Practical observations on cataract and closed pupil, and on the amputation of the arm at the shoulder joint, illustrated by cases : to which are added several cases of compound dislocations / by Griffith Francis Dorsett Evans.

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1 The Pupil in Henry Hartshorn's eye previous to the first operation.

2 Represents its appearance subsequent to the last operation.

PRACTICAL OBSERVATIONS

ON

CATARACT

AND

CLOSED PUPIL,

AND ON

THE AMPUTATION OF THE ARM AT THE SHOULDER-JOINT,

Illustrated by Cases:

To which are added,

SEVERAL CASES OF

Compound Dislocations.

BY

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AND

LATE PUPIL AT THE LONDON INFIRMARY FOR CURING DISEASES OF THE EYE.

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ASSISTANT SURGEON

TO ST. GEORGE'S HOSPITAL,

CLINICAL LECTURER IN SURGERY,

&c. &c.

THE FOLLOWING PAGES ARE

DEDICATED,

AS A TRIBUTE OF RESPECT,

TO ONE WHO IS DISTINGUISHED

BY

EVERY ACQUIREMENT THAT CAN ADD

LUSTRE TO HIS PROFESSION,

BY

HIS OBLIGED

AND

SINCERE FRIEND,

THE AUTHOR.

Shrewsbury,
January 19, 1815.

ERRATA.

Page 1, line 12, for *læsions* read *lesions*.
12, —— 25, for *vedeatur* read *videatur*.
92, 96, 98, 103, 104, for *Astragulus* read *Astragalus*.

PREFACE.

SITUATED under the eye of a father, in the midst of a populous country, abounding in works, where the labourers are unavoidably exposed to injuries of the most formidable kind, the Author has had opportunities of practice, which perhaps have fallen to the lot of but few individuals. It has been his habit to commit to writing all such cases as appeared most worthy of note, for his own instruction: it is out of these records, that he has, at the request of his friends, selected the facts here presented to the public; and he will esteem himself happy, if by so doing, he may in the least contribute to lessen the sufferings of his fellow-creatures.

ON

CATARACT.

THE eye is an organ of such peculiar delicacy and importance, and the gratification and professional celebrity resulting from the restoration of its functions so great; that the diseases to which it is subject could not fail to become, in every age, objects of the greatest attention to practitioners the most eminent for their surgical attainments.

Among the series of ocular lesions, which tend more or less to impair vision,

or wholly to destroy it, none has excited more interest, from the earliest times, than that distinguished by the term Cataract, on account of the blindness it occasions, its frequent occurrence, and its susceptibility of relief by an operation. This subject has been so ably treated by a variety of authors, that I shall confine myself chiefly to the recital of those facts which have occurred in the course of my practice.

However, for the sake of perspicuity, it is to be borne in mind, that the humours of the eye are three in number: the aqueous, occupying the anterior chamber, or that space contained betwixt the transparent cornea and iris, between which and the crystalline it also insinuates itself into what is termed the posterior chamber; the crystalline, situated immediately behind the iris; and the vitreous, filling the remaining space: and that the disease termed cataract, consists in an opacity

of the crystalline lens, or its capsule,* and frequently of both: when the opacity is seated in the former, it is termed lenticular cataract; when in the latter, membranous or capsular cataract.

The formation of cataract is generally slow, though I have seen it proceed with the utmost rapidity. It presents itself as a speck or spot in the pupil of the eye, occupying sometimes the whole, and sometimes only a part of that aperture. When the opacity is merely partial, the sight is simply vitiated or

* The lens has no proper investing capsule capable of being removed with it. I shall briefly describe its structure. "The tunic of the vitreous humour advances to the ciliary body, and there separates into two laminæ; which, when contiguous to the margin of the crystalline, adhere closely to each other, forming the sacculated circle (canal godronné) described by Petit, which is capable of being inflated around the margin of the lens. The anterior lamina, which is the more dense of the two, covers the crystalline in front; the posterior, lines the fossula of the vitreous humour. There is no communication betwixt the canal of Petit, the vitreous humour, and the crystalline capsule. They are all distinct from each other, and must be inflated distinctly if perfect. The crystalline, it will appear from this description, is incased in a duplicature of the vitreous capsule." Travers.

depraved; but when it is uniformly diffused through the substance of the lens, or its capsule, there is a total extinction of all useful vision. I have observed it of every shade, from a milky whiteness to the palest blue; and it sometimes so nearly approaches to the colour of the natural pupil, as to have deceived the most experienced oculists.

Neither age nor sex is wholly exempt from this malady: and, though I cannot acquiesce in the following representation of Boerhaave, Homines raro ad ultimam perveniunt senectutem, quin in uno vel altero oculo parva vel magna Cataractâ laborant,* it most frequently occurs to persons who have passed the age of forty; and, as far as I am able to form an opinion, from the many cases that have fallen under my own observation, both in England and on the Continent, I am inclined to believe

* Boerhaave. De morbis oculorum.

that women are more subject to it than men.

Wenzel has stated, that persons exposed to strong fires, such as locksmiths or glassmen, are more liable to cataract than others; but I have not hitherto found it to be the case.

In adults, it is sometimes produced by external violence, or inflammation of the eye. In the majority of cases it arises spontaneously, without any assignable cause. Children are frequently born with it.

Congenital cataract, like that of adults, consists in an opaque state of the crystalline, or its capsule, or both.

Cataract has been distinguished into different species, according to its different degrees of solidity.

The lens affected with this disease

may be either solid, soft, or fluid. It is sometimes partially and sometimes wholly absorbed, in which latter case it is termed capsular or membranous cataract.

It is impossible to trace the cause of congenital cataract: though it appears, according to the testimony of the late Mr. Saunders and Sir William Adams, to have happened successively to several members of the same family; and also to have been transmitted from parent to child. Sir William has observed, that, in all the cases of congenital cataract which have fallen under his notice, where more than one child in a family have been affected, it has invariably occurred in succession. In a family which came under my observation, where six laboured under the disease, it occurred in each alternate birth.

Various remedies have at different times been recommended for the cure

of cataract; but experience has sufficiently demonstrated their inutility. Mr. Ware, indeed, at one time, expressed a sanguine hope, that the application of æther and other stimulants to the eye itself might, in a variety of instances, supersede the necessity of an operation: but as the cases on which he grounded that hope appear to have been occasioned by accident, it is most probable that the solution and absorption of the lens were accomplished by the free admission of the aqueous humour through a breach or puncture in the capsule, which usually exists under such circumstances, and not by the stimulant quality of the remedies employed; of which that gentleman appears fully sensible in his pamphlet "On largely puncturing the Capsule of the Crystalline Humour, in Cases of the Cataract," published in 1812. On the 22d of August, 1811, John Poole, a blacksmith, brought his son to me, who had received a blow in one of his eyes from a piece of

steel. On examination, I found that the iris had been divided by the stroke. A slight degree of opthalmia came on, which yielded to the application of a refrigerent lotion to the eye, and the exhibition of an aperient. On the 7th of September the lens had lost its transparency; and, on close examination, I discovered a small rent in the capsule. One drop of tinctura opii was directed to be instilled into the eye daily; and, in the space of six or seven weeks, the cataract totally disappeared. I do not, in this case, attribute the dissipation of the cataract to the stimulus of the tinctura opii, but to the solvent quality of the aqueous humour, admitted to the lens through the aperture in the capsule,* as I have had opportunities of observing equally rapid solution and absorption of

* Thus may be satisfactorily accounted for, the miracle recorded to have been wrought at the tomb of the Abbé Paris, of the gradual restoration of sight to a young man, who became blind after a puncture of the eye with an awl, which caused the discharge of the aqueous humour.——(See Paley's Evidences of Christianity, vol. i. page 300.)

cataracts, under similar circumstances, without the application of any external stimulant whatever. When cataract is completely formed, we possess no certain method of relieving it but by a surgical process.

However, previous to engaging in any operation, the practitioner ought conscientiously to reflect, whether, combined with a thorough knowledge of its principles and practice, and the anatomical structure of the organ, he possesses a steady hand, quick sight, great presence of mind, and full confidence in himself, without which none can reasonably hope to succeed in so important an undertaking. For, it must be recollected, that the probable recovery or irreparable loss of the most useful and valuable of all our faculties, will very much depend upon the due consideration of the above particulars.

I was induced to adopt that mode

of operating, which has for its object the removal of the Cataract by the process of absorption, from a conviction that it was a method of proceeding most congenial to the restorative efforts of nature: and I can now assert, from experience, that it is universally applicable to every species of cataract; and that, if conducted with a proper degree of caution in favourable cases, it is generally attended with the happiest result. To fulfil this intention, I first place myself and patient, previously prepared by the application of the extract of belladonna, or infusion of stramonium, to the eyelids, which, if the patient be an adult, cannot be better described than in the words of Celsus: Post hæc in adverso sedili collocandus est loco lucido, lumine adverso, sic ut contra medicus paulo altius sedeat: a posteriore autem parte caput ejus, qui curabitur, minister contineat, ut immobile id præstet: nam levi motu eripi acies in perpetuum potest. Quin etiam ipse oculus, qui curabitur, immo-

bilior faciendus est, super alterum lanâ imposita et deligata. Curari vero sinister oculus dextra manu, dexter sinistra debet. And having also steadied the eye with my fingers, or a well adapted speculum, I divide the opaque lens and its capsule into flocculi, by repeated incisions, cautiously executed in different directions with an exceedingly fine double-edged needle, introduced through the sclerotica about the twelfth part of an inch behind its junction with the transparent cornea, and about the same distance below the transverse diameter of the pupil, in order to avoid wounding the long ciliary artery, which pursues its course to the iris, between the sclerotic and choroid tunics, along the middle of the external convexity of the eyeball. If the eye is not very susceptible, I pass some of the fragments into the anterior chamber, where they are speedily dissolved and disappear:* but,

* That the crystalline lens was soluble in the aqueous humour, and that this solution was more expeditiously ac-

should the lens be dislocated in the attempt to divide it, it is better to bury it deep in the vitreous humour, than to hazard a dangerous inflammation, by suffering it to remain pressing against the iris; or, should a whole lens, or a hard nucleus, slip through the pupil into the anterior chamber, it should be immediately extracted, by making the section of the cornea.

When infants are the subjects of operation, it is best to lay them upon a table parallel to a window, from which the eye that is to be submitted to the operation is the furthest. The surgeon, seated on a high chair behind the pa-

complished when the lens was divided into small portions, were facts too obvious to escape the notice even of the ancients; as will appear from the following passages:—Si subinde redit, eadem acu concidenda, et in plures partes dissipanda est. Celsus, lib. vii.

Licet cataracta non satis intra pupillæ regionem sit depressa dummodo in particulas sit divisa, perfecta visio intra sex aut octo septimanas sæpissime, licet tota operatio absque ullo fructu peracta videatur; quod aliquoties experientia edoctus loquor.—Chir. Barbetiana, cap. xvi. pars 1.

tient, and taking the speculum in his left hand, and the needle in his right, if he is about to operate on the right eye; or the speculum in his right hand, and the needle in his left, if the operation is to be performed on the left eye; proceeds in the following manner:—— At the moment he is about to pierce the cornea, he fixes the eye by resting the speculum with a moderate pressure on the eyeball. The position of the operator enables him to do this with perfect safety, and by that consent, which can only exist between the hands of the same person, he not only discontinues the pressure as soon as his purpose is accomplished, but he renews or regulates the pressure at any moment in which it may be required. He penetrates the cornea as near its junction with the sclerotica as will admit the flat surface of the needle to pass, in a direction parallel and close to the iris, without injuring this membrane. When the point of the needle has arrived at

the centre of the dilated pupil, he does not boldly plunge it through the capsule into the lens, and perform any depressing motion; it is a material object with him not to injure the vitreous humour or its capsule; neither does he lift the capsule of the lens on the point of the needle, and by forcibly drawing it forward into the anterior chamber, rend it through its whole extent. Such an operation would dislocate the lens, deliver it into the anterior chamber, or leave it projecting into the pupil, and stretching the iris; and, although its soft texture in the child should exempt him from any disorganizing inflammation, the most favourable result will be a permanently dilated iris, deforming the eye. He proceeds with a gentle lateral motion, working with the point and shoulders of the needle only on the surface and centre of the capsule, in a circumference which does not exceed the natural size of the pupil. His object is permanently to destroy this

central portion of the capsule: merely to pierce it would not answer his intention, because the adhæsive process will speedily close the wound. Having acted upon the centre of the anterior lamella of the capsule to the extent which he wishes, he gently sinks the needle into the body of the lens, and moderately opens its texture. In doing this he may, if he pleases, incline the edge of the needle, by which motion the aqueous humour will escape, and the lens will approach his instrument; but at the same time his field of operating will be diminished by the contraction of the pupil. The needle and speculum are now to be withdrawn, the eye is to be lightly covered, and the patient put to bed.*

This is the anterior operation of the late Mr. Saunders, to whom unquestionably belongs the merit of being the first

* Vide Saunders on the Eye.

to extend and apply this principle to the removal of congenital cataract, in the tender and helpless state of infancy, when every other mode of operating is wholly inadmissible: to do justice to whose abilities language is inadequate; we must, therefore, content ourselves to exclaim, in the words of the poet Lucretius:——

> Quisve valet verbis tantum, qui fundere laudes
> Pro meritis ejus possit, qui talia nobis
> Pectore parta suo, quæsitaque præmia liquit?

The management of the patient previous to the operation should be such as appears most likely to obviate the tendancy to inflammation: but should it be excited, which, fortunately, does not often take place, its first approach, marked by pain and unusual redness of the conjunctiva, or serous effusion under it, must immediately be arrested by the adoption of vigorous measures, suited to the age and constitution of the patient.

A single operation sometimes suffices, and the cure is completed in the space of a few weeks, or even days; but if the process does not advance with sufficient rapidity, the operation may be repeated once or oftener, interposing about fourteen days between each operation.

CASE I.

IN the month of June, 1810, KESIAH DAVIES, a remarkably healthy woman, eighty years of age, applied to me on account of blindness which had affected her left eye for a considerable time. On inspection, I discovered the case to be cataract. I stated to her that there was no method of relieving her, but by an operation; which, as she retained one eye perfect, I did not recommend. However, as she was very desirous of having the operation performed, and there was nothing in the nature of the case to forbid it; having directed her to abstain from animal food, and fermented and spirituous liquors, for the space of a week, and administered a few doses of magnesiæ sulphas at proper intervals, assisted by my father, I operated in the following

manner. Taking Hey's needle in my right hand, and depressing the inferior eyelid with the index finger of my left, while my father prevented the superior eyelid from falling, by means of Pellier's elevator, I suddenly passed the needle through the coats of the eye; and finding the centre of the lens extremely dense, I conducted the point of my instrument forward through the softer superior part, until I could plainly see it through the pupil; I then carried it downwards and backwards, so as to place the central portion of the lens in the vitreous humour, a little below the axis of vision. The operation being thus completed, I withdrew my needle, covered the eye with a piece of lint, spread with cerate, and directed the patient to be put to bed in a darkened room.

She said the pain of this operation was so trivial as to be scarcely worth mentioning.

Towards evening she complained of a little sickness, which was removed by a few spoonfuls of the following mixture:—

Recipe Potassæ Nitratis, drachmas duas,
Aquæ Cinnamomi, uncias octo,
Tincturæ Opii, guttas quadraginta.
Fiat mistura, cujus capiantur cochlearia duo secunda quaque horâ.

As the eye remained free from pain, it was not opened for three days; at the expiration of which period, the conjunctiva exhibited but a faint blush of red: and on the fifth day from that on which she submitted to the operation, she was able to distinguish the pointers upon the face of a watch; and it was with great difficulty that I prevailed upon her to continue in her chamber a few days longer.

CASE II.

I WAS consulted in the beginning of July, 1810, by ELIZABETH FRANCIS, who had lost the sight of both eyes about seven years. On examination, I found the crystalline opaque in each eye; and in the left there was also an opacity of the cornea nearly obscuring its exterior half: this she said had been occasioned by the small-pox, and had existed from her infancy, but that it had not materially obstructed her vision. I therefore operated upon the right only, with my left hand, the superior eyelid being supported by the fingers of a young gentleman, an elève of my father's. The lens proved so soft, that it broke in pieces upon the slightest touch of the needle, but the capsule was extremely firm; and after two or three attempts to rend it, not deeming it prudent to pursue my efforts, I withdrew my instrument, and placed a

compress, wetted with cold water, upon the eye, with directions to renew it as often as it should become dry. She described the pain occasioned by the operation as very trifling, and that it ceased immediately on the removal of the instrument.

At the end of five days there appeared only the slightest redness of the conjunctiva about the puncture, which entirely subsided in a few days; and though the pupil did not appear clearer than before the operation, she told me she could distinguish the figures upon the dial of a clock, so as with some little difficulty to make out the time of day. I now repeated the operation on the right eye, dividing the capsule freely, and placing some of the undissolved fragments of the lens in the anterior chamber: this operation occasioned no more pain than the preceding one; and, at my patient's request, I also operated upon the other eye.

In the evening, sickness, with a tendency to vomit, came on, which induced her to take a few tea-spoonfuls of wine, with a view to settle her stomach, and it had the desired effect: she suffered no pain or sickness afterwards; and on the fifth day from the last operation, though the conjunctiva remained extremely red, she could distinguish small objects with the greatest facility; and in a fortnight, with the assistance of glasses, could walk about very comfortably.

CASE III.

ON the 27th of October, 1810, ELIZABETH LEWIS of Broseley, aged sixty, was brought to me with a cataract that had deprived her of the sight of the right eye for seven years: she had lost the sight of the left by the small-pox at a very early period of her life. In this case the cataract was firm, and I

divided its softer parts, together with its capsule, into minute portions, and buried the nucleus in the vitreous humour: she suffered no pain during the operation; and in four days she was able, with the help of glasses, to distinguish the exact time of day by a watch, and in nine days returned to her friends, and has continued perfectly well ever since.

CASE IV.

Cataract under very unfavourable circumstances.

IN the summer of 1810, THOMAS BROOMALL, aged forty-five, applied to me for the cure of cataracts, which had for several years deprived him of sight. The colour of the opaque lens in the right eye was blue, interrupted in the centre by a broken whitish line; in the left the lens had a whiter ap-

pearance, with lines of a lighter colour passing parallel to each other over its surface; the pupils were irregular, expanded, and immoveable. In the left eye, the iris seemed merely an uneven line, drawn round within the circumference of the transparent cornea, and appeared to adhere firmly to the cataract every where, with the exception of a very minute portion of the inferior part. As I judged the optic nerves to be unimpaired, by his retaining the power of distinguishing brilliant colours in a strong light, I did not consider the case altogether hopeless, though exceedingly unpromising. I stated to my patient that it was possible he might be relieved by an operation. As the poor man was very desirous of regaining his sight, and at the same time expressed his willingness to submit to any thing which afforded the most remote prospect of success, in compliance with his earnest solicitations, I consented to operate: which I accordingly did, after

the necessary preparation, on the 16th of July, in presence of my father and Mr. Beeston, surgeon, of Wellington.

I succeeded in detaching the inferior half of the lens and its capsule from their adhesion to the iris; and, not deeming it prudent to attempt any thing more at that time, proceeded to operate upon the right, where the cataract was so soft, that the instrument passed through it in every direction. I lacerated the capsule freely, and passed as much of the broken lens as I could through the pupil. On the fourth day after the operation there remained only a slight degree of redness at that part of the conjunctiva where the instrument had entered, which soon entirely subsiding, I repeated the operation, and had the satisfaction to effect the removal of the cataract in the left eye out of the axis of vision. I have repeatedly operated upon the right, where absorption is gradually going on, but the sight of it is not

quite so perfect as of the other, owing to some small portions of capsule that have not yet been removed.

I am, however, happy to say, he has recovered a sufficient degree of sight to enable him, with glasses, to see the pointers upon the dial of a watch, and to get his bread as a farmer's labourer.

The particulars of this case, which had been considered incurable by several eminent surgeons and oculists in London and elsewhere, have been transmitted to the Marchioness of Stafford, by her Ladyship's particular request.

CASE V.

IN the latter end of June, 1810, I operated upon the right eye of MARTHA HARRIES, an infirm woman, aged fifty-seven, who had been blind twenty-three years. Fourteen years before her appli-

cation to me, she had submitted the left eye to an operation in a county infirmary, which was succeeded by a suppuration of the whole globe of the eye. The lens in this case was soft, and divided without any difficulty. During the operation she complained of very little pain; and at the expiration of five days the conjunctiva exhibited not the least mark of inflammation: but the capsule, which was transparent at the time of the operation, was become opaque; and I discovered that the aperture my needle had made in it was not large enough to allow a sufficient number of rays of light to fall upon the retina. I, therefore, immediately introduced my needle, with a view to enlarge the opening; but in passing it through the coats of the eye, its point came in contact with and divided the long ciliary artery, which poured out a few drops of blood; and these mixing with the aqueous humour, rendered it so turbid, that I was obliged to with-

draw my instrument without attempting any thing. The pain of this was so trivial, that it was not even mentioned by my patient; who, on the following day, contrary to my injunctions, walked about four miles in a hot sun. This act of imprudence produced a slight degree of opthalmia, which yielded to saline purgatives, and the continued application of cold water to the eye. In fourteen days it was in a fit state to bear a repetition. I accordingly passed my instrument into the eye; and though the capsule was exceedingly firm, I succeeded in effecting an opening sufficiently large for all the purposes of vision. The pain of this operation was rather more acute than of either of the former; no inflammation followed, and she could at the end of fourteen days see to thread a large needle, and to walk out without a guide.

CASE VI.

JUNE 28th, 1811, I operated upon both eyes of Mrs. B——, aged sixty-four. I divided the cataract in the right eye, and lodged its nucleus deep in the vitreous humour: the cataract in the left being dislocated in the attempt to divide it, I buried it together with its capsule beneath the vitreous humour. On the fifth day after the operation the sight of the right eye was very good; but the lens had resumed its situation in the other, from which I in a few days again removed it. These operations gave her little pain, and were attended with no inflammation; and with the help of cataract-glasses she was able to read very comfortably.

This patient was, on exposure to a very severe degree of cold, attacked about five months after she was cured

with a violent opthalmia, which assumed an intermittent form, and has wholly destroyed her vision.

CASE VII.

Cataract, with Lippitudo.

ON the 20th of September, 1811, at Coalbrook-Dale, I operated upon both the eyes of THOMAS PARKER, aged sixty-six. He had lost the sight of the left eye about four years, and the right about twelve months. His eyelids had been sore and turgid for some years; his eyes watery, and so impatient of light, that he was obliged to wear a green shade for their protection. The cataracts were firm; and I divided the superior part, and buried the nucleus of each beneath the vitreous humour. This operation was not attended with any considerable pain; and he remained easy till about two o'clock the next day,

when he was attacked with vomiting, accompanied by pain of the left side of the head. A draught, containing thirty drops of tinctura opii, was administered; the pain in the head subsided, the vomiting ceased, and about nine he fell asleep.

On the 22d, I directed him to take the following draught, by which his bowels were freely evacuated.

Recipe Magnesiæ Sulphatis unciam unam,
Spiritus Lavendulæ Compositi drachmam dimidiam,
Aquæ Distillatæ unciam unam et semis. M. fiat haustus.

On the 25th, though the conjunctiva appeared very red, he saw as well as any person can after the loss of the crystalline. The application of one or two drops of tinctura opii so far improved the state of his eyes, that he was able to leave off the shade he usually wore previous to the operation.

CASE VIII.

ON the 3d of October, 1811, I divided a cataract, that had deprived MARY CARTER, aged seventy-five, of the vision of her right eye for seven years, together with its capsule, into flocculi. No inflammation succeeded, and in three weeks she was able to read without difficulty.

CASE IX.

OCTOBER 22d, 1811, in the presence of William Yonge, Esq. of Shiffnal, a gentleman highly respected for his professional abilities, I operated upon both the eyes of RICHARD WIER, of Higley, near Bridgnorth, a robust man, sixty years of age. The lens and its capsule in the right eye were divided with the slightest touch of the instrument,

and some of the fragments fell through the pupil into the anterior chamber: in the left, the nucleus of the cataract was firm, and I lodged it in the vitreous humour. The operation gave him little pain, the subsequent opthalmia was very slight, and he returned to his friends on the ninth day after the operation, with the left eye perfectly clear, and the right nearly so. A few months after his return, I had the satisfaction to learn from him, that "both eyes were become equally good, and that he was able to maintain himself by his usual occupation nearly as well as at any former period of his life."

CASE X.

ON the 22d of November, 1811, I cut up two solid cataracts in the eyes of MRS. WHITTINGHAM, aged seventy-five, with a fine double-edged needle. The operation gave her little pain, and

the absorption went on so rapidly, that on the seventh day she could see objects very distinctly.

CASE XI.

APRIL the 7th, 1812, I operated on both the eyes of EDWARD PURSLOW, aged seventy-two. In this case I divided the opaque lens in each eye into small pieces, together with its capsule, so as to subject them to the free action of the aqueous humour. The absorption went on with rapidity, and on the seventh day he could see the pointers on the face of a watch.

He complained of sickness on the evening of the seventh, which was relieved by an opiate; and though the subsequent opthalmia was slight, the redness of the conjunctiva continued for some weeks.

CASE XII.

ON the 2d of August, 1812, MARY JONES, of Oswestry, in the county of Salop, aged fifty-four, applied to me for the cure of cataracts, which had deprived her of sight for the last two years. I directed her to take the following pills:—

Recipe Hydrargyri submuriatis grana sex,
Rhei Radicis Contritæ grana decem,
Jalapæ Radicis Contritæ grana duodecem,
Olei Anthemidis guttam unam.
Acaciæ Mucilaginis q. s. ut fiant pilulæ numero sex, quarum capiat duas quaque omni trihorio donec alvus sit soluta.

And on the 3d of October, in the presence of the Rev. G. Mortimer, with a double-edged needle, I cut up the opaque lens, with its capsule, in each eye. After the instrument was removed, the eyes were covered with compresses kept constantly wet with a solution of the extract of belladonna in cold water,

in the proportion of half a drachm of the former to one pint of the latter. She described the pain of the operation as not greater than what is commonly occasioned by bleeding; and on the third day could see very distinctly. Some small portions of the capsule remained floating in the aqueous humour of the right eye, so as rather to obscure the pupil. At the request of my patient, I again introduced my instrument, by which they were completely removed, and she was perfectly cured in fourteen days.

CASE XIII.

Cataract, with adherent Iris.

IN the month of August, 1812, RICHARD WILCOX, a robust man, aged fifty-two, placed himself under my care for a cataract in his right eye, having when a boy been deprived of his left

by an arrow shot into it: he had been blind fifteen years. On examination I found the pupil expanded to a great degree, and irregularly oval; the iris was puckered, and everywhere adhering firmly to the cataract.

On the 14th I passed a double-edged needle into the eye; the cataract proved so soft, that I moved the needle in every direction through its substance, without changing its position or appearance: the capsule was not very firm, and I readily effected a considerable opening in it. This operation caused a small degree of pain, which ceased immediately after the instrument was removed from the eye: he remained easy till about two o'clock in the morning of the 15th, when he began to complain of a painful sensation in the eye, which continued to increase till ten. His pulse being full, I directed V. S. ad uncias viginti, an aqueous solution of opium, to be applied to the eye, and a draught, contain-

ing thirty drops of tinctura opii, to be taken at bed-time.

16th. Had slept the beginning of the night, and still suffered pain, though much relieved. I therefore ordered him the following powder:—

Recipe Rhei Radicis Contritæ grana sex,
Jalapæ Radicis Contritæ grana septendecem,
Hydrargyri submuriatis grana sex,
Olei Caryophilli guttam unam. M. fiat pulvis statim sumendus.

17th. Slept well all night, the pain having entirely subsided. On inspecting the eye, the pupil appeared quite clear, the whole of the cataract being absorbed; but the conjunctiva was much relaxed.

18th. Remained perfectly easy as to his eye; but had suffered much from an attack of pain in his stomach, a complaint he had been subject to some years. This was relieved by an opiate; the daily

application of the vinum opii soon restored the tone of the conjunctiva, and in a few weeks he recovered a sufficient degree of sight to enable him to maintain himself as a labourer.

CASE XIV.

SEPTEMBER 1st, 1812, I operated upon two solid cataracts of a whitish colour, in the eyes of RICHARD THOMPSON, aged sixty-nine.

The lens in the right eye was very firm; I, therefore, did not think it prudent to do more than loosen its texture.

The cataract in the left was not so firm; and I divided it, together with its capsule, which was also opaque, into several pieces, and lodged them in the vitreous humour, nearly out of sight, behind the iris. These operations gave him little pain, and he remained easy

till late in the evening, when his right eye became painful, from imprudently sitting with his face exposed to a large fire. I immediately gave him a smart purgative, by which he was relieved, and remained easy until the 3d, when both eyes became uneasy from the same cause which had rendered the right painful on the evening of the first.

On the 4th, he could distinguish small objects with the left eye clearly. The conjunctiva was much relaxed in both; I, therefore, directed him to apply a solution of the cupri sulphas much diluted.

5th. There appeared an œdematous swelling of the eyelids, covering the right eye, unaccompanied with pain; a circumstance observed sometimes to happen after the successful extraction of the cataract.* I ordered a blister to the right temple.

* Vide Baron de Wenzel's Treatise on the Cataract, translated by Ware, page 154.

7th. The swelling was much diminished. I directed the vinum opii to be dropped into the eyes daily.

On the 11th, he returned home, seeing very well with the left eye, and the right in a progressive state of improvement.

This man laboured under an asthmatic complaint, on account of which he had not lain in bed for the last forty years.

CASE XV.

OCTOBER 7th, 1812, I operated upon both eyes of RANDOLPH MADDOX, butcher, aged sixty-eight. The cataract in the right eye was firm; and I divided it, together with its capsule, into several pieces. Upon pressing the edge of the needle against the capsule in the left eye, for the purpose of di-

viding it, I was surprised to find that, with the opaque lens, it immediately disappeared, as, from the natural size and hardness of the eye, I had no reason to suspect the diseased state of the vitreous humour. No inflammation supervened; and on the 10th, with cataract-spectacles, he could read a moderate-sized print. Absorption went on rapidly in the right; and in a few weeks both eyes became equally clear, so that he is able to conduct his business as well as at any former period of his life.

Had the operation of Extraction been attempted in this case, the result must have been irremediable blindness.*

* A similar case is related by Sir William Adams, in his "Practical Observations," page 67; in which, at the request of his patient, extraction was actually performed: "but," continues he, "the moment I had completed the section of the cornea, the opaque crystalline escaped through it with considerable force, and was followed by the greater part of the vitreous humour, which was perfectly fluid. So considerable an inflammation ensued from the protrusion of the

CASE XVI.

OCTOBER 12th, 1812, I operated on two mixed cataracts in the eyes of MARY BUFFY, aged forty. The operation gave her some pain, but was followed by no inflammation. I repeated the operation twice on the right eye to hasten the absorption, at the poor woman's request; and in a few weeks the cataracts were completely removed: but as the case was complicated with amaurosis, the patient was very little benefited by the removal of the opaque lens.

iris, that, notwithstanding he was copiously bled, the eye suppurated and was lost. As the eye was of its natural size and hardness previous to this operation, I had no reason to suspect that the vitreous humour had undergone such a morbid change."

CASE XVII.

DECEMBER 3d, 1812, I cut up a soft cataract, with its capsule, in the left eye of THOMAS IKIN, a collier. No inflammation succeeded, and he returned to his work in a week after the operation, enjoying a progressively improving vision.

CASE XVIII.

MAY 8th, 1813, at the request of THOMAS COOPER, a robust man, aged thirty, I divided a solid cataract in his right eye, the left being perfectly sound. He had no inflammation, and in a few weeks the pupil became clear, and his sight useful.

CASE XIX.

ANNE HUDSON, of Shawbury, aged fifty-two, who had laboured under cataracts for some years, consulted me on the 9th of September, 1813. The lens was firm in each eye, and I operated in my usual manner. The capsule in the right eye was so tough, that I did not think it expedient to do more than make a small opening through it. No inflammation succeeded to these operations; and, on the 14th, I effected the complete destruction of the remaining capsule: this was succeeded by a slight degree of pain, that was removed by a dose of magnesiæ sulphas; and, on the 19th, she could see sufficiently to tell the time of day by a watch.

CASE XX.

ON the 17th of September, I operated upon two burnished iron coloured cataracts in the eyes of Mrs. W——, which had deprived her of sight five years. On pressing my needle against the capsules, in order to divide them, they, together with the lens, sunk into the vitreous humour, which was too much disorganized to offer sufficient resistance: the lens in the left eye rose again, so as partially to obscure the pupil, and press against the iris; that in the right, never re-appeared. Apprehending that inflammation would follow, I immediately gave her a scruple of the compound extract of colocynth, and directed her to take a draught, containing thirty drops of tinctura opii, at bedtime.

18th. I found her complaining of

considerable pain in the left eye and eyebrow. I abstracted twelve ounces of blood, by which she was completely relieved: however, towards night she experienced a slight return of pain, which was relieved by an opiate.

21st. She could see extremely well with the right eye; the conjunctiva of the left still remaining much relaxed, I scarified it, and exchanged the solution of belladonna, which she had hitherto been using, for a saturnine lotion, and obtained the desired effect.

CASE XXI.

ON the 25th of April, 1814, Mary Brysto, of Worville, consulted me on account of a large white cataract in the left eye, which adhered firmly to the iris at every point of its circumference. She stated, that a surgeon had attempted to remove it by an operation, which was fol-

lowed by a considerable degree of inflammation. I succeeded in setting the iris at liberty; and, on the 3d of May, divided the lens with its capsule into small pieces, and in four days she could see perfectly. The right eye was lost by the small-pox.

CASE XXII.

ON the 20th of May, 1814, I operated upon two solid cataracts in the eyes of ELIZABETH LLOYD, aged eighty. The cataracts, with their capsules, were divided with a double-edged needle, without occasioning pain or inflammation; and in five days, with cataract-glasses, she could read small print.

CASE XXIII.

Congenital Cataract.

IN the beginning of May, 1811, JOHN POINTON, of Lizard Forge, became my patient: he was then forty-seven years of age, and had been blind with cataracts from his birth. The transparent cornea of both eyes bore a very small proportion to the other parts. The eyes were prominent, and possessed such a degree of rolling motion, that it was out of my patient's power to fix them for a single instant: he was a robust man, much addicted to drinking. I divided the opaque lens, with its capsule, which proved extremely tough, into several pieces in each eye. This was followed by a degree of opthalmia, for the relief of which I conceived it necessary to take away some ounces of blood: to this my patient could not be prevailed

upon to submit; and I was, therefore, obliged to content myself with purging him. He staid with me but a few days, when he returned home to the pursuit of his former habit of intemperance, by which means the inflammation was kept up for some months; it, however, at length, subsided, and he has obtained a very comfortable degree of vision, and the rolling motion of the eyes has in a great measure ceased.

CASE XXIV.

Congenital Cataract.

SEPTEMBER 23d, 1812, WILLIAM HOPE, aged sixteen, grandson of Richard Thomson, the subject of Case XIV, was brought to me labouring under congenital cataracts of a white colour with transparent edges. On the 25th, I operated upon both cataracts, which were firm, by cutting them up freely, and placing

as many of the pieces as I could in the anterior chamber. The pain of this operation was very little, and succeeded by no inflammation.

Oct. 27th. Those portions of the cataract which had been projected into the anterior chamber were absorbed, but the divided capsules had coalesced and become firmly adherent to the iris. With the double-edged needle I liberated the adhering parts, largely opened the capsules, and projected the remaining portions of the lens into the anterior chamber. In this case I had to encounter with a strong convulsive motion of the muscles of the eye and eyelids; but which, with the assistance of the spring speculum, was easily overcome. The patient complained of pain during the operation, which subsided soon after the instruments were removed from the eye. He distinguished the division of the panes of glass in a window soon after the operation, and by the lat-

ter end of November, each pupil was clear and circular. He could distinguish the hands upon the face of a watch, and with glasses see the points marking the seconds.

CASE XXV.

ABOUT the latter end of the summer of 1812, at the request of Mrs. Burton, of Longnor, I visited the family of a small farmer, residing near the Stiper-stones, in which there had been six children born blind with cataracts. I found only four living. The eldest had, when ten years old, submitted to the operation of extraction, which was followed by a total closure of both pupils. The three remaining, MARY, SARAH, and ABRAHAM, could distinguish vivid colours; the pupils of their eyes were of an ordinary size, and contracted and expanded freely upon the least increase or diminution of the degree of

light to which they were exposed. I therefore considered them fit subjects for operation: and, on the 28th of August, in the presence of the Rev. J. Eyton, who kindly received them into his own house, where they remained all the time they continued under my care, I operated with the curved needle. The cataracts in the eyes of the two eldest (Mary and Sarah) were of precisely the same character, fluid with dense opaque capsules, in which I succeeded in making a large aperture, through which the fluid escaped into the anterior chamber. The cataracts of the youngest (Abraham) were partly solid and partly fluid; the capsules were extremely tough; and, from an irresistible tendency in the muscles of the eye to roll it towards the nose, the transparent cornea became so completely hid behind the folded conjunctiva, at the inner canthus, that I was obliged to withdraw my instrument before I had effected what I wished: nevertheless, I succeeded in puncturing

the capsules, and placing some portions of the lens in the anterior chamber. The escape of the milky fluid into the anterior chamber excited some inflammation in the eyes of the two eldest, which was removed by bleeding and aperient medicines, with the use of emollient applications to the eyelids. The functions of the retina were in these cases much impaired, from its powers having been suffered to lie dormant so long: how far they might have been improved by exercise I had not an opportunity of ascertaining;* though, during the time

* When I was a pupil at the London Infirmary, for curing diseases of the eyes, founded by the late Mr. Saunders, I witnessed an operation upon the eyes of a girl about four years old, by Mr. Travers: the right was operated upon with the needle, after Saunders' method; the left, with the knife and curette, in the manner recommended by the late Mr. Gibson, of Manchester. No inflammation followed the use of the needle in the right. But the use of the knife in the left was succeeded by a slight degree of opthalmia; and the capsule, which was transparent at the time of the operation, became opaque, and was afterwards removed by Mr. Lawrence with the needle. Though the pupils were effectually cleared by these operations, she did not remain long enough in town for it to be ascertained how perfect a degree of vision she might enjoy.

the young people remained with me, the vision of the eldest was so far improved, that she could distinguish the form of objects and large letters. There is a propensity to indolence and a want of exertion in persons born with cataract, that renders it difficult to make them use their eyes daily for a sufficient length of time: this was strikingly exemplified in the younger sister, who could scarcely be prevailed upon to apply for a few seconds together. So that frequently, when the operation is most successfully performed, unless the patient is constantly watched, and urged to application, he will entirely give up every exertion for the improvement of his sight, and remain in as helpless a state as ever. It is very common for the friends of a patient, who has undergone the operation for congenital cataract, to expect that he should immediately obtain the power of perfect vision, and even " to attribute their disappointment to its having been imperfectly executed; not re-

flecting that the operation has no power to confer actual knowledge of objects. It only prepares the eye for receiving, and afterwards the intellect must be employed on the objects so received, before any readiness can be acquired. The child, therefore, must be the object of his parents' attention, and be regularly and diligently exercised about large objects at first, and taught to know them, then with smaller, and so on by degrees:"* for sight, like touch, requires practice for perfection.

* Saunders on Diseases of the Eye, page 156.

ON

CLOSURE OF THE PUPIL.

VIOLENT inflammation of the internal membranes of the eye, particularly of the iris, sometimes terminates in such a closure of the pupil, as entirely incapacitates the patient from seeing objects distinctly. This disagreeable accident is not an unfrequent attendant upon the operation of extracting the cataract, and the old operation of couching.

This disease was considered as incurable, until the celebrated Cheselden devised and executed the section of the iris, for the purpose of forming an artificial pupil, in nearly the following manner. The patient being seated, as in the operation for cataract, a narrow and single-edged scalpel or needle is passed,

with its cutting edge backwards, through the sclerotica, at about a line behind its junction with the transparent cornea. The point is then conducted through the iris, at the distance of a line from its temporal margin, into the anterior chamber, which it is made to traverse with the greatest caution, until it arrives within the same distance of its opposite side; the edge is then pressed gently against the iris, and the knife withdrawn almost out of the eye: by this, the section of the iris will be accomplished; but should any fibre have escaped division, the instrument must be again passed forward, and again retracted. As soon as the division is completed, the incised edges recede from each other, so as to leave an aperture sufficiently large for all the purposes of vision. In performing the latter part of this operation great care is requisite to prevent the separation of the iris from the ciliary ligament, to which it is very feebly attached. Closure of the pupil is

frequently complicated with cataract, but this does not materially influence the operation; for whenever there is a lens present, whether it be opaque or transparent, it must be cut in pieces, with the same instrument, as well as any portion of opaque capsule that may exist. It will be also necessary to liberate any adhesion that may have been contracted between the lens, or its capsule, and the iris. If the patient labours under any opacity of the cornea, the iris must be divided opposite to that portion of cornea which retains its transparency.

If this operation is well performed, and the eye not otherwise diseased, it can scarcely fail of success.

The vitreous humour, in eyes affected with this disease, is frequently in such a dissolved state, as to render the division of the iris very difficult. In this disease, it is impossible to predict with

any degree of certitude, previous to the operation, what benefit the patient may derive from it: for frequently, in cases which appear most promising, we are totally disappointed; and often succeed in cases whose aspect gives us little room for hope.

CASE XXVI.

Obliterated Pupil, with adherent Cataract.

IN the month of September, 1812, HENRY HARTSHORN, a charter-master, of Bilston, in Staffordshire, aged seventy years, applied for my assistance. He stated, that about six years had elapsed since he received a blow upon the head with a pewter pot; this produced a violent degree of inflammation in both his eyes, which terminated, after continuing for some months, in an abscess of the left eye, and total loss of sight in the right. On examination, I found the left eye sunk within its orbit from suppuration, while the pupil of the right was not larger than the head of the smallest sized pin, and that aperture filled with an opaque substance. The adhesion between the posterior part of

the iris, and the anterior portion of the capsule of the crystalline, was so firm, as wholly to resist the action of the belladonna. On the 29th, I divided the iris with a very fine scalpel. A small quantity of blood was poured out by the divided vessels of the iris, and appeared in the anterior chamber. The lens and capsule were cut in pieces, and placed between the divided edges of the iris. The operation did not occasion him much pain, and he remained easy till night, when a severe pain commenced, extending over the the whole hemicrania. This was entirely removed by an opiate, and never after returned: no inflammation succeeded, and in a few days the cataract was sufficiently absorbed to permit him to distinguish objects. The centre of the newly-formed pupil, however, still remained obstructed by two portions of the opaque capsule, one of which remained attached to the inferior portion of the iris, and the other depended

as a curtain from the superior. On the 7th of October, I endeavoured to detach them with the same instrument which I had used in the division of the iris. I succeeded in separating the inferior portion, but the superior one eluded all attempts to entangle it with the point of the instrument: some pain followed this attempt, which was relieved by an opiate and a dose of purgative medicine. In a few days after I made another attempt to remove the remaining portion with a double-edged curved needle, and was fortunate enough to detach it whole, and project it into the anterior chamber, where it became absorbed, and in a few days he could, with the assistance of glasses, read the letters on a printed paper, when he returned home and resumed his occupation.

1

2

1 John Beech's eye previous to the last operation.

2 Represents the subsequent appearance.

CASE XXVII.

Closed Pupil, with adherent Cataract, and extensive Opacity of the Cornea.

IN November, 1812, JOHN BEECH, aged sixty-two, was brought to me. He had been blind ten years with closure of the pupil of the right eye, combined with cataract and an opacity of two-thirds of the inferior and exterior part of the cornea. The left eye had been destroyed by an accident. I endeavoured to divide the iris opposite to the clear portion of the cornea, for the purpose of forming an artificial pupil; but the moment I pressed my instrument against the iris, it proved to be so slightly connected with the ciliary ligament, that it became detached for the space of two lines. I was therefore obliged to content myself with cutting the lens in pieces, and forming a pupil

in the manner recommended by Professor Scarpa. A considerable degree of inflammation followed, which gradually subsided; but at the same time the pupil formed by the detachment of the iris closed.

On the 7th of November, 1814, the cataract being entirely absorbed, I made another attempt to divide the iris, by passing my scalpel knife obliquely from above downwards near to its inner and superior margin: in this I happily succeeded.

On the 9th he complained of an uneasy sensation in the eye. I therefore had him let blood, by which means he was relieved. On the 19th, with the assistance of glasses, he could distinguish the pointers on the face of a watch, and the recently-formed pupil shewed no disposition to close.

ON

AMPUTATION OF THE ARM

AT THE

SHOULDER-JOINT.

THOUGH the preservation of limbs is an object which every good surgeon will always have in view, and from which he undoubtedly receives the highest pleasure and reputation, yet cases sometimes occur, in which amputation is absolutely necessary to preserve life.

In the opinion of the late Mr. Bromfield, " there is not an operation in surgery so disagreeable to the surgeon, as amputating the arm in the joint of the shoulder; as it is tedious

and difficult to him, and much more painful to the patient than the amputation of any other part:" therefore, whatever can render the operation more simple, and, consequently, lessen the sufferings of the patient, is worthy of our greatest attention.

But common amputation will not always answer our purpose, (for where it will, because of the comparatively greater danger attending the exposure of joints, it is never to be dispensed with,) and the removal of the humerus from its arthrodia is indispensible, either on account of,

1st, Extensive gangrene.

2dly, An ulcerated, conical stump, with disease of the vessels, extending so high, as to preclude any other method of saving the life of the patient.

3dly, Caries under certain limita-

tions, in those cases which do not admit of relief from extirpation of the head of the bone only. Or,

4thly, Complicated fracture, accompanied with great destruction of the soft parts, especially of the artery. Under such circumstances, I conceive this, which the following cases suggested to me, will be found (where it is in our power) the best method of proceeding.

The patient being secured upon a table of a convenient height, with the shoulder which is to be operated upon projecting sufficiently over its edge, an assistant should draw the arm across the body, so as to put the deltoid muscle upon the stretch.

That axillary hemorrhage may be effectually prevented, let a second assistant compress the subclavian artery, by firmly fixing his index finger upon

it, where it passes over the first rib from the scaleni muscles, or in the small triangular space betwixt the deltoides and pectoralis muscles.*

But, for the sake of greater security, this may also be done by a third person. The surgeon, standing behind the patient, commences an incision, just below the clavicle, carrying his amputating knife, with its edge turned upwards, through the deltoid, preserving a sufficient quantity of that muscle to form a flap, until its farther progress is arrested by the processus acromii scapulæ.†

* I have seen in the instrument-makers' shops in Paris, a tourniquet invented for the purpose of compressing the subclavian, in the hollow betwixt the deltoides and upper edge of the pectoralis major: but it is not so safe as trusting solely to manual application, for should the tourniquet be used, and not perfectly answer, a fatal event would most probably ensue, before recourse could be had to the finger.

† I have been informed by M. Dubois, Chirurgien en chef to the Hospital de l'Ecole de Médecine, that in the method adopted by the French surgeons, it is usual to pass a catlin under the belly of the deltoid muscle, and drawing the instrument downwards, to form thus the lambeau of the length wished.

Often, however, the choice is not left to us of covering the exposed surface as we could desire; we must then form our flap from where we can.

The flap thus formed is then to be turned up, and a ligature applied to every bleeding vessel; for in no operation is this precaution so requisite.

A scalpel is then to be passed into the cavity of the joint, at its superior part, and the capsule divided as fully as possible, together with the long tendon of the biceps flexor cubiti. The operator, moving the index finger of his left hand in the cavity of the joint, will now ascertain any portions of the ligament still remaining untouched; these being separated, and the humerus raised to nearly a right angle with the trunk, one sweep of the amputating knife, directed upwards from the axilla through the soft parts, disengages the arm.

The open mouth of the great artery is instantly to be seen at the inferior and anterior angle of the exposed surface; it should be immediately drawn out with the fingers, forceps, or tenaculum, and tied firmly with a ligature of four or five threads.

The unretracting ends of the nerves of the axillary plexus are to be shortened, and the assistant desisting from compression, every vessel must be regularly attended to.

The wound being freed from coagula, the flap is to be laid down; and the edges, being adjusted as accurately as possible, are to be retained in apposition by sutures and adhesive plaister, the ligatures pending from the orifice, according to their relative situations; the whole is to be supported by smooth compresses, and a bandage formed of a broad belt of linen, with shoulder-straps, passed round the body, and

fastened in front with several strings. This kind of bandage will be found most convenient, as it admits of the pressure being regulated, and the dressings removed, without fatigue to the patient, or inconvenience to the surgeon.

The patient is to be treated as is usual after operations of such magnitude.

If much time is not occupied in securing the articular arteries, which are usually from three to five in number, seldom more, the operation may be finished by this method in a few minutes.

CASE XXVIII.

ON the 15th of March, 1811, I was summoned to meet Mr. Edwards, surgeon, of Coalbrook-Dale, to see GEORGE WALKER, an athletic man, whose left arm had been dreadfully shattered on the preceding evening by the explosion of a large quantity of gunpowder, which he was using to burst a rock.

So much blood had flowed from a wound of the brachial artery during the night, that there appeared very little prospect of preserving the man's life by removing the arm at its articulation with the scapula. However, that being the *only* chance, in compliance with the patient's earnest entreaties, assisted by Messrs. Edwards and Wright, in presence of my father, I undertook the operation.

The patient being properly secured, the first step consisted in the ligation of the axillary artery. An incision was therefore made through the integuments, commencing at the clavicle, and continued along the anterior edge of the deltoid muscle to within two inches of its apex, the tendons of the pectoralis major and minor divided, and a ligature put upon the artery, where it passes under them into the axilla.

The arm being held obliquely across the body, so as to put the deltoid upon the stretch, the first incision was conducted across the apex, and along the posterior edge of that muscle. The flap thus formed was dissected back, and a ligature applied to such vessels as appeared likely to bleed freely: the capsular ligament being now exposed, was divided together with the long tendon of the biceps, and the head of the bone dislocated. One stroke of the amputating knife directed from the ax-

illa finished the operation; during which, the patient lost very little blood, but was in a state of syncope most of the time. The integuments being brought together, were secured by sutures and adhesive straps, (the ligatures hanging out at proper intervals,) a compress and spiral roller were placed over the whole, a cordial administered, and the patient put to bed.

An opiate was directed to be given to him at night.

On the 16th, he had passed a good night, and appeared much revived. I did not see him again till the 18th, he was then more cheerful, and had a good appetite, but his pulse was small and rapid. Gangrene commenced in the flap, and lock jaw supervening, he died on the 24th.

CASE XXIX.

ON the morning of the 4th of July, 1811, as ELLEN PRITCHARD, a girl eleven years old, was employed in directing a chain attached to a steam engine used to elevate coal and iron ore from a deep quarry, her hand became entangled, and she was drawn in amongst the machinery. I was called to her immediately after the accident. She had her left arm literally ground to pieces, by twice passing between the teeth of the spur wheels. The integuments were lacerated on the under side of the arm quite up into the axilla, and on the upper side to within about two inches of the top of the shoulder: the deltoid muscle remained uninjured, and providentially the brachial artery was not divided, so that she lost very little blood at the time of the accident. She had also suffered a considerable lacera-

tion of the integuments covering the superior part of her thigh.

In this case there was no alternative but removing the arm at the shoulder-joint, and it was even then a matter of doubt, if it would be possible to preserve skin enough to cover the stump. The wound on the thigh being dressed, and the patient secured, and the arm drawn across the body, I commenced an incision immediately below the clavicle, and carried my amputating knife, turning its edge upwards through the deltoid muscle, (preserving as much of the sound skin as possible,) until its farther progress was stopped by the acromion process of the scapula. The flap thus formed being kept out of the way by an assistant, the long tendon of the biceps, together with the capsular ligament, were divided, and the head of the bone carefully removed; after separating the axillary artery from the surrounding nerves, a ligature was put

upon it, and the operation finished as in the preceding case. The anterior and posterior circumflex arteries being tied, all hemorrhage ceased.

The skin was stretched over the wound, and the edges were retained in contact by sutures and strips of adhesive plaister.

Having observed in the preceding case that the patient was much fatigued by the application of the roller, I here substituted a fourfold square piece of linen, sufficiently large to cover the shoulder, and secured by tapes affixed near to each angle, and passing round the body. She became faint towards the latter part of the operation, but upon the whole bore it extremely well.

On the 5th, she had slept some hours in the course of the night. She complained of heat on the stump, accompanied with soreness extending up the

left side of the neck, and slight griping pain in the abdomen. I directed that the bandage should be moistened frequently with the following lotion:—

Recipe Ammoniæ Muriatis unciam dimidiam,
Spiritus Camphoræ uncias duas,
Aceti uncias octo,
Aquæ puræ uncias viginti quatuor.

And ordered five grains of extractum hyosciami to be given to her at night.

6th. Had passed a good night.

7th. Had slept soundly most of the night; and, on removing the dressings, I had the satisfaction to find nearly the whole flap united by adhesive inflammation. I removed all the sutures, some of which were beginning to cause ulceration of the skin. As she appeared more languid than on the preceding day, and complained of want of appetite, she was ordered to take an ounce of a light infusion of bark with vitriolic

acid, and a small quantity of tincture of opium, every day at eleven and four o'clock. I also allowed her to take beer and flesh meat.

9th. Her appetite was much improved, and she was able to sit up in bed supported by pillows.

From this time not an unfavourable symptom occurred; her bowels were kept open, by permitting her to take a small quantity of ripe fruit occasionally, and by the 18th, the wound was healed, except a small space surrounding the ligature of the axillary artery, all the rest having come away. As this ligature could not be withdrawn, it was thought necessary to hasten the ulcerative process, by attaching a small roll of strap to its extremity, so that it could be readily twisted.

After the 24th, she was able to walk a mile every morning to be dressed.

29th. The ligature remaining still firmly attached, I introduced a small piece of sponge tent into the orifice through which it passed, with the view of dilating it; so that, if possible, its attachment might be discovered and divided.

30th. On removing the applications, the ligature could be withdrawn with the utmost facility, and appeared to have been detained by being entangled with the surrounding granulations. Cicatrization now advanced, and by the 9th of August the cure was accomplished.

The wound on the thigh did not perfectly heal till the 12th.

CASE XXX.

ON the 29th of January, 1813, I was requested to visit JOHN BULLOCK, a boy of about eleven years of age, who had been knocked down by some coal-carriages that were running upon a rail-way with great velocity. I found him in a house, near the spot where the misfortune happened. He had two lacerated wounds of the scalp, one about three inches in length, extending across the top of the head in a direction nearly parallel to, and rather behind, the coronal suture; the other beginning at the root of the nose, extended backwards over the crown of the head, and, inclining to the left, terminated immediately above the mastoid process of the temporal bone; the temporal muscle was torn from its attachment, the frontal and parietal bones denuded of pericranium in several

places, and their external tables injured, and the wounds filled with coal-dust.

On taking off a thick flannel shirt which he then wore, it appeared that he had also suffered a compound fracture of the left arm. The os brachii was fractured high, and the spiculated extremity of the superior portion protruded through a wound on the upper part of the arm, extending from within four inches of the top of the shoulder to the condyle of the os brachii; the wounds of the head were freed as much as possible from all extraneous matter, and the divided edges brought as nearly into a state of apposition as circumstances would admit of.

I removed the spiculated extremity of the os brachii with a pair of nippers, and having taken away all splinters, I reduced the fracture, and placed

the edges of the divided soft parts in contact, where they were retained by four sutures and adhesive straps. A many-tailed bandage was put about the limb, with a pair of flexible splints to steady it. In this state the boy was carried home and put to bed, with his arm resting upon a pillow, and the bandages kept constantly wet with a solution of muriate of ammonia in vinegar.

30th. He had passed a good night. The arm was very little tumified, and the dressings were not removed.

31st. On removing the dressings, the transverse wound of the scalp perfectly closed. I removed the stitches from the wound on the arm. The lotion was continued.

Feb. 2d. The arm appeared more swollen, and the wound more open. Bowels confined. I therefore directed

him to take a gentle aperient. Nothing material occurred till the

10th, When I found him in considerable pain, after passing a restless night. This was occasioned by his having displaced his arm. In the act of replacing it, I perceived an ulceration of the integuments on the under side, which continued to spread for some days.

On the morning of the 14th, the discharge from the arm was much diminished, and the wound seemed closing rapidly. Very little matter could be pressed from underneath the scalp, and every thing wore a promising aspect.

In the evening a messenger arrived with the unwelcome intelligence that the boy's arm was bleeding profusely. My father hastened to his relief, and found him pale and exhausted, with

scarcely any pulse at the wrist of the uninjured arm. A tourniquet was placed upon the limb sufficiently tight to restrain the hemorrhage, which appeared to proceed from an ulceration of the brachial artery. Attendants were appointed to watch the patient carefully during the night, who were also directed to administer to him small quantities of cold milk very frequently.

15th. The patient was much revived; but, notwithstanding the application of the tourniquet, the blood had again began to flow, and it required a greater degree of pressure to suppress it than could be continued any length of time consistent with safety.

The limb was now too much diseased to allow any hope from simply tying the axillary artery, or common amputation. The removal of the humerus at its articulation with the scapula being the only resource, I per-

formed this operation exactly in the manner I have ventured to recommend.

The number of vessels requiring ligature in this case were five; the axillary, the anterior and posterior circumflex, and two muscular branches.

16th. Pulse 110. He was more revived, but had not slept. He was ordered ten drops of tinctura opii at night.

17th. Had passed a better night, and was quite free from pain, but complained of great soreness of the left side of his neck.

18th. On removing the dressings, I found that the flap had united by the first intention. The sutures were taken out, and straps only applied.

19th. I found my patient very fee-

ble, with but little desire for food, and the discharge from his wounds much increased. I therefore directed half an ounce of a mixture, composed of half a pint of decoction of bark, forty drops of elixir of vitriol, and twenty drops of tincture of opium, to be given to him three times a day, with wine and nutritive soups as often as he could be prevailed upon to take them.

20th. He was much revived, his appetite improved, and from this time every thing went on well. The ligatures came away on the ninth day, the discharge gradually diminished, and the stump was perfectly cicatrized in six weeks from the time of the operation. The wound of the head was chiefly dressed with dry lint. The injured bone exfoliated, and it became necessary to make an opening opposite to the zigomatic process of the temporal bone, and to pass a few threads through it

for the purpose of evacuating a collection of matter underneath the scalp; this being effected in a few days, and the seton withdrawn, the wound healed without further trouble.

ON

COMPOUND LUXATION.

COMPOUND luxations, being attended with wounds communicating with the cavities of the injured joints, are of a more dangerous nature than compound fractures. There are probably few surgeons, in the course of whose practice cases of this nature have occurred in sufficient number to enable them to form a decisive judgment as to the best mode of treatment. Having witnessed the very great success attending my father's practice in serious accidents of a similar kind, I was induced to attempt the preservation of the limb in the following case.

CASE XXXI.

Of Compound Luxation of the Ankle-Joint, with Fracture of the Astragulus, and oblique Fracture of the Tibia.

ON the 29th of May, 1810, I visited SIMEON BIRD, aged twenty: he had been severely injured by the fall of a large mass of coal in a mine. I found the tibia and fibula, with the major part of the astragulus, protruding through a wound of about three inches in length, on the outer side of the ankle, just below the natural situation of the head of the fibula; the tibia was also obliquely fractured near its centre, and the sole of the foot turned upwards. I immediately removed the protruded portion of the astragulus, by dividing a few small bands of capsular ligament,

and with some difficulty returned the foot to its proper situation.

The edges of the wound were brought together, and a compress and bandage applied. The limb was laid on a pillow, on its outside, with the knee slightly bent. The pulse was at this time 76. I directed him to abstain from animal food and fermented and spirituous liquors, and to keep the limb covered with several folds of linen, constantly wet with the subsequent lotion:

Recipe Ammoniæ Muriatis drachmam dimidiam,
Aceti uncias octo,
Spiritus vini unciam dimidiam,
Aquæ puræ octarium.
M. fiat lotio.

He also took an opiate at night. On the 30th he complained of pain in the limb, following the course of the crural nerve into the abdomen: his thirst was moderate. Pulse 72. The opiate was repeated.

31st. Had slept well. Pulse 88. Very little tension in the limb. As his bowels had not been moved since the accident, I administered three drachms of magnesiæ sulphas with half a grain of ginger, which produced one evacuation. The lotion was diluted by the addition of two pints of water, and the opiate exchanged for a pill containing six grains of extractum hyosciami.

June 1st. Pulse 86. Appetite good. The limb exhibited very little inflammation or swelling, and the wound was nearly closed. I allowed my patient to take a little animal food and beer. The quantity of extractum hyosciami augmented to eight grains.

2d. Had slept well, and had a stool, though costive. Tongue clean and moist, and the appearance of the limb nearly as the day before.

3d. I visited him, and learned that

he had had a stool on the preceding evening. He had slept well. Pulse 86, and appetite good. The limb was a little more swelled, but suffered no pain. The anodyne pills at night.

4th. Had slept tolerably. Pulse 82. He had had a stool at six o'clock the evening before. Suffered a little pain in the night, and the foot was more swollen: had three stools in the course of the day. The lotion continued, and pills as before.

5th. Slept well. Had one stool. Pulse 98. Pills repeated at bed-time.

6th. Slept well. Pulse 104. No tension or inflammation, and the wound appeared to be healing.

7th. His pulse 94, and he had slept little. Had two stools. Appetite good. I ordered him a generous diet.

8th. Slept well. Pulse 98. Had three stools.

The case went on without any unpleasant symptoms. On the 12th, the lotion was discontinued, and the remaining wound drawn together by adhesive straps. The limb was placed upon a frame somewhat similar to that described by Mr. C. Bell for fractures.

The astragulus was in this case fractured at its neck, the part articulated with the os naviculare remaining in its natural situation.

In six weeks the wound was perfectly healed; and although some time elapsed before he gained any considerable degree of strength, he is now able to walk very well, and the limb injured is nearly as strong as the other.

MY father has favoured me with the relation of the following cases of compound luxation.

CASE XXXII.

Compound Luxation of the Ankle-Joint.

" LATE in the evening of the 12th of October, 1799, I was called to JOHN OWEN, a healthy man, about thirty, who had received an injury from a quantity of coal falling upon him, whilst at work in a coal-pit. I found the tibia and fibula of the right leg, fractured five inches above the ankle-joint. The extremities of the tibia and fibula, forming that joint, were very much shattered, and protruded through a large lacerated wound of the integuments, on the outer side of the ankle. A large portion of the head of the tibia was pendulous.

Having restrained the hemorrhage, which was considerable, by compressing the popliteal artery, I removed the pendulous portion of bone, and introducing my finger into the joint, discovered the astragulus to be much injured. All fragments being removed, I judged it expedient to saw off about an inch and half of the shattered extremity of the fibula: this enabled me to place the limb in a better form, and to bring the lips of the wound into contact, where they were retained by sutures. The joint was supported by a bandage, and the limb laid upon its outside, on a pillow, and covered with cloths wet with a solution of muriate of ammonia in vinegar. I directed him to take an opiate at night; and the next morning found him better than I expected he could have been, after sustaining so violent an injury.

The opiate was repeated, and the same treatment pursued, without any

material alteration in the state of his health, till the 18th, when his pulse rose to 110, attended with some fever, and a slight discharge from the wound. I gave him a dose of sulphas sodæ.

22d. Pulse 90. Fever abated. The discharge increasing, I directed him to take half a drachm of peruvian bark in a glass of port wine, twice a-day.

23d. Tension abated, but the discharge increased. Little alteration took place till the

29th, When I opened an abscess near the superior part of the tibia.

30th. The swelling entirely subsided, the discharge became less, he slept well, and the fever abated.

From this time the case went on so favourably, that on the 16th of November, the pillow was only changed

once in two days, and the limb could be lifted without much pain to the patient. The wound was filled with healthy granulation, and contracted in size.

Dec. 10th. I opened another abscess.

25th. The patient sat in a chair for the first time since the accident, and bore the exertion without much fatigue. From this time he gradually gained strength, the wound daily diminishing. The application of a bandage and cold water completed the cure by the 8th of August following.

I have in my possession a drawing of this case, taken by Dr. Du Gard, of Shrewsbury, at that time a pupil with me."

CASE XXXIII.

Compound Luxation of the Elbow-Joint.

"IN the summer of 1805, I was called in by a neighbouring practitioner, to assist him in the reduction of a compound dislocation of the elbow-joint of RICHARD WATKISS, a boy ten years old, occasioned by his having fallen into a pit twenty yards deep.

The inferior extremity of the os brachii protruded through the integuments covering the anterior part of the joint. Every attempt to reduce it proving ineffectual, I proposed the removal of a portion of the protruded bone with the saw. This being done, the dislocation was easily reduced. The wound healed by the first intention, and,

what is rather singular, the boy enjoys the full use of his arm."

CASE XXXIV.

"A CASE of compound dislocation of the shoulder-joint came under my care, June 21st, 1805, in the nephew of MR. TAYLOR, of Dawley-Green, a boy of about fourteen years of age. A considerable exfoliation of the head of the os humeri took place, and the patient recovered, retaining the perfect use of the joint. This injury was occasioned by the boy getting entangled in the machinery of a steam engine."

CASE XXXV.

*Compound Luxation of the Ankle-Joint.**

"JULY 1st, 1806, JAMES DAINTY, a boy fifteen years of age, was with several other persons descending into a coal-mine, by means of a rope fastened to the barrel of a steam engine, which being under the management of a careless boy, part of the machinery gave way, and they were all precipitated to the bottom of the pit, by which accident he had both his legs fractured. The right had a compound fracture of the ankle-joint, with a wound nine inches long, in a curved direction up the limb; the astragulus was completely removed from its connection with the

* This case has been published before. Vide The Medical and Physical Journal, for August, 1807.

os calcis, and metatarsal bones, lying out of the joint, adhering to a portion of the capsular ligament, with the foot turned inward, and exposing the whole cavity to view. From the appearance of so formidable an injury, it was a matter of some consideration, whether it would be most prudent to amputate, or attempt the preservation of the limb. From my usual success in the cure of compound fractures, where the principal blood-vessels were *not* divided, I was inclined to adopt the latter plan.

After the astragulus was separated from the portion of ligament to which it was attached, the wound was cleared, by means of a sponge well moistened with warm water, and the foot placed in its natural position, and the edges of the wound brought into contact with sutures: the parts were afterwards covered with soft linen cloth of several folds, well saturated with a solution of muriate of ammonia in vinegar, over

which a bandage was applied, to secure the foot in its proper situation: the leg was then laid on its outside, with the knee bent, supported by pillows; the bandage being kept constantly wet with the above solution.

By the 27th of the same month the tension had subsided, and the discharge from the wound greatly diminished, the cavity of the joint being filled with healthy granulations, which gradually became more firm. In the space of four months the patient was able to bear some weight upon the limb, three-fourths of the wound being cicatrized. In nine months he was perfectly cured, and returned to his work, without any deformity. He enjoys some degree of motion in the joint, and walks with little lameness at this time.

The astragalus has since been deposited in the anatomical museum of James Wilson, Esq. F. R. S. Great Windmill Street, London.

DISLOCATION OF THE THUMB.

WHEN the head of the metacarpal bone, supporting the first phalanx of the thumb, is dislocated completely and depressed towards the palm of the hand, its reduction is attended with such peculiar difficulty, that some of the most eminent surgeons have been foiled in the attempt.* From a knowledge of this circumstance, my father was induced to adopt the method related in the two succeeding cases.

CASE XXXVI.

"FEBRUARY 13th, 1806, the wife of a forgeman applied to me, having the metacarpal bone supporting the first phalanx of the thumb of her right

* Vide Hey's Surgery, second edition, page 327.

hand dislocated and depressed towards the palm of the hand. Every attempt to reduce it proving ineffectual, I made an incision down upon the head of the dislocated bone, and placing a card underneath, sawed off a portion of it; by this means the luxation was reduced, and the wound healing by the first intention, in the space of a fortnight she recovered the use of her hand nearly as well as formerly, suffering only a slight inconvenience from a stiffness of the joint, which however still retained some degree of flexibility."

CASE XXXVII.

"OCTOBER 29th, 1808, JOHN JONES, a boy eight years old, was brought to me with the metacarpal bone supporting the first phalanx of the thumb of the right hand dislocated and depressed towards the palm of the hand. I pursued the same method as in the pre-

ceding case, and the result was equally satisfactory.

Both of the above cases were communicated to William Hey, Esq. F. R. S. of Leeds."*

* Vide Hey's Surgery, second edition, page 330.

FINIS.

EXPLANATION OF PLATE 3.

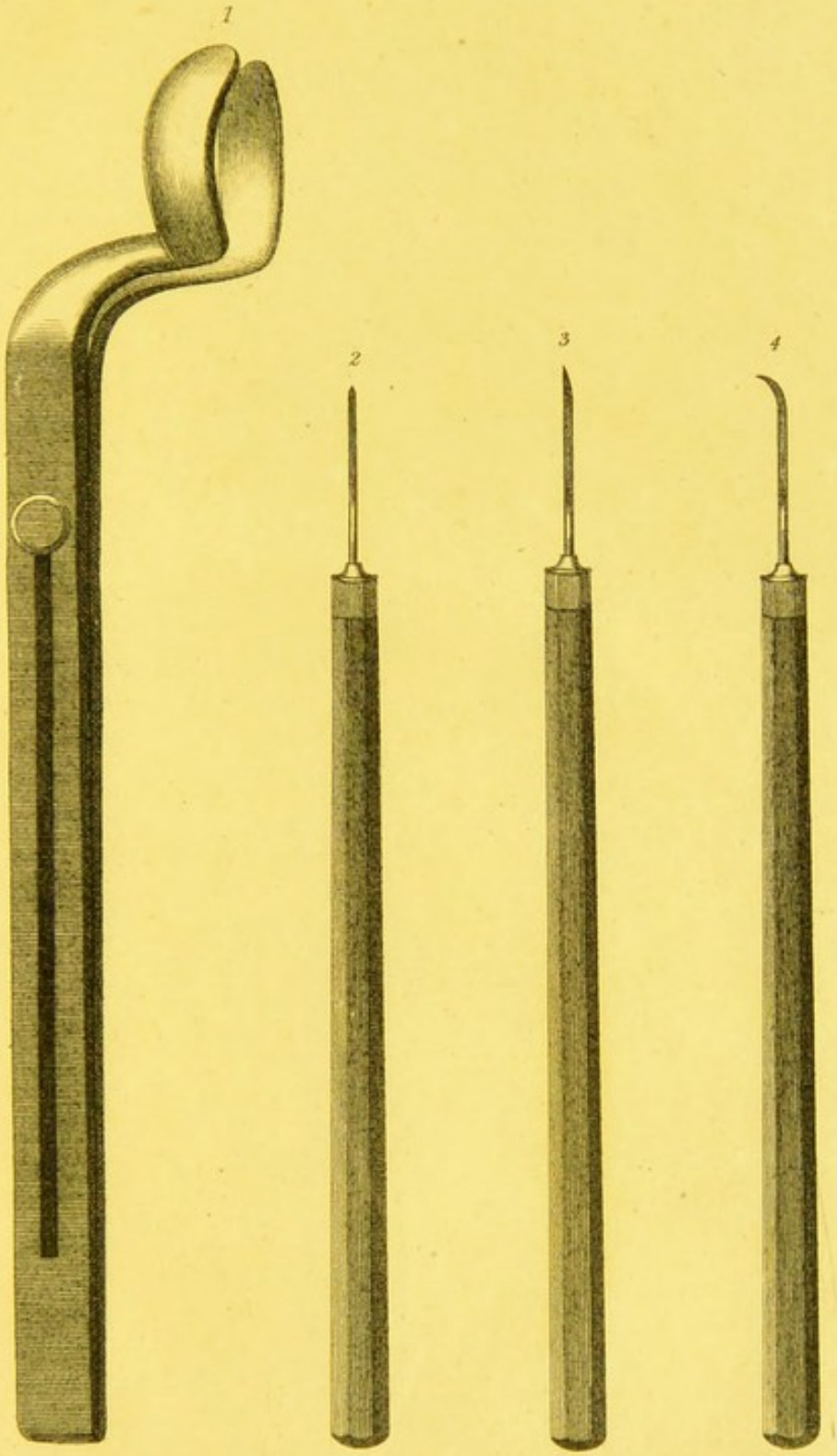
1, Represents the speculum with silver ends.

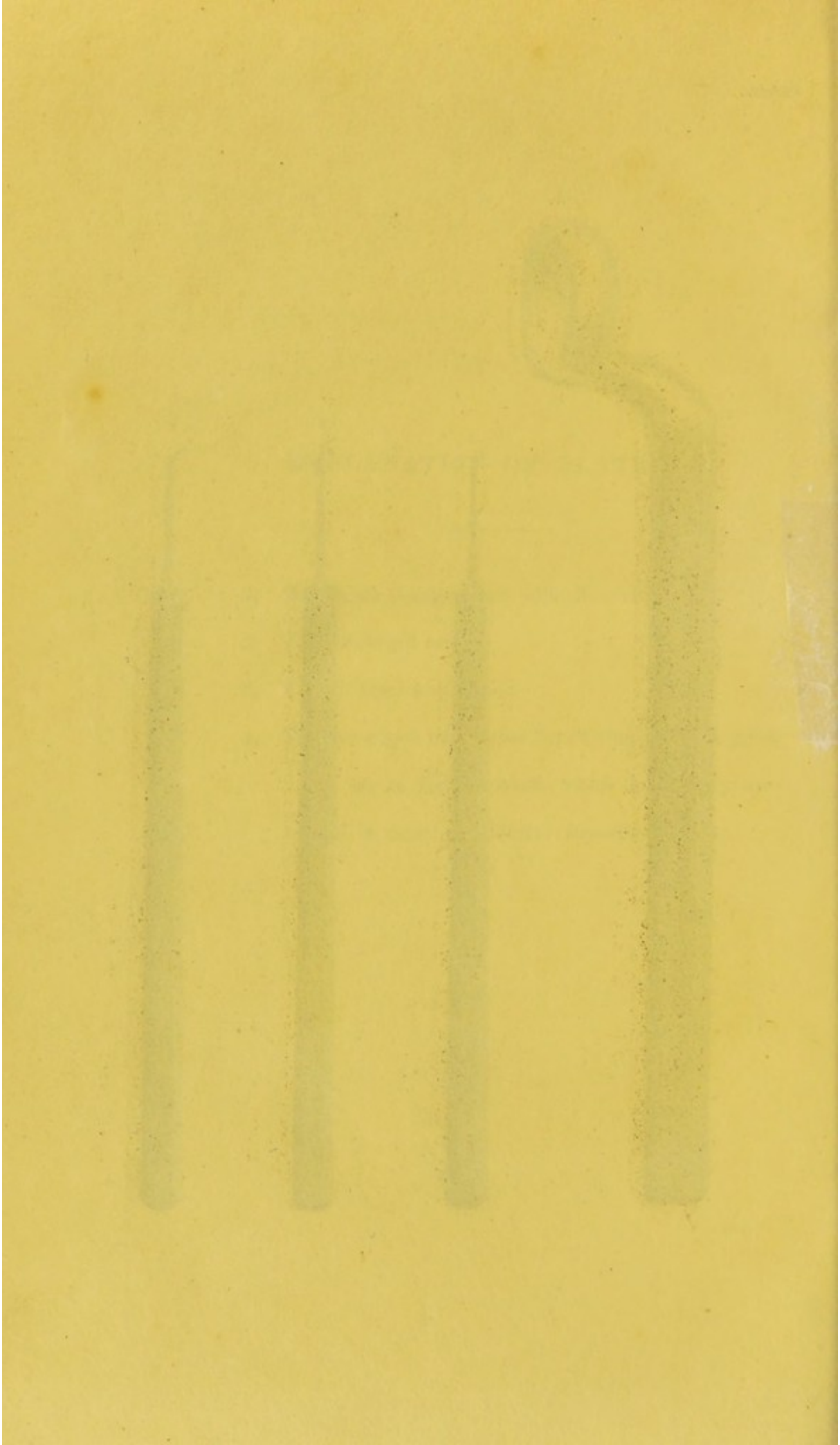
2, The two-edged needle.

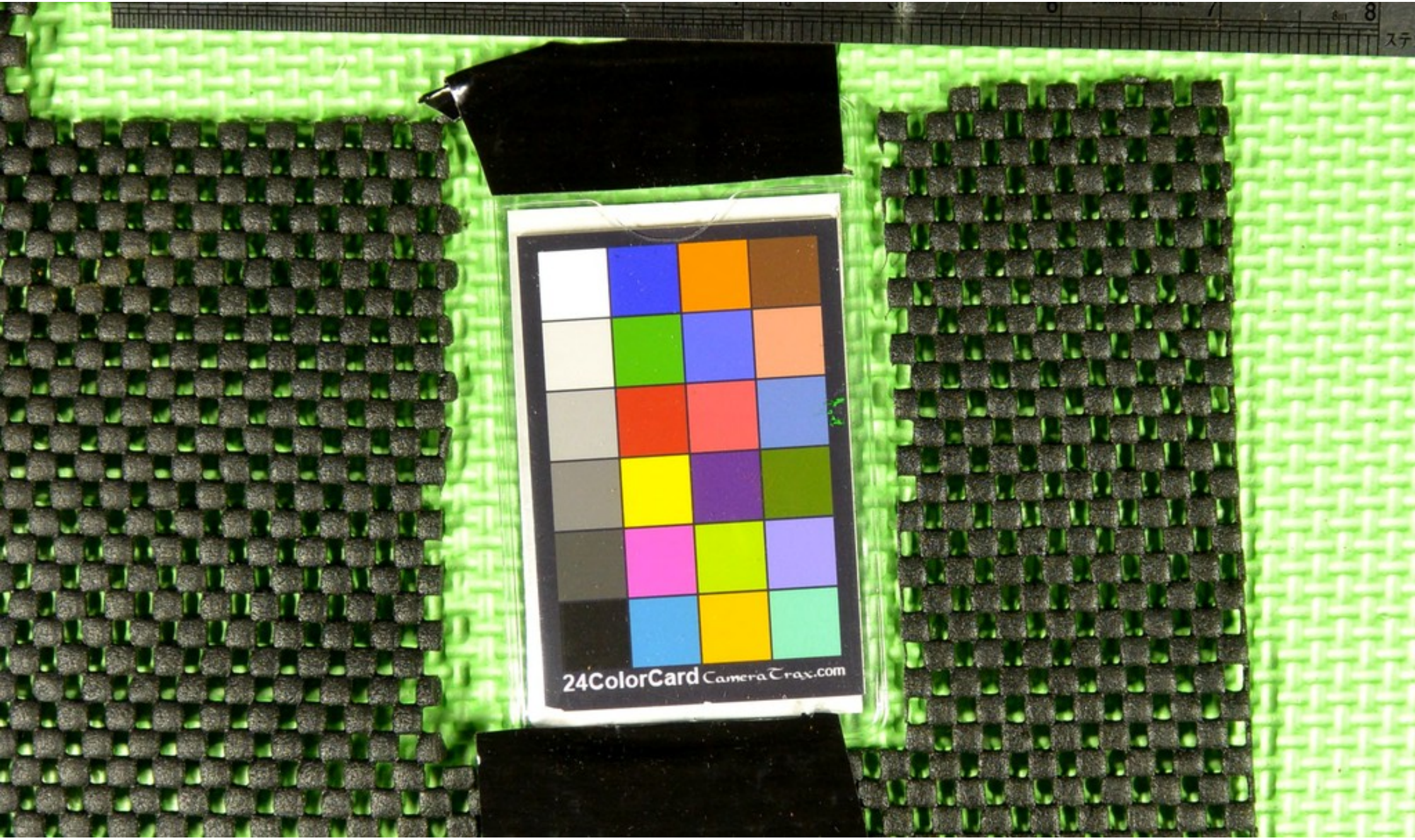
3, The artificial pupil-knife.

4, The two-edged curved-needle, cutting from the point as far as the curvature, which I find very useful in cases of adherent capsular cataract.

Plate 3.



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