 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 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 cryſtalline 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, ſome 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 cryſtalline 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 of the cryſtalline 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 was owing to the weak ſupport it derived 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

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 cryſtalline 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 the following remark upon it. The immediate cauſe of the blindneſs in conſequence of the blow on the eye, as above mentioned, was, undoubtedly, that of an opacity in the cryſtalline 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

* 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 cryſtalline, by either of the uſual operations. The glaſs with the larger focus for more diſtant objects, and the ſmaller for ſuch as were near.

of

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 cryſtalline humour was gradually diſſipated, till, with the reſtoration of tranſparency in appearance, the ſight of the eye was alſo recovered. 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

thought of an inquiry, firſt 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 ſecondly ſuppoſing it a ſafe meaſure, reſpecting the means which 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 occaſioning further danger to the patient, it might lead to 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 SUP-

A SUPPLEMENT

TO THE PRECEDING PAPER.

SINCE the preceding paper was read before the Medical 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, ſo that ſhe had been unable to diſtinguiſh, with this eye, any thing more than the difference between day and night. Nowithſtanding this great degree of blindneſs, and the ſtrong probability of her recovering ſight by having the Cataract extracted, I always thought it my

duty

duty to diſcourage her from ſubmitting to the operation; becauſe, though the cryſtalline 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 cryſtalline humour; and by the aſſiſtance of theſe, ſhe diſtinguiſhed both

near

hear and diſtant objects as well as before the ſight was at all affected *.

The

* The woman, whoſe caſe is above related, preſerved her ſight about a year; but, at length, without any known cauſe to occaſion it, a ſolid body ſuddenly came into the anterior chamber of the aqueous humour, which confuſed her ſight, and afterwards, without giving any conſiderable pain, frequently deprived her of it. On examining the eye, I was inſtantly convinced that this ſolid body was the opaque cryſtalline humour; which, though inviſible when I laſt ſaw the patient, was not then diſſipated, but, by the violence of the blow above deſcribed, was forced out of its capſule, and had fallen to the bottom of the vitreous humour; from whence, by ſome unperceived motion of the head, it was now riſen, and had come through the pupil into the anterior chamber. As ſoon as I ſaw the caſe, I adviſed the patient to allow me to divide the Cornea, that the opaque humour might be extracted; but the pain in the eye being at this time inconſiderable, and the ſight of the other eye tolerably good, ſhe put off the operation from one time to another, until at length, the opaque cryſtalline, which was one of the largeſt I have ever ſeen, returned again through the pupil into the poſterior chamber, and puſhed the Iris forward, ſo as nearly to bring it into contact with the Cornea, and to change the figure of the pupil from a round to a tranſverſely oval aperture. Before I had an opportunity to ſee this change, the cryſtalline had formed a cloſe union with the

edge

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

edge of the Iris, and the light was unable to make the leaſt impreſſion on the Retina. The ſtate of the eye was now ſo greatly changed from that in which it was when I laſt ſaw it, and the chance of reſtoring ſight by an operation was become ſo very inconſiderable, that I declined the attempt; and recommended the patient to reſt ſatisfied with the ſight ſhe enjoyed from the other eye.

The unhappy iſſue of the preſent caſe affords room for the following caution; viz. on no account to delay the operation of extracting an opaque cryſtalline, whenever it is forced, as in the inſtance before us, out of its capſule, and lies looſe in the anterior chamber of the aqueous humour; ſince, in this ſituation, it is not only liable to keep up a dangerous inflammation, by its conſtant preſſure on the Iris, but, if it get back into the poſterior chamber, it is apt to form ſuch adheſions, as will render its removal afterwards almoſt impracticable. In confirmation of the propriety of this advice ſee a note annexed to the tranſlation of Wenzel's treatiſe on the Cataract, Page 37.

firm

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 ſurpriſe, 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

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 cryſtalline, or in its

its capſule, I am not at preſent able to determine *.

* Since the two preceding papers, on the diſſipation of the Cataract, were read before the Medical Society, I have had occaſion to attend a conſiderable number of caſes in which an opacity of the cryſtalline humour was produced by violence done to the eye; and in moſt of theſe the opacity was diſſipated, and the ſight reſtored, during the external application of Æther. Of the caſes that proved ſucceſsful under this mode of treatment, I have a written account of eight; and a recollection of ſeveral others, the particulars of which I have now forgotten, having unfortunately omitted to put them on paper at the time the caſes were under my care. It was at firſt my deſign to publiſh on this occaſion a full copy of the notes I made on the eight above mentioned; but I find, in the deſcription of them, ſo great a ſimilitude, not only to one another, but to the caſe of Mr. L. above related, that the peruſal of them would be of little uſe, and perhaps irkſome, to the reader. Sometimes I have diluted the æther with a third or fourth part of a weak ſolution of hydrargyrus muriatus; but in general I have uſed the æther alone, which has been applied, by means of a camel's hair pencil, to the eye itſelf. The application of this remedy occaſions a very pungent pain in the eye, with conſiderable redneſs in the Tunica Conjunctiva; but theſe go off in a few minutes, and leave the eye as eaſy, and the Conjunctiva as pale, as they were before the æther was uſed. By this excitement of inflammation, and by the increaſed action it occaſions

in the different parts of the eye, I preſume it is, that the æther promotes the diſſipation of the opaque cryſtalline. In ſome, the good effects of the application were quickly perceived ; but in others, ſeveral weeks have elapſed, before any favorable change was diſcovered. The progreſs of amendment has been uſually ſlow ; and in general it has been firſt noticed by the patient himſelf, in conſequence of the increaſed ſtrength with which the light affects the eye. About the ſame time a kind of crack in the opaque cryſtalline is uſually perceived on inſpection. The number of theſe cracks gradually increaſe, until at length the humour aſſumes an appearance like that of jelly half diſſolved. In a few inſtances the cryſtalline humour has continued a long time in this ſemi-diſſolved ſtate ; but in general the pupil has ſpeedily afterwards become quite clear. Sometimes ſeveral opaque ſpots have remained in the capſule of the cryſtalline, after the cryſtalline itſelf has been wholly diſſolved. At other times nearly one half of the pupil has continued covered by a portion of the opaque capſule, whilſt the other half has been perfectly tranſparent.

It ſhould be recollected that all the caſes of Cataract, to which I here refer, as having undergone this favorable change, during the application of æther to the eyes, were produced by external violence. Two of the eight, for inſtance, of which I have a written account, were occaſioned by a puncture through the Cornea with the pointed end of a fork ; a third by a puncture with a ſteel drill ; a fourth by a ſlight perforation with a piece of thin wire ; a fifth by a wound made with a ſplinter from an iron maul ; the Cornea of the ſixth, was cut through,

from

from one ſide to the other, with a ſharp pointed pen-knife; the Cornea of the ſeventh was burſt by a blow with a cricket ball; and that of the eighth, by a ſplinter from a rotten ſtick.—In one of the two caſes, in which the Cornea was punctured with a fork, the Iris was wounded, and the figure of the pupil, was changed to an irregularly oval aperture:—in that, in which a wound through the Cornea, was made by the ſharp end of a pen-knife, a ſcar was formed in this tunic, which extended obliquely from one ſide to the other; but, notwithſtanding this, a large portion of the pupil remained open; and ultimately this aperture recovered a conſiderable degree of tranſparency both above and below the ſcar:—in two of the other caſes, the capſule of the cryſtalline remained for a long time partially opaque, after the cryſtalline humour itſelf was wholly diſſolved:—in the reſt, the pupils became quite clear, and preſerved their round figure as perfectly as if no accident of any kind had happened.

In a few inſtances, I have mixed an equal quantity of oil of amber with the æther, inſtead of applying the latter alone. In one of theſe, the diſſipation of the Cataract took place very ſhortly after the amber was added; but I have not been able, in any of the reſt, to aſcertain the ſuperior efficacy of this mixture to that of æther alone.

The ſucceſs which attended the treatment of the caſes above related affords a hint for improving the operation, in thoſe caſes where there is ground to believe that the opaque cryſtalline is either ſoft, or fluid; and in this ſtate it uſually is when the diſorder is diſcovered in infants, either at the time of their birth, or ſhortly afterwards.

ON

THE CURE

OF THE

GUTTA SERENA.

A

DESCRIPTION OF FOUR CASES

OF THE

GUTTA SERENA

CURED BY

ELECTRICITY:

TO WHICH IS ADDED,

An Account of four Cases of the like Nature,

IN WHICH THE CHIEF MEANS OF CURE WAS

A MERCURIAL SNUFF:

WITH

INCIDENTAL REMARKS ANNEXED TO THE CASES*.

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 opthalmy, was suddenly attacked, in April 1780, with an appearance like black lace

* The first six of the following cases, together with the remarks on their proximate cause, and the mode of their treatment, were read before the Medical Society of London, May 11, 1789.—The seventh case is new;—and the eighth is given by a friend.

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. This eye had never been inflamed, and on examining it, 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

glaſs-footed ſtool, and took ſmall electric ſparks from the eyelids and the other 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 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 no 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.

CASE 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 this long paroxyſm of ſevere pain, and probably from this cauſe, the ſight of the left eye became impaired in ſo conſiderable a degree, that ſhe was incapable of diſtinguiſhing any object, though placed immediately before her. At that time the right eye did not appear to be at all affected; 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 her eyes were not at all inflamed, that both the pupils were conſiderably dilated, and that their ſize was unalterably the

ſame,

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 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 very violent, 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

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 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

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; and as the ſight returned, the ſenſations of pain in the head gradually abated, till they entirely ceaſed.

CASE 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

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 ſmall 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 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 my partner, Mr. Wathen *, was firſt

* At the time this paper was read before the Medical Society, the partnerſhip ſtill ſubſiſted between Mr. Wathen and the author.

deſired

deſired to ſee her. 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. To the uſe of theſe remedies 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 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

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 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 continued three days. During that time it was thought proper to ſuſ-

pend

pend the uſe both of the bark and electricity, which was accordingly done. But no ſooner did the reaſon 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, did not return ſo quickly: 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.

CASE IV.

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 that ſhe became even unable to turn herſelf in bed without aſſiſtance. But before this, and near a month after the com-

mencement of the pleuriſy, ſhe was ſeized with a violent pain in the left eye, without any apparent inflammation, 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 the end of which 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, was not ſo rapidly loſt as that of 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 ſaw, 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. 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 remedy was united the uſe of the 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 for 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

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.

REMARKS.

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 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 was not adapted, 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

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 in 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

* 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 proceeded 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.

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 from authors might eaſily be quoted; but it may ſuffice, at preſent, to refer only to 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 tumour 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 mal-formation of the

the optic nerves themſelves. Now in all theſe inſtances, and in 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 *.

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 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

* 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.

ſome

ſome defect in the optic nerves, though not diſcoverable, and which, however occaſioned, diſqualified them for conveying the impreſſions 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 what they commonly have after death, that the alteration 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

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 ſella turcica, which is formed by the carotid arteries on each ſide, by branches paſſing from them to meet each other before, and by other branches paſſing backward to meet branches from the baſilary 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 canals which open 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

part where the optic nerves unite, whence it proceeds, 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 baſilary 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 lie in contact with the nervi motores oculorum.—Now, as it is well known

known that all the arteries of the human frame are, from their texture, liable to no ſmall variations both from 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 will, 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, it is evident that the compreſſion, which is the effect of it, muſt, as to its extent, 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

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 aught 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 may 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, like the girl whoſe caſe is above referred to (p. 107,) 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

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 in 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

* Dr. Baillie, in his Morbid Anatomy of the Human Body, printed for Johnſon 1793, introduces the following obſervation:

" It is very common in examining the brain of perſons " who are conſiderably advanced in life, to find the trunks " of the internal carotid arteries upon the ſide of the " ſella turcica very much diſeaſed, and this diſeaſe extends " frequently more or leſs into the ſmall branches. The " diſeaſe conſiſts in a bony or earthy matter being depoſi- " ted in the coats of the arteries, by which they loſe a

" part

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 of the optic nerve to the retina;—a branch of which alſo paſſes through the vitreous humour, to 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 eyes 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.

" part of their contractile and diſtenſile powers, as well " as of their tenacity. The ſame ſort of diſeaſed ſtruc- " ture is likewiſe found in the baſilary artery and its " branches." Page 308.

A dilated

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 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 ſub-

limate, which in the new London Pharmacopœia is called hydrargyrus muriatus. Of this I would recommend a quarter of a grain as a quantity proper 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 then taken in a baſon 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 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, or ſaccharum commune. A ſmall pinch of this ſnuff taken up the noſe

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 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 its efficacy. Applications of the kind laſt mentioned in caſes of the Gutta Serena have the concurrent teſtimony of many authors both ancient 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

* Boyle's works abridged, vol. I. p. 103.

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, the four following are ſo remarkable and ſatisfactory, 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,

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 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 compleatly 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 ſeemed 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

charge did not return any more, but, each time the ſnuff was taken, it occaſioned the diſcharge of a conſiderable quantity of 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.

CASE VI.

Mrs. B. a corpulent but healthy woman, about twenty-eight years of age, received a conſiderable 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 an effect of the ſever, 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

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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 blooded with leeches applied to 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 her ſight, inſtead of being merely dim, was now to-

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tally loſt. 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 ſucceſs they might have been attended with in other ſimilar caſes, were found in the preſent 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 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 deſired, applied the electric wind to both eyes, and

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drew ſmall ſparks from the temples, and integuments ſurrounding the orbit. But, ſlight as theſe electrical applications were, yet ſo extreme was her conſtitutional timidity, that ſhe was not to be prevailed on to ſubmit to a repetition of them. Whatever hopes, therefore, might have been entertained of 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, in removing 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 for a cure:—ſtill, however, as it was incumbent on him to try whether any thing could be effected, 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 any 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

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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 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 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 *.

CASE

* 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

CASE VII *.

A lady of a very delicate conſtitution, about thirty years of age, was attacked in November 1791, with a violent pain in her head, attended with an uncommon ſenſation of weight in the back part of it. The pain, which was ſuppoſed at firſt to be rheumatic, varied much in degree at different times, and ſometimes, for ſhort periods, it wholly went off; but after intermitting in this irregular way about three

the former with three of the latter. In order to be more exact in the uſe of this remedy, I have lately accuſtomed myſelf to preſcribe one grain of the Turbith mineral to be miked with eight grains of powder of liquorice, of ſnuff, or ſugar; 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 particularly dry, I have rendered the powder more effectual, by directing the patient to inhale the ſteam of warm water through the noſe previous to the uſe of the ſnuff.

* The following caſe occurred ſince the time that the preceding part of the paper was read before the Medical Society.

weeks

weeks, it at length became conſtant, and was attended with other pains of a ſimilar kind in both her ſhoulders. The head ach was ſo violent, accompanied with ſuch ſtrong throbbings in both ears, that ſhe had much difficulty to keep her head ſtill on her pillow; and theſe were ſoon followed by ſo great a degree of general debility, that ſhe could ſcarcely move either her hands or feet. In the progreſs of every day ſhe had ſeveral fainting fits, and in ſome of theſe ſhe continued a quarter of an hour before ſhe could be rouſed from them. Previous to my being conſulted ſhe had been attended by an able phyſician and apothecary; by whoſe care of her the fainting fits were removed, and her ſtrength ſomewhat increaſed; but the pain in the head continued, and for the laſt fortnight, her ſight had gradually failed; objects appearing not only confuſed, as if they were covered with white crape, but much larger than their natural ſize; and at length, both eyes became totally blind. On examination, I found that they were free from inflammation; but the pupils, though clear,

were

were much dilated, and their ſize did not vary at all in different degrees of light. December the 27th, it was agreed in conſultation with the gentlemen who had before attended her, to adminiſter a light preparation of the Cortex Peruvianus, three or four times in the courſe of the day; to apply the vapor of æther to the eyes, twice or thrice during the ſame period; and to give her a ſternutatory powder, compoſed of a quarter of a grain of Hydrargyrus Vitriolatus, and two grains of common ſnuff, every night. December the 31ſt, ſhe continued nearly in the ſame ſtate in which ſhe was on the 27th. The ſnuff had excited a copious diſcharge of mucus from the noſe every time it was uſed. The ſame remedies were again preſcribed, and in addition to theſe ſhe was deſired to chew the Radix Pyrethri, and to have the electric aura applied to her eyes ten minutes every day. The Radix Pyrethri, occaſioned a very conſiderable diſcharge of Saliva, every time it was uſed; and, after a few days, ſmall electric ſparks, as well as the electric aura, were applied to the eye-

lids, and the other integuments that ſurround the eye. January the 8th, the pain in the head was much abated, and the lady perceived the hand of a ſervant who waited on her. The following day ſhe diſtinguiſhed ſeveral large objects. January the 12th, the menſes were expected, but did not appear. Her eyelids felt heavier than they had done for many previous days, and her ſight was much more dull and confuſed. An emmenagogue medicine was preſcribed, and her feet were put into warm water at bed time, but theſe did not produce any ſenſible good effects. On the 15th, however, the ſight began again to mend, and ſhe diſtinguiſhed the ſhape of a ſalt-ſpoon. For a few days before ſhe became totally blind, all objects had appeared magnified; but now, on the contrary, every thing ſeemed ſmaller than its real ſize. After this time both her ſight and her ſtrength mended ſteadily but ſlowly. The ſame remedies were ſtill continued; and in about a month from the time I firſt ſaw her, ſhe read a common ſized print with tolerable facility. When the proper

period

period for the appearance of the menſes again came round, this evacuation took place, but it was much leſs in quantity, and continued a much ſhorter time than it uſually had done when the patient was in a ſtate of health. Several months elapſed before ſhe was quite regular in this reſpect. The ſight of both eyes, however, mended daily, and at length it returned to its uſual degree of perfection.

CASE VIII.

The following caſe, by Mr. R. B. Blagden, ſurgeon at Petworth in Suſſex, was publiſhed in the fourth volume of Medical Facts, and Obſervations, printed for Johnſon 1793. Mr. Blagden permits me to introduce it here; and it tends to corroborate the opinion above advanced, of the efficacy of a mercurial ſnuff in many caſes of the Gutta Serena.

"Mr.——— aged thirty-one years, of "a ſpare habit, and ſubject to ſcrophulous "affections of the ſubmaxillary glands, be-

" tween four and five years ago, on a ſudden,
" and without the ſmalleſt injury or previous
" indiſpoſition, became ſenſible of ſuch a
" defect in the ſight of the right eye, that
" he was unable to take his favourite diver-
" ſion of ſhooting, in the uſual way: how-
" ever as the ſight of the left eye enabled
" him to read, and to uſe a left handed gun
" pretty ſucceſsfully, he was contented;
" and probably would have remained ſo,
" had not that likewiſe begun to fail:—a
" circumſtance, of which he firſt took no-
" tice about ſix weeks before he applied to
" me.

" On the 7th of October, when I firſt
" ſaw him, the pupils of both eyes were
" contracted to as great a degree as the pupil
" of a ſound eye is by a ſudden and ſtrong
" light.

" The pupil of the left eye, on the ap-
" proach of a very vivid light, ſhewed ſo
" ſmall an alteration as to be ſcarcely per-
" ceivable; and that of the right none at
" all. With the left the patient could
" barely ſee the capital letters which the
" printers

" printers call the Four-Lines-Pica; with
" the right he could only diſtinguiſh light
" from darkneſs.

" The caſe ſeemed to me a fair one for a
" trial of the mercurial ſnuff recommend-
" ed, and ſo ſucceſsfully uſed, by Mr.
" Ware, in the third volume of the Me-
" moirs of the London Medical Society;
" and I accordingly directed the patient to
" take a pinch of it, (prepared by mixing
" five grains of the hydrargyrus vitriolatus,
" with thirty five of the pulvis aſari com-
" poſitus) every night. As he ſmiled at the
" idea of being cured by a pinch of ſnuff,
" I gave him two tea-ſpoonfuls of a mix-
" ture compoſed of equal parts of tincture
" of valerian, and compound tincture of
" lavender, twice a day in a cup of roſe-
" mary tea: the doſe was afterwards in-
" creaſed to three tea-ſpoonfuls.

" On the 21ſt of October the patient
" could ſee the capital letters with the right
" eye, and could read the Four-Lines-Pica
" print with the left.—The pupils were in
" their general appearance, leſs contracted;

" and they were affected more ſenſibly by " the impreſſion of light. The firſt five " or ſix times of uſing the ſnuff it made his " noſe bleed freely, and ſo long as it pro- " duced this effect, he thought he per- " ceived the advances more ſtrikingly; an " additional two grains and an half of the " mercurial were therefore put to the next " quantity of the pulv. aſari. c. and the hæ- " morrhage from the noſe was reproduced " as often as it was made uſe of.

" On the 28th of October, the appear- " ance and contraction of the pupils were " natural;—the patient could read a news- " paper, and was able to ſhoot correctly " with his right handed gun.

" On the 18th of November, the ſight " of both eyes was in every reſpect perfect."

ADDITIONAL REMARKS

ON THE

EPIPHORA.

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IN a paper on the Epiphora read before the Medical Society of London, in December 1790, which was afterwards publiſhed in a ſmall pamphlet, together with a few other chirurgical obſervations, I took ſome pains to recommend the mode of treatment, which had been firſt propoſed by Monſieur Anel in the year 1712; viz. that of injecting a liquid through the inferior punctum lachrymale, with a view to waſh away any matter that might obſtruct the paſſage of the tears, into the noſe. At the time the paper above mentioned was read before the ſociety, I had injected, for this purpoſe, only common water, either cold or warm; and by the help of this alone, I had been fortunate enough to accompiſh a cure in ſeveral caſes; four of which were related

related at ſome length. In thoſe inſtances it ſeems probable, that the obſtruction was produced by the lodgement of inſpiſſated mucus alone in ſome part of the lachrymal duct. But it ought to be remembered, that a ſimilar obſtruction may alſo be occaſioned, not only by a tumefaction of the membrane which lines the ſac and duct, but by a ſpaſmodic conſtriction in any part of this canal *.

The

* I ſcarcely need mention that after the tears have been ſpread over the eye, to keep it moiſt and tranſparent, they are abſorbed by two minute orifices, called Puncta Lachrymalia, one on the edge, and near to the inner extremity, of each of the eyelids; whence they are conveyed through two ſmall tubes into a little pouch, called Sacculus Lachrymalis. This is ſituated in an excavation in the inner angle of the orbit, formed partly by the naſal proceſs of the Os Maxillare Superius, and partly by the Os Unguis. Anteriorly the ſac has no bony cover. In the adult ſubject it is about five eighths of an inch long, aud a quarter of an inch broad in its wideſt part. The lower part of the ſac forms a duct, about half an inch long, called the Ductus Naſalis, which commences at the inner, and inferior edge of the orbit, and is continued through a bony channel till it opens into the noſe; through which

The membrane which lines both the lachrymal ſac, and the naſal duct, is not only ſimilar to the pituitary membrane which lines the cavity of the noſe, but is a continuation of it. It is full of blood veſſels, and has a mucous fluid ſecreted by its ſurface, which ſerves to defend it from being irritated by the tears that continually paſs over it. The pituitary membrane, like all other mucous membranes, is liable to be inflamed and thickened by a variety of cauſes; and when the inflammation and tumefaction of this part take place to any conſiderable degree, they are apt to extend to the membrane which lines the duct and the ſac. The naſal duct is entirely ſurrounded with bone; whenever, therefore, that part of the membrane which lines this duct

which the tears are diſcharged. The diameter of this duct, varies much in different ſubjects. In ſome, I have ſeen it ſufficiently large to allow a gooſe quill to paſs through it; and in others, apparently of the ſame age, it has been ſo ſmall that it would ſcarcely admit the end of a ſmall crow's quill. The whole of this paſſage is denominated the Canalis Lachrymalis.

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is thickened, the paſſage for the tears is neceſſarily diminiſhed; and when the tears are prevented from paſſing off, they acquire a degree of acrimony which irritates the membrane of the duct, and contributes to keep up a contraction, and conſequently an obſtruction, in this part, after the inflammation and tumefaction are removed from the other part of the membrane which lines the noſe. The mucus, alſo, ſecreted by the membrane of the duct, becomes inſpiſſated, in conſequence of the inflammation of this part. By theſe ſeveral means the obſtruction in the duct is confirmed; and too often, if the diſorder be not attended to, it at length terminates in an abſceſs of the lachrymal ſac; which, burſting externally, produces, according to the ſtrict literal meaning of the term, a Fiſtula Lachrymalis.

Another circumſtance which has been aſſigned by writers as a cauſe of the Epiphora; and which it will be proper for me here to mention, is a ſpaſmodic conſtriction in ſome part of the lachrymal canal, without any tumefaction of the membrane which

lines it, and without any morbid inſpiſſation of the mucus ſecreted by it *. When this is the cauſe of the diſorder, the conſtriction is uſually ſituated in that part of the lachrymal canal, which is denominated the naſal duct. It may undoubtedly take place in the lachrymal ſac, as well as in the naſal duct; but it is more apt to happen here, not only becauſe the diameter of the duct is leſs than that of the ſac, but becauſe the duct is the only part of the whole canal, intirely ſurrounded with bone. And the part in which it ſeems moſt likely that the con-

* Thoſe caſes may perhaps be arranged under this deſcription, in which one, or both, of the puncta lachrymalia, are either cloſed, or contracted in ſize. Many ſuch have at different times fallen under my obſervation. When the puncta are wholly cloſed, the caſe is often incurable; but when only contracted in ſize, relief may be ſpeedily given, by paſſing the end of a ſmall probe through the puncta, and increaſing its ſize from time to time until the orifices have fully recovered their natural dimenſions. In ſuch caſes it will alſo be proper to inject ſome warm water through the inferior punctum into the noſe, in order to aſcertain that there is no obſtruction lower in the duct.

ſtriction

ſtriction ſhould take place, is its inferior termination, where it opens into the cavity of the noſe; as the membrane which lines this part, forms here a fold, which projects beyond the bony rim of the duct, and acts, according to the opinion of many, as a valve or ſphyncter of this part *. The fold ſerves to

* Janin, who publiſhed his memoirs on the eye in the year 1772 *, aſſerts plainly, that the inferior orifice of the naſal duct is bounded by a valve, or ſphyncter, placed there in order to check the too rapid deſcent of the tears through it, and to hinder the air, or any thing elſe that might prove injurious, from paſſing upward from the noſe into the ſac. To go further back, Bianchi, in the year 1715, expreſſed himſelf in the following ſtrong terms on the ſame ſubject †. "Valvulæ cæterum hujuſmodi "præſentiam apud nonnullos controverſam adimi dubietas "poſſit, demonſtrabam in ſubjecto muliebri menſe Feb- "ruarii fluentis anni Clar. D. D. Doctoribus Claverotto, "Vaccherio, Pelletta, Maſſola, cœtuique auditorum "meorum numeroſo. Figuram, inſtar aliarum grandio- "rum omnium, ſemilunarem ducit hæc valvula; ut ideo "ſemilunaribus aortæ, aut ſigmoideis pulmonaris arteriæ "æquata proportione molis, æquiparari conſulto poſſit."

* Memoires et Obſervations ſur l'œil, Lyon, 1772, page 105.

† Ductuum lachrymalium novorum Epiſtolaris Diſſertatio Joanne Baptiſta Bianchi, Taurino 1715, page 26.

Notwith-

to hinder noxious particles from paſſing upward into the lachrymal ſac; and by ſome it

Notwithſtanding this plain deſcription of a valve, or ſphyncter, at the termination of the naſal duct in the noſe, Winſlow, who publiſhed his expoſition of the ſtructure of the human body ſeventeen years after the date of Bianchi's epiſtle, and in it gives a very accurate deſcription of the organs of ſight and ſmell, takes no ſort of notice of ſuch a valve, and only ſays, that he has ſometimes ſeen the membrane which lines the duct relaxed and folded. He adds as his opinion, that this appearance was the effect of diſeaſe, and not the natural ſtate of the part *. Meſſrs. Pott, Warner, Wathen, Bell, and many other authors, whom I have conſulted on the ſubject, are entirely ſilent as to the exiſtence of any valve, or ſphyncter in this part. Zinn, however, the firſt edition of whoſe tract on the eye was publiſhed in the year 1755, appears to have attended more accurately to the mode in which the duct terminates; and in the following words he corroborates the obſervation that had before been made by Bianchi. "Ductus naſalis in nares patet orificio ita oblique reſecto, "uti fere ureteres in veſicam ſe immittunt, quod orificium "præterea aliqua ex parte clauditur plica membranea ſe-"milunari libera, ut aliquam valvulæ ſpeciem exhiberi "videatur †". I have examined a conſiderable number of

* Expoſition Anatomique de la ſtructure du corps humaine, à Paris, 1732, Chapitre de la Tete, N°. 349.

† Deſcript. Anatom. Oculi Humani Gottingen, 1755, Cap. xiii. Sect. iv.

heads,

it has been ſuppoſed to prevent the tears alſo from deſcending too rapidly through the duct into the noſe. Now when the membrane which lines the duct is ſtimulated by any cauſe, it is far from being unlikely that this fold of it ſhould contract; in conſequence of which the paſſage of the tears through the duct will be either partially or wholly intercepted by it.

heads, of perſons deceaſed, in order to obtain ſatisfaction on this ſubject; and I always found, when the Os Spongioſum inferius remained in its natural poſition, that the two ſides of the membrane which terminated the duct lay flat on the ſide of the Os Maxillare, very near to each other; and the aperture into the duct was ſcarcely perceptible. But when the Os Spongioſum was drawn from the ſide of the Os Maxillare, the aperture became plainly viſible, of an oval ſhape, and appeared to be bounded, as both Bianchi and Zinn have deſcribed it, by a membranous fold, the longeſt diameter of which extended from above downward. The fold was perceptible in all the heads I examined, but was longer in ſome than in others; and conſequently the aperture bounded by it was not always equal in ſize. In general, it was ſituated near the anterior extremity of the Os Spongioſum inferius; but ſometimes it lay further back in the noſe, near the poſterior extremity, and under the upper edge, of this bon e.

If

If a membranous ſtricture be the ſole cauſe of the Epiphora, the diſorder is uſually confined to an accumulation of tears in the lachrymal ſac, and to the regurgitation of thoſe tears through the puncta lachrymalia, when either the ſac is unable to contain more, or when external preſſure is made to empty it. In this ſtate it has been called, with ſome propriety, by French authors, *une hydropiſie du ſac lachrymale**. But if either of the other cauſes I have mentioned occaſion the retention, the fluid that regurgitates through the puncta will be mixed with inſpiſſated mucus; and, in general, the eyelids will be gummed together when the patient awakes in the morning.

* It not unfrequently happens, that the projection which appears on the ſide of the noſe, near the inner angle of the eyelids, in conſequence of the retention of tears in the lachrymal ſac, may be removed by a ſlight preſſure of the finger upon it; the retained fluid quickly and almoſt inſtantaneouſly paſſing into the noſe. This circumſtance appears to me to corroborate the opinion above advanced, that the ſtricture, which retains the tears, is ſometimes confined within a ſmall ſpace; and, in ſuch caſes, I think it highly probable, that it is ſituated in the fold of the membrane above deſcribed.

It ought, however, to be remembered that when the ſebaceous glands on the edges of the eyelids are diſeaſed, the eyes are almoſt always in a ſtate of irritability; and if they happen to be expoſed to an unuſual degree of wind, of light, or of heat, a conſiderable flux of tears will often be excited, (though there be no obſtruction in the lachrymal canal,) which not only obſcures but weakens the ſight *. It is neceſſary to diſtinguiſh this caſe from an obſtruction in the lachrymal canal, becauſe it requires a very different mode of treatment. In the former, for inſtance, the remedies muſt be chiefly applied to the edges of the eyelids, in order to amend the ſecretion from the ciliary glands; in the latter, the ciliary glands being undiſeaſed, applications to them can anſwer no good purpoſe, and the chief object in view is to obtain a free paſſage for the tears through the duct into the noſe.

* An Epiphora may alſo undoubtedly take place in conſequence of a diſeaſe in the glandula lachrymalis alone, without any affection of the neighbouring parts; but I believe this to be a very rare occurrence.

Having

Having made theſe remarks on the different proximate cauſes of the Epiphora, I now proceed to conſider the moſt effectual modes of cure. And here I beg leave to obſerve that whether the diſorder be produced by the lodgement of inſpiſſated mucus in the cavity of the naſal duct, by the tumefaction of the membrane which lines this duct, or by a ſpaſmodic conſtriction in any part of its extent, in any of theſe caſes, the introduction of a remedy to the ſeat of the diſeaſe, by means of a ſyringe, whoſe pipe is of a ſize ſuited to enter into the inferior punctum lachrymale, is not only very practicable, but I have often found highly beneficial. With regard to the ſort of injection that is moſt proper on theſe occaſions, I formerly made uſe of plain river water, ſometimes warm, and at other times cold. In the uſe of this, it was my principal intention, to act mechanically on the obſtruction, and, by means of the moderate force with which the water was injected, to propel into the noſe any inſpiſſated mucus that might lodge in the duct, and impede

the deſcent of the tears through it. By this mode of treatment alone, I had the ſatisfaction to accompliſh a cure in a conſiderable number of caſes; but it did not afford equal relief in all. The failures to which I was occaſionally ſubject, induced me to extend my enquiries into the different cauſes which might lay a foundation for the diſorder; and if the three above mentioned are juſt, it will follow, that the ſame remedy cannot always be equally ſucceſsful; and that an application which in one caſe might have proved highly uſeful, in another might be found wholly ineffectual.

When, for inſtance, the obſtruction to the paſſage of the tears is produced ſolely by the lodgement of inſpiſſated mucus in the naſal duct, and is unaccompanied by any tumefaction in the membrane which lines this part, the injection of warm water, or indeed of any other liquor, is ſufficient, merely by its mechanical power to remove the mucus, and accompliſh a cure; but, when the lodgement of inſpiſſated mucus is accompanied with a tumefaction of the membrane

which

which lines this duct, the injection of warm water alone might rather tend to increaſe the tumefaction; and, in ſuch caſes, vitriolic, or ſaturnine applications, ſeem better adapted to anſwer the intention of cure. Theſe may be aſſiſted by taking away a ſmall quantity of blood from the veſſels, near the lachrymal ſac, either by the application of a leach, or by puncturing the angular vein. When, again, the obſtruction is occaſioned by a ſpaſmodic conſtriction in ſome part of the lachrymal canal, aſtringent applications may rather tend to increaſe the conſtriction; and the remedies that ſeem indicated are, on the contrary, of a relaxing and ſedative nature.

It is not eaſy, however, at all times, to diſcover the preciſe cauſe of the obſtruction, and, in conſequence, we cannot always immediately aſcertain the peculiar mode of treatment that ought to be adopted. Although, for inſtance, the lodgement of inſpiſſated mucus in the lachrymal ſac is often accompanied by a tumefaction of the membrane which lines the naſal duct, it may

alſo take place without any ſuch tumefaction; and although a ſpaſmodic conſtriction in a part of the naſal duct, may only produce at firſt a retention of tears in the lachrymal ſac, without altering the conſiſtence of the mucus ſecreted by it, yet the tears, being retained, will neceſſarily acquire ſome degree of acrimony, and theſe, irritating the ſac, will ſoon produce an inſpiſſation of the mucus ſecreted by it.

Under the uncertainty, therefore, to which in theſe caſes we are unavoidably ſubject, I in general begin the treatment by injecting ſome warm water through the inferior punctum lachrymale, and I repeat the operation four or five days in ſucceſſion. If in this ſpace of time, none of the water paſs through the duct into the noſe, and if the watering of the eye continue as troubleſome as it was before the injection was employed, I uſually open the angular vein, or direct a leach to be applied near the lachrymal ſac; adding here a caution that the leach be not ſuffered to fix on either of the eyelids, leſt it produce an extravaſation of blood in the

adjacent

adjacent cells *. About the ſame time that blood is taken away in the neighbourhood of the eye, I uſually vary the injection, and try the effects either of a weak vitriolic, or anodyne, lotion. In ſome inſtances alſo, when I have found it impoſſible, after ſeveral attempts, to inject any part of the liquid through the duct, I have introduced a golden probe, about the ſize of a briſtle, through the ſuperior punctum lachrymale, and, attending to the direction of the duct, have inſinuated its extremity through the obſtruction, and conveyed it fully into the noſe; immediately after which I have found, that a liquid, injected through the inferior punctum has paſſed without any difficulty; and by repeating theſe operations, for a few ſucceſſive days, I have at length eſtabliſhed the freedom of the paſſage, and compleated the cure. In other inſtances, I have recom-

* This accident, after the application of a leach either on the upper or the lower eyelid, is not uncommon; and though it be not attended with any danger, yet the diſcoloration and tumefaction it occaſions, are extremely unpleaſant, and they ſometimes remain many days.

mended a ſtrongly ſtimulative ſternutatory to be ſnuffed up the noſe, about an hour before the time of the patient's going to reſt, which, byexciting a large diſcharge from the ſchneiderian membrane, has ſometimes alſo greatly contributed to open the obſtruction in the naſal duct.

Caſes occur very rarely which may not be relieved by ſome of the means above related. It ought however to be mentioned, that the Epiphora is ſometimes occaſioned by a polypous tumor in the noſe, obſtructing the inferior aperture of the naſal duct; in which caſe, being a ſecondary diſorder, it can only be relieved by the removal of the polypus that occaſions the obſtruction. So likewiſe when the Epiphora is accompanied with an Ozæna, this latter diſorder muſt be removed before the cure of the former can be accompliſhed.

There is one other remedy for the Epiphora, recommended by antient as well as modern writers, of which it will be proper for me to take ſome notice here. I mean, the application of a conſtant gentle preſſure, over the lachrymal ſac, in order to prevent

its further diſtention, and to increaſe its tone and elaſticity. The only caſes, in which it ſeems probable that this remedy will prove effectual, are thoſe in which the obſtruction is ſo ſlight, that though the tears are retained in the ſac, yet a ſmall degree of preſſure is ſufficient to propel them through the duct into the noſe. The application of the finger on the ſac is perhaps the moſt accurate mode in which preſſure can be made. But as it cannot be continued in this way for any great length of time without inconvenience, an inſtrument to ſupply the place of the finger has been invented by ſeveral ſurgeons; of which repreſentations may be ſeen in the works of Heiſter, Gooch, and ſome others. In my own practice, I have ſeldom found ſuch preſſure uſeful; and it ſcarcely need be added, that if the obſtruction be ſo conſiderable, that nothing will paſs through the duct into the noſe, it is impoſſible, that external preſſure, however applied, can be of eſſential ſervice.

It not unfrequently happens, that the fluid collected in the lachrymal ſac, though capable

capable of being propelled into the noſe by external preſſure, has a very offenſive taſte and ſmell. In ſome ſuch inſtances, the bone behind the duct has been much diſeaſed, and the cure, of courſe, has been ſlow. In others the diſcharge has been ſpeedily corrected by injecting daily through the ſac a warm vitriolic lotion; by perſevering in the uſe of which, the ſac has ſometimes acquired, in a ſhort time, its proper tone, and the accumulation has been prevented in future.

When an Epiphora is occaſioned by an acrimonious diſcharge from the ſebaceous glands on the edges of the eyelids, it muſt be evident, that injections into the ſac will be very unſufficient to accompliſh a cure, becauſe the ſac is not the ſeat of the diſorder. The remedies that are employed muſt be directed, on the contrary, to the ciliary glands themſelves, in order to correct the morbid ſecretion that is made by them; and for this purpoſe, I do not know any application that is ſo likely to prove effectual as the Unguentum Hydrargyri Nitrati, of the new

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London Diſpenſatory, which ſhould be uſed here in the ſame manner in which it is applied in common caſes of the Pſoroph-thalmy. It will be proper to cleanſe the eyelids every morning, from the gum that collects on their edges during the night, with ſome ſoft unctuous application; and I uſually adviſe to apply to them two or three times in the courſe of the day a lotion compoſed of three grains of white vitriol, in two ounces of roſe, or elder flower, water. I beg leave, however, to offer a caution againſt the mode in which eye waters are too frequently uſed, viz. by moiſtening a piece of linen with them, and applying it over the lids. When uſed in this way, it often happens, that not one drop of the lotion comes in contact with the parts principally affected; and I leave it to the moſt common obſerver to determine, whether it be poſſible for an inflamed eye, and much leſs for a diſeaſed lachrymal ſac, to receive benefit from the beſt contrived remedies ſo applied. The manner in which I generally recommend ſuch lotions

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to be uſed is either in an eye glaſs *, ſo ſuited to the ſhape of the eye that it will allow the liquor to go directly to the part affected, or elſe by means of a camel's hair pencil, which being thoroughly wet with the water, is applied to the edges of the lids in ſuch a way that the water may certainly inſinuate itſelf between them and the globe of the eye. In thoſe caſes where it is deſirable to have a part of the lotion conveyed into the lachrymal ſac, it is particularly proper to attend to the direction now given; and in addition to this, the head ſhould be reclined on the oppoſite ſide, in order that the water may collect in the inner angle of the eyelids; the lids being repeatedly opened and ſhut to aſſiſt its abſorption, by the puncta lachrymalia.

I have now finiſhed all the remarks which I purpoſed to make on the ſubject of the Epiphora. It was my intention, when I began to put theſe together, to have added

* An eye glaſs may be purchaſed at almoſt every glaſs or china ſhop, in London.

ſome

ſome others on the Fiſtula Lachrymalis. But, as I am not fully prepared at preſent, to enter on this ſubject, the conſideration of it muſt be deferred to a future occaſion. Before I conclude, however, I beg leave to relate the few following caſes; the treatment of which will be found, ſomewhat different from that which was uſed in the caſes of Epiphora, deſcribed in a former tract, on this ſubject.

CASE I.

Mrs. H. about twenty-five years of age, applied to me on the tenth of Auguſt 1792 on account of an Epiphora of the right eye, which had continued upwards of three years. It had been preceded by ſeveral ſtyes on the edges of the eyelids, one of which was ſituated cloſe to the inferior punctum lachrymale. This like the reſt broke, and healed in the uſual way; but the obſtruction in the lachrymal duct commenced ſoon afterwards; and during the laſt three months, the

the watering of the eye had been almoſt inceſſant, and, in a great degree, had diſabled the patient from attending to any ſort of employment. On preſſing the ſac with my finger, I brought through the puncta lachrymalia a glary fluid, which was almoſt tranſparent, having much leſs of a purulent appearance than it uſually has in this diſeaſe. I immediately injected ſome warm water through the inferior punctum, and was ſurpriſed to find that it paſſed freely both into the noſe, and throat. The injection was repeated ſeveral times in the courſe of the next fortnight; but at the end of this time, though the Epiphora was much diminiſhed, it was ſtill often troubleſome; and whenever I examined the eye, a ſmall quantity of glary mucus was always found in the lachrymal ſac. I now varied the injection, and, for this purpoſe, made uſe of a ſolution of three grains of white vitriol in two ounces of diſtilled water. The next day the patient informed me, that the injection, laſt uſed, had made her eye very uneaſy for a ſhort time, but that when the pain went off, the eye felt ſtronger, and the watering

watering was much leſs troubleſome than it had before been. The quantity of mucus collected in the lachrymal ſac was alſo conſiderably diminiſhed. I repeated the uſe of the vitriolic injection four times in the following week; after which the watering wholly ceaſed, and the eye became quite well.

CASE II.

M. C. about forty years of age, who had been troubled with an Epiphora of the left eye between two and three years, and whoſe ſight, during the greater part of this time, had been rendered very imperfect by an almoſt conſtant accumulation of tears on the ſurface of the Cornea, was attacked, in June 1792, with an inflammation of the integuments that covered the lachrymal ſac, which, in a day or two afterwards, ſwelled, and became very painful. The tumefaction continued to increaſe from the eighth till the twelfth of June, when I firſt ſaw her. At this time neither tears nor mucus could be

made

made to regurgitate through the puncta lachrymalia, on compreſſing the ſac; and the ſwelling was ſo conſiderable, that an attempt to hinder it from ſuppurating, appeared to me to be in vain. In order therefore to haſten its termination in this way, I directed a warm bread and milk poultice to be applied immediately, and to be renewed three times a day. On the fourteenth, notwithſtanding the inflammation and ſwelling continued as before, there did not appear to be any advance in the ſuppuration. I therefore varied from my firſt plan, and recommended a leach to be applied directly over the ſac; adding a caution, that it ſhould not be ſuffered to fix ſo near the edge of the lids, as to cauſe an Ecchymoſis in the cellular membrane of this part. The leach drew blood freely, and gave immediate and conſiderable eaſe. I now intended to omit the uſe of the poultice, but, my directions on this ſubject being miſunderſtood, it was repeated, as before, when the hæmorrhage ceaſed; and as the application ſeemed afterwards to agree, I deſired

ſired that it might be continued. On the ſixteenth, another leach was applied on the ſac, and the next day the tumor was ſtill further diminiſhed. The patient took a purgative draught this morning. On the eighteenth, I injected ſome warm water through the inferior punctum lachrymale, and a ſmall portion of it paſſed through the duct into the throat. The watering of the eye was much leſs troubleſome afterwards, than it had been for many months. The next day I repeated the uſe of the injection; and almoſt the whole contents of the ſyringe now paſſed either into the noſe, or throat. On the twenty firſt, and twenty third, the injection was again repeated with ſimilar ſucceſs. After this, the ſwelling of the ſac entirely ſubſided, the watering ceaſed, and the eye became perfectly ſtrong and uſeful.

CASE III.

Miſs S. about ten years old, was brought to me in February 1793, on account of an Epiphora of the left eye, which had been troubleſome between three and four years, and of late had become much worſe, in conſequence of her having had the ſmall pox of a confluent ſort. Several remedies had been tried without affording her any relief. At this time the lachrymal ſac was filled with a thick white mucus, and the tears ran down the cheek almoſt continually. I recommended to inject ſome warm water through the inferior punctum lachrymale; which operation, was performed daily, for ſome time, by a ſurgeon in the country; but as it did not render her any benefit, ſhe was brought to town, and committed entirely to my care. I began by adopting a ſimilar method; injecting, for the firſt week, warm water alone, and afterwards a warm vitriolic lotion, for another week; but

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as itdid not appear that any of the liquor paſſed, during this time, into the throat or noſe, and as the Epiphora continued ſtill troubleſome, I directed a leach to be applied over the lachrymal ſac. The hæmorrhage produced by the leach was conſiderable, but, notwithſtanding, the obſtruction ſtill remained. I therefore introduced a ſmall golden probe, through the ſuperior punctum, and, by following the courſe of the duct, carried its extremity through the obſtruction into the noſe. It was left in the duct about a minute, and then retracted; after which I injected ſome warm water through the inferior punctum, and had the ſatisfaction to find that a part of it paſſed into the throat and noſe. The probe was introduced ſeveral days in ſucceſſion; and although, previouſly, none of the water injected by the punctum would paſs into the noſe, it went, each day, afterwards without any difficulty. The operation of paſſing the probe was at firſt painful; but, on the ſecond, and ſubſequent introductions, the pain was conſiderably leſs ſevere. In a few days after the injected liquor

had paſſed into the noſe, the watering of the eye greatly diminiſhed; but ſtill a conſiderable quantity of purulent matter was collected every morning in the lachrymal ſac. On this account I varied the injection, and inſtead of warm water alone, employed, for this purpoſe, as at the beginning of my attendance, a weak ſolution of white vitriol. This was injected daily, for about three weeks; and then every ſecond, or third day, for a fortnight longer. The quantity of mucus collected in the ſac, after this, was very inconſiderable, and the Epiphora gave ſo little trouble, that the handkerchief was ſcarcely ever needed to wipe a tear away.

CASE IV.

In March 1793, I was conſulted by Mr. W. in Titchfield ſtreet, on account of his daughter, about eleven years old. She had been attacked with the ſmall pox, whilſt an infant, during which diſorder her eyelids had been glued together for many days. When they

they were opened, the right eye was found to be affected with conſiderable inflammation, which was not ſubdued without much difficulty. After its removal, an Epiphora remained; the tears that flowed over the cheek being generally mixed with a thick mucus. In this ſtate the diſeaſe continued, till within a ſhort period of the time at which I was conſulted; when the ſmell of the mucus becoming highly offenſive, it gave great reaſon to fear, that the bone behind the duct was carious. I immediately injected a vitriolic lotion through the inferior punctum lachrymale; but the whole of the liquor regurgitated through the ſuperior punctum, and brought with it a conſiderable quantity of the putrid matter above mentioned. A ſimilar lotion was directed to be applied frequently, by means of a camel's hair pencil, to the inner angle of the eyelids; and their edges were touched with the Unguentum Hydrargyri Nitrati, in order to correct an acrimonious humour which ſeemed to be ſecreted by the glandulæ ciliares. To aſſiſt in accompliſhing the ſame purpoſe, I

preſcribed

preſcribed half a grain of Calomel to be taken conſtantly, night and morning. The injection was daily repeated, and the whole plan regularly purſued, for ten days; at the end of which time the ſmell of the diſcharge became much leſs offenſive; but the watering of the eye was nearly as troubleſome as when I firſt ſaw her. I now paſſed a golden probe through the ſuperior punctum, and it went with very little difficulty through the naſal duct into the noſtril. The vitriolic lotion was afterwards injected; part of which immediately paſſed through the duct, and was diſcharged on the handkerchief when the patient blew her noſe. The next day I tried to inject the lotion without paſſing the probe,—but could not ſucceed, until this inſtrument had been firſt introduced. I purſued a ſimilar mode of treatment daily for a week, and afterwards omitted the uſe of the probe, and employed the injection alone. This was continued every ſecond day for three weeks longer, the liquor each time paſſing through the noſe, if the head was held forward, or into the

throat if held backward. After this time the watering of the eye wholly ceaſed; but the vitriolic lotion was ſtill continued, as an eye water, on account of the mucus, a ſmall portion of which was occaſionally collected, when ſhe awoke in the morning, in the lachrymal ſac. It was now, however, perfectly free from any ſmell, and, when collected, the patient was always able to preſs it into the noſtril, by means of the finger applied on the ſac.

CASE V.

The daughter of Mr. C.—— about nine years old, was brought to me in Auguſt 1794, on account of a conſtant watering of the right eye, and a frequent accumulation of matter upon it. The diſorder had continued above nine months, and appeared at firſt to be the conſequence of a common cold. On compreſſing the lachrymal ſac, a conſiderable quantity of the ſame matter that appeared on the eye regurgitated through the puncta lachrymalia. I endeavoured to inject

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ſome warm water through the inferior punctum into the noſe; but none of it would paſs. I therefore recommended to waſh the eye frequently with a vitriolic lotion, and preſcribed a ſternutatory powder to be ſnuffed up the right noſtril every evening. On the third day ſome warm water was again injected through the inferior punctum; but ſtill the whole of it was either retained in the ſac, or regurgitated through the puncta. I now directed a leach to be applied on the integuments of the ſac, and recommended the vitriolic lotion, and ſternutatory powder to be continued as before. On the fifth day, on injecting the water through the inferior punctum, a part of it paſſed into the throat. The ſame remedies were continued as before. On the ſeventh I injected a warm vitriolic lotion, and the whole of it paſſed either into the throat or the noſe. The ſternutatory powder and vitriolic lotion were ſtill continued. I repeated the uſe of the ſame injection three or four times afterwards, and had the ſatisfaction, each time, to find that the whole of

of it went properly through the duct. After this the watering of the eye, and the discharge of matter from it, wholly ceased, and the sight became perfectly strong and useful.

CASE VI.

In the beginning of the winter 1793, a lady was attacked, during the time she had a violent cold in her head, with an Epiphora of the right eye; which, after remaining troublesome many months, at length abated in a considerable degree without the use of any particular remedy. The tears however still collected occasionally in the lachrymal sac, and continued to accumulate, until they either regurgitated through the puncta in consequence of the sac's being unable to contain more, or were pushed through the nasal duct by the pressure of the finger. The patient was obliged to have recourse to this last mentioned mode of obtaining relief many times in the course of the day. In June 1794, in consequence of a fresh cold, the passage through the nasal duct became wholly

cloſed; and when the ſac was compreſſed, the retained tears, inſtead of paſſing down, regurgitated through the puncta, and flowed over the eye; being frequently mixed with a very offenſive matter. After the eye had been in this ſtate about a fortnight the lady applied to me. I injected ſome warm water ſeveral times through the inferior punctum into the ſac, in hopes that a part of it might paſs through the duct into the noſe; but the whole was, each time, either retained in the ſac or returned through the ſuperior punctum. I afterwards directed a leach to to be applied over the ſac; and a ſtrong ſtimulating powder, to be ſnuffed up the right noſtril every evening. The leach produced a copious bleeding; and the ſnuff not only excited a conſiderable diſcharge from the noſe, but induced ſeveral very violent fits of ſneezing. No immediate good effects were perceived from the application of the leach; but after the ſnuff had been taken about three times, the inferior aperture of the naſal duct became pervious; ſo that when a preſſure was made on the ſac, its contents paſſed into the noſtril, inſtead of re-

gurgitating,

gurgitating, as before, through the puncta lachrymalia. I injected ſome warm water through the inferior punctum; the whole of which was ſtill retained in the ſac, until by the preſſure of the finger, externally applied, it was forced through into the noſe. The eye was now brought to the ſame ſituation, in which it had been for ſeveral months before the patient caught her laſt cold; and it continued without any material alteration about a fortnight longer; when, upon her taking a freſh cold, the inferior aperture of the duct became again obſtructed, and all the old ſymptoms returned. I recommended the re-application of a leach; and a return to the uſe of the ſternutatory powders. By theſe means in a few days the obſtruction in the duct was again removed; and warm water injected through the inferior punctum paſſed with more freedom than it had before done, ſince the commencement of her illneſs, into the noſe. The injection was repeated every day for a fortnight; and during this time the patient frequently inhaled the ſteam of an infuſion of chamomile flowers through the

the affeKed noſtril. This with a continued uſe of the injection and ſnuff, ſpeedily produced the wiſhed for effect. The retention of tears in the ſac was daily leſs; and in a ſhort time the Epiphora ceaſed, and the eye became well.

THE END.