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CLINICAL LECTURE ON CATARACT.

BY A. v. GRÄFE.

(*Concluded from p.* 254.)

JANUARY 5th.—Previous to operating on the case of cataract we have recently been discussing, permit me to add a few remarks.

All so-called *preparatory treatment* is, unless the patient's state of health presents some special indication for it, not only superfluous but injurious. The healing process after an extraction goes on best when patients are in the vigour of health, and their bodily and mental condition, so to say, equally poised. Any active purgatives are contra-indicated, as they only tend to make patients more irritable. The bowels may be gently opened by castor-oil, or some other mild aperient, the day before the operation. If we have the patient under observation for any time, a dose of morphia may be administered by way of trial, but not later than two days before the operation, in order to ascertain how this drug, which we are in the habit of giving afterwards, and which acts so differently in particular cases, is borne in the case in point. The *state of mind* of the patient is of great importance. If he is desponding, we must endeavour to cheer him. With many patients, it is best not to say a word about the coming operation. The tact of the surgeon must guide his conduct in this respect. The medical man should indeed endeavour to gain some insight, as soon as possible, into the patient's thoughts. It has been long known that patients who are cheerful and confident recover much better, than those who are irritable and worried by anxiety and fear. Even during the operation, in some cases, the voice of the

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operator is as important as his hand. Even if patients do not behave as we would wish, we should avoid any violent or threatening language; with few exceptions, it only lowers the patient's courage, and renders him quite incapable of self-control. A jocose remark often acts as an efficient remedy, by distracting the patient's attention from the importance of the moment to him. It is a recognized rule, not to keep a patient waiting long before the operation; but after having once determined on an operation, to perform it as soon as possible. Somewhat unfavourable weather or light is of less moment, than mental dejection of the patient.

Should *atropine* be applied before the operation? Surgeons, more especially in England, have objected to this practice. The iris has been said to become thickened in consequence of the dilatation, and thus more exposed to injury from the cataract-knife. It has further been stated that the object of the atropine is illusory; for, as soon as the aqueous escapes, the pupil contracts. Finally, it has been feared that, by the concentric retraction of the iris, the vitreous partially loses its support, and is thus more prone to escape. None of these objections appear to me to be valid. If the iris really does increase in thickness as the pupil dilates, it is of not the slightest consequence; for if the internal circumference of the incision in an ordinary extraction is examined, it will be found to coincide with the edge of the pupil, or, at any rate, to but slightly exceed it in diameter. If, therefore, the pupil is sufficiently dilated, the edge of the iris lies beyond the line of the internal incision, or encroaches on it only by a very narrow ring of iris. This cannot possibly be so thick as to come into contact with the point of the knife, which is either close against the inner surface of the cornea or has for the second time nearly reached it. That the pupil contracts again as soon as the aqueous has escaped, is true; but the contraction is less than if atropine had not been used. Independent of this, however, the question is not so much that of overcoming spasmodic contraction of the pupil — that was formerly so extravagantly dreaded, as offering an impediment to the safe exit of the lens, as it is of making the section more easily. The latter, however, takes place during

the time the dilatation still lasts. The objection that atropine predisposes to loss of vitreous, is independent of theoretical grounds in no way confirmed by practice. I accordingly not only consider atropine (applied the evening before the operation) free from disadvantages, but on the contrary, distinctly recommend its employment. The performance of the section is certainly facilitated by it, especially if the anterior chamber is small, as the iris lies, as above explained, nearly or quite out of the way of the internal incision. I consider it further of importance, that after the aqueous has become regenerated, the dilatation of the pupil partially returns. You may satisfy yourself of this experimentally by instillating atropine in an animal, then performing paracentesis, and watching how the anterior chamber refills. This subsequent dilatation of the pupil exerts, up to a certain point, a controlling influence on any irritation of the iris. Finally, the paralysis of the ciliary muscle which continues even after paracentesis must have a favourable effect.

We have recently discussed the method of operation we shall adopt in our present case, but have still to determine the *direction of the section*. This leads us to the general question as to the relative advantages of the upward or downward section. Since I have employed the compress-bandage, which embraces in itself the chief advantages of the former incision, I have more and more adopted the downward section, although I had previously for six years exclusively employed the other method. My experience is, that there is no notable difference between the two, if equally well performed. The average duration of recovery after the upward section is three days less (from twenty-one to twenty-four days in hospital); but as regards the per-centage of prolapses of the iris, of iritis, or of suppuration, there is no appreciable difference. On the other hand, partial suppurations terminate more favourably after the downward than after the upward section, in which latter the gravitation downwards of the morbid products exerts a deleterious influence. In favour of the downward section we must further remark, that the operation itself is carried out more perfectly, in consequence of the greater rapidity and facility with which it may be per-

formed, and of the surgeon being less dependent on the tractability of his patient, and on the assistance during it. The operator can avoid any rubbing or eversion of the flap by the eyelid, even in patients who have but slight control over the movements of their eyes. He can completely remove any remaining cortical débris without the necessity of introducing any instrument, and so forth. One may, it is true, with sufficient practice, bring the upward section to a successful issue, even in the case of sunken eyeballs, fractious patients, &c.; but the operation may be thus prolonged, or the apposition of the flap interfered with by the upper eyelid, even with the most skilful—all circumstances which add to the injury inflicted on the eye, interfere with the perfection of the operation, and are thus calculated, in doubtful cases, to turn the scale in an unfavourable direction.

As generally occurs in estimating the relative advantages of particular methods of operating, a variety of reasons have been advanced, pro and con, which, when tested by experience, are found to be for the greater part fallacious. Thus, for example, the downward section has been said to favour the escape of vitreous, in consequence of gravitation downwards. The reverse would be nearer the truth. Vitreous escapes, if the zonula Zinii or the fossa hyaloidea is burst. Such an occurrence is less likely to happen the easier the exit of the lens and of any cortical fragments is effected, as it undoubtedly is in the downward section. It has been further stated, that in case of any corneal cicatrices remaining, these impede vision more in the downward than in the upward section. No cicatrices of any moment, however, occur, excepting the case has gone wrong; either that the iris has prolapsed, or partial suppuration has occurred. In the former case the pupil becomes displaced, which is on the whole less desirable upwards than downwards; in the latter case the pupil is either closed or narrowed, and must, whether or no, be remedied by an iridectomy. It has also been urged against the downward section, that if the flap is not in accurate apposition, the edge of the lower eyelid easily gets into the wound. Such a malposition is, however, certainly exceptional, and must be remedied, whichever method has been employed. Either a portion of iris must be excised, or even some vitreous allowed to escape—operations which are far better performed after a downward than after an upward section. After a successfully executed downward section, the flap is so accurately adjusted that, even if the patient looks suddenly downwards, the lower eyelid does not cause the wound to open. Even in the case of abnormally protruding eyeballs, I am not at all afraid of extracting by the downward section, since I have methodically employed the compress-bandage. I do not mean to say I am a decided opponent of the

upward section. It would be an injustice against the excellent results that have been obtained by many operators by that method, as it would be against my own previous experience.

I have myself before admitted that the medium duration of the healing of the wound is shorter after the upward section. This is caused by the winking of the eyelids keeping up rather longer some irritation in the wound after the lower section, it being covered by the lid in the upper section. I only wanted to direct attention to the fact that many of the so extravagantly vaunted advantages of the upward section are fallacious; that the real advantage of the method consists in the wound being equally covered by the upper eyelid during the first stage of the reparative process; but that this is in great measure replaced by the compress-bandage, and is hence counterbalanced by the greater quickness of performance and the less dependence on the patient that ensues in the other method. Assuming, what I will not contest, that, on the whole, both methods yield equally good results, still the easier performance of the downward section must always preponderate. At all events, I recommend every one—the practised as well as the unpractised surgeon—to operate on intractable patients by the downward section.

In our present case, however, we have a special motive for choosing the downward section, namely, that we intend employing iridectomy as a second step in the operation. In the upward section it is extremely awkward to excise a portion of iris corresponding to the apex of the section, if we are not assisted by the patient keeping quiet. We should then have to excise a lateral portion, by which we lose some of the advantages of the operation.

We shall operate on this patient, as we usually do, in *bed*. Although the operator experiences a little more inconvenience in this position, still the patient has the advantage of being in the most complete muscular repose, and of being able to remain in the same position after the operation. Surgeons who operate upon their patients in the sitting posture are obliged, if anything unusual occurs during the operation, to make them lie down,—as in certain accidents, such as loss of vitreous *e. g.*, the horizontal posture is indispensable. The operation being on the right eye, the surgeon must sit behind the head of the bed, unless, indeed, he has the natural gift of being ambidexter, or, during the time of his professional education, in accordance with the now exploded whim of oculists, taught himself to become semi-ambidexter. Every one may follow his own taste. All we would do is to protest against such surgical display,

and warn those who still harp on being ambidexter, that to create mechanical difficulties, which may be very simply avcided, does not constitute a gain, but only shows a want of prudence. Surely no surgeon would be regarded as ingenious were he to amputate one leg with the right, the other with the left hand, instead of placing himself in the suitable position that would enable him to amputate either with the right hand. And in operations on the eye there is no difference, as long as the principle is adopted of operating on the patient in the recumbent posture.

January 5th, afternoon.—We have but little to remark on the operation we have just performed. The diameter of the cornea being small, we had to insert the cataract-knife close to the margin of the sclera. Under the existing circumstances, we could only thus obtain a sufficiently large section, while in a larger cornea the puncture and counter-puncture may be as much as a millimetre from the margin of the sclera. If the puncture and counter-puncture are made close to the margin of the sclera, and the section completed in the same line, a small flap of the conjunctiva is generally formed, as in the present instance—a circumstance to which we attach neither an unfavourable, nor a specially favourable signification. It is well known that both views have been put forth, the latter even recently, as a matter of special consequence, by a distinguished practitioner, who considers that the conjunctival flap is a special protection against suppuration of the wound, and endeavours to introduce it as a general method. If a conjunctival flap is formed, we consider it advisable not to prolong it to a point, as it then bleeds, and also, by rolling up, rather disturbs the apposition of the edges of the wound; but to turn the knife upwards and cut it straight through. Shortly before completing the flap, we laid the forceps on one side, the use of which we recommend in flap extractions from full conviction of their utility, and allowed the upper eyelid to drop completely down. This latter practice, which is of course only applicable to the downward section, presents some obvious advantages. If the section is once so far completed as to leave only a bridge of cornea of about 1‴ in breadth, its form is, at the same time, fixed; and, whether the knife is

turned a little more or less forward, matters little. There is no longer any reason for keeping the lid so widely open, as is usually done. Let the assistant take his finger from the lid. The operator having laid aside the forceps, has his other hand disengaged, and with it may draw the skin of the cheek gently downwards, so as to be enabled, on withdrawing the knife, to complete the section (with the lids, as it were, closed), without wounding the edge of the eyelid. Any pressure exerted by the eyelids is thus reduced to a minimum during this important step in the operation, and any protrusion of the iris, sudden escape of aqueous or perhaps even bursting of the vitreous, circumstances likely to ensue with restless patients, are avoided. The collapse of the cornea which we prognosticated from its small dimensions and the sunken state of the eyeball, exhibited itself already after the first step of the operation. After the three following steps, on which I have nothing to add, it showed itself in a very marked degree. The cornea at last sank in, assuming, as it were, the form of a bird's nest, and fell into several folds, notwithstanding which the apposition of the edges of the wound itself remained quite perfect, provided the normal tension of the eye was restored by a little pressure with the finger.

Immediately after the operation we apply the *compress-bandage*, which we are in the habit of employing in our practice. This consists in equably padding the orbit with picked lint in the form of little disks, over which a simple ascending turn of a flannel bandage is moderately tightly drawn across the eye. This is made fast by a turn round the forehead, half of which passes in front, half behind the ascending turn over the eye. The middle part of the bandage which passes over the eye is made (instead of flannel) of knitted cotton. The proper application of this bandage is especially important in collapse of the cornea.* For the first few hours pretty firm pressure

* I am now writing an article on these forms of bandage for the Archiv [since appeared in the "Archiv für Ophthal.," IX. ii. pp. 111–152.—J. Z. L.]. I will only now mention that Sichel deserves the credit, among modern oculists (in 1842; *vide* "Gaz. des Hôpit.," 1853, No. 54), of having introduced compress-bandages as a dressing after extractions, and I was induced to study this important subject at Sichel's personal instigation. In Seitz and Zehender's "Handbook of Ophthalmic Surgery," pp. 425, *et seq.*, Erlangen, 1861, will be found a literal communication I made on the subject.

may be exerted, which must subsequently be gradually relaxed, so as not to too much check the escape of any discharge from the eye.

Morning of January 6th.—Fifteen hours have passed since the operation without any bad symptoms. Not the slightest pain was felt in the wound shortly after the operation. Is this a reason for favourably reversing our doubtful prognosis? By no means. It is only too often, and just in these marastic eyes, that we meet with this complete absence of all active symptoms, that lasts 12, 16, or 18 hours, and is then succeeded by general or partial suppuration. Comparing from my notes the course after extraction in marastic eyes, I consider it better in a prognostic point of view to see, instead of this complete absence of all action, a certain amount of pain in the wound a few hours after the operation, accompanied, perhaps, by some slight swelling of the eyelid, reaching its acme in four to six hours, and then disappearing again.* Since the operation the bandage has been twice similarly renewed; no abnormal swelling or lacrymation has taken place.

Evening of the 6th.—What was this morning feared, has, in the interim, unfortunately taken place. Shortly after our morning visit, about 16 hours after the operation, the patient experienced a sense of discomfort, followed by pain in the eye, and she herself remarked an increased flow of tears. Eighteen hours after the operation the bandage was removed. The deeper layers of lint were saturated with a clear fluid. Since then the swelling and secretion of tears have continually increased. On undoing the bandage, we find the eyelid already much swollen, its folds broad, the hollow between the ridge of the orbit and the eyeball far less deep than that of the other side; the whole eyelid enlarged. The depression above the internal palpebral ligament exhibits the characteristic œdematous and reddish swelling.

* This applies, of course, only to marastic eyes. In other cases, after a properly performed operation, complete absence of pain in the first stage of the healing process augurs well. But it is certain, even in this case, that pain which comes on soon after the operation, or, at the utmost, eight hours after it, is of far less consequence, and much more easily amenable to treatment, than that which occurs between the twelfth and thirtieth hour after the operation.

The aqueous discharge, which lasted all the forenoon, has become more and more mingled with muco-pus. The whole of the deep layer of lint is saturated with pus, although the last bandage has only been on four hours. After all the bandages had been removed, a few drops of a yellow secretion were even still found between the edges of the eyelids. The pains have, it is true, somewhat diminished; but this circumstance by no means allays our anxiety, as it often ensues during the development of suppuration.

What can we suppose has *given rise to these symptoms?* Doubtlessly suppuration of the cornea. Whether it is general or partial, cannot be determined till we open the eyelids. It is no simple prolapse of the iris. This may, no doubt, occasion a certain amount of swelling of the lids and an increased flow of tears, but may be distinguished by the very fact of the tears remaining clear, and, even if prolonged, becoming but slightly tinged with mucus. Besides, after an iridectomy, and the edges of the wound being in apposition, the occurrence of any prolapse of the iris is extremely rare. Again, at first the iris gets wedged in by small degrees, and this only after some days gradually gives rise to symptoms. Still less is there in the present case any question of genuine iritis. Independently of its being hardly to be apprehended after a perfect and easy enucleation of the lens with previous excision of the iris, neither the period of occurrence nor the symptoms, especially the profuse discharge, point to its existence.

Is *opening the eyelids* under existing circumstances attended with any danger? We are for deferring opening the lids in a case which runs a perfectly favourable course, till the fourth or fifth day, because it is, to say the least, unnecessary, or, under certain circumstances, even injurious. But if the case does not go on well, we should not hesitate to cautiously inspect the eye, so as to be certain in what condition it is. Supposing we found general suppuration, we should give up all hopes of saving the eye and confine our treatment to what best suited the comfort of the patient and his general constitution. But if suppuration of the wound was but partial, and prevented it uniting, our hopes would not yet be gone, and we should have to be guided in our treatment by narrowly watching its effects.

On opening the eye, a few more drops of tears mixed with pus start out of the conjunctival sac. The conjunctiva of the globe appears moderately red, and pretty extensively chemosed. The entire corneal wound is, for about a line's breadth, infiltrated evidently in its entire thickness with an opaque yellow pus. The cornea has also, throughout the entire flap, a yellowish tinge. You can only see the iris through the upper third of the cornea, and thus perceive that the aqueous has been regenerated in the anterior chamber. The corneal flap does not exactly open out, but probably the edges of the wound do not adhere throughout their entire thickness, as we infer from some previous cases of which we have careful observations taken at this stage of the case. The patient has a perfectly definite quantitative perception of light.

How are we to interpret the above course of things? What *structure* does the suppuration originate in? There is still a current opinion that this process also originates in the iris. But I am convinced, from anatomical and clinical reasons, that such is not the case. In the more extensive spontaneous suppurations of the cornea there is a tendency to extend to the epithelial layer of the membrana Descemeti, and so further on to the iris. With a penetrating wound and a more violent formation of pus, this tendency to extension exists in a higher degree. We need not, therefore, feel surprised if we, shortly after the suppuration in the wound, observe the aqueous turbid, and secondary iritis, which, as the original lesion passes into cicatrization, becomes the more prominent symptom. The idea that the visible series of symptoms is merely an extension from a suppurative form of cyclitis or choroiditis, is equally deficient in clinical foundation. In rare and exceptional cases an extraction may certainly be attended by such consequences. Thus, for example, a loss of vitreous may be followed by immediate purulent infiltration of the deeper structures. But in the ordinary forms of suppuration the process extends quickly to the internal tunics in the form of diffuse purulent choroiditis or panophthalmitis. Or it develops itself insidiously from the secondary iritis, especially after the posterior surface of the iris has become completely adherent to

the lens-capsule by layers of exudation. In this case it generally assumes the character of chronic cyclitis, terminating in atrophy of the eyeball. In either case an examination of the power of perception of light may at once influence our opinion of the case. Even when diffuse suppuration of the cornea has formally set in, at the period of the so-called annular abscess, as long as no deep suppuration is indicated by rigidity and protrusion of the globe, the perception of light, and the field of vision remain perfectly normal, which would be impossible, were the suppuration of the cornea an extension from purulent choroiditis. The anatomical examination of a perfectly typical case of corneal suppuration (in which an annular abscess occurred 36 hours after extraction, as more particularly described by Dr. Schweigger) afforded a striking exemplification of this, the internal tunics being found completely intact.

Are we to call the suppuration that has occurred in our patient *diffuse, i. e.* hopeless, or *circumscribed?* Although the greater part of the cornea is clouded, still only a narrow streak in the direction of the wound has, as yet, assumed the character of destructive suppuration. The further semi-translucent infiltration may, for the present, be regarded as a swelling of the substance of the cornea capable of resolution. Again an exact inspection of the upper half of the cornea reveals the total absence of that ominous infiltration of pus in the form of a ring, which, when it entirely encircles the cornea, is a sure precursor of its sloughing, and is the really pathognomonic symptom of general suppuration of the cornea. But although the suppuration may now be limited, or in the wound, it is very possible it may pass into the diffuse form. Hardly 28 hours have elapsed since the operation, matters have continuously been getting worse, the soil in which the morbid process is rooted, has been, from the commencement, recognized as an unfavourable one, disposed to suppurative action—all unfavourable points. If general suppuration does not occur, our hopes are not destroyed; but the final result is imperilled by secondary morbid actions, although in this point of view the coloboma iridis is a favourable circumstance.

What is to be done in order to keep the suppuration as far as possible within bounds? Shall we have recourse to the *local*

use of ice? We very much doubt its prophylactic power even after the operation; but when suppuration has set in, its use is to be still more forcibly condemned, more especially in marastic eyes. The application of cold here only precipitates the extension of the dreaded process. I can hardly, under existing circumstances, speak much better of *leeches* applied close to the eye, serviceable as they prove after the wound has once healed, when some irritation at its edges still remains; or in iritis; they are dangerous during the first period of reparation of the wound. It is only the erroneous notion that all accidents after an operation originate unconditionally in excessive inflammation, which has so long preserved the antiphlogistic method. No surgeon would think of applying leeches to the vicinity of a wound that threatened suppuration, especially in marastic subjects. Why then should it be otherwise with a structure whose nutrition is *per se* of a low character, and has, in addition, been especially impaired by a large wound? The afflux of blood directly caused by the suction of the leeches, leads, of course, in the first instance, to an increased congestion of the infiltrated structures, and till the reflux takes place from which we, under other circumstances, derive advantage, it does positive harm. But it was not by theoretical speculations, but by sad experience, that I was led to totally abstain from applying any leeches near the eye during the first three days after an extraction.

Shall we perform a *venesection?* I admit this does not possess the disadvantages of leeches, and that, with threatening symptoms, time may often be gained sufficient to turn the scale in a more favourable direction. Still with very marastic persons it is not only not without its influence on their general state, but of more than questionable effect on the course of the healing of the wound. And lastly, if it is to be of any use, it must be employed at the commencement, and not after suppuration has already set in. If we then reject all these means, what are we to do? For some time now I am in the habit of applying in circumscribed suppurations, a *firm* compress-bandage—in marastic individuals in alternation with warm medicated fomentations. The first agent I cannot sufficiently recommend. Just in the last month or two it has rendered us

excellent service in three cases which did not go on well, and in which the symptoms were, in some respects, graver than in the present case.* The orbit is padded just as in the ordinary compress-bandage, only a little more so, and then this padding is firmly kept in position by three oblique turns across the eye, with a flannel bandage.† One at first hesitates in applying such a bandage to an eye in active suppuration, and with the lids swollen; but experience teaches us that the patients find it comfortable, and that the swelling and suppuration decrease in a degree unattainable, in such desperate circumstances, by any other means. We order it in our patient to be changed at first every three hours; afterwards at more distant intervals, if the suppuration decreases, as we wish. Between each application of the bandage, camomile fomentations of a temperature of 28° R. are to be applied to the lids for about an hour, with a view of still further limiting the suppurating process. As regards diet, the patient is not to be lowered, but rather strengthened by plenty of meat-broth and milk.

7th.—The bandage has been changed three times within the last 18 hours. On its first removal, the nurse reports that some, and on its second a marked effect was noticed on the swelling of the lids and the discharge. On exposing the eye now, we find only the deepest layer of lint soaked with purulent discharge, which is besides infinitely less than yesterday. Another sign of its decrease is that it begins to dry between the lids. The lid is still swollen, but obviously less: its folds are narrower, it is less glossy and already in some spots wrinkled. On opening the eye, the process appears to have decreased as much as we could expect in the short time. The purulent secretion below, at the lower edge of the wound, is beginning at some spots to separate in the form of muco-purulent layers. The remaining turbidity of the cornea reaches

* In one case even an annular abscess had formed, although it did not embrace 3‴ of the corneal margin; notwithstanding this, the eye was saved for iridectomy at a later period with fair probability of success.

† I shall some time return to some points in this bandage. All I would here observe is, that its effect is quite different from that of an ordinary compress-bandage, as it not only supports the eye, but also exerts firm pressure on the flap.

as far up as yesterday, but is assuming rather a grey, than a yellowish tint. We now scarify the still remaining chemosis ; the firm compress-bandage is to be renewed every six to eight hours, and for half an hour between each re-application camomile poultices applied.

9th.—In the last two days the amelioration has become more and more decided. The bandage was at last allowed to remain applied for 12 hours, and yet the deepest layer of lint was found dry, and only the strip of linen which covered the eyelids stuck to them by dried discharge. The swelling of the lids has completely disappeared, the chemosis is gone. Some muco-purulent shreds may be removed with forceps ; all that remains is some purulent infiltration of the edges of the wound, which of course is still there, but exhibits a tendency to become more solid. The flap has now hardly a tinge of yellow, but has rather a favourable greyish aspect. Its upper edge is already transparent, and permits a view of the clouded pupil (from secondary iritis). The firm bandage is to be continued, the warm applications left off, and atropine instillated.

20th.—The case has taken as favourable a course as could possibly have been expected. The pus deposited near the wound has become more and more solidified, and will leave a scar of about three-fourths of a line. A tissue in process of organization may be clearly seen extending towards the pupil, in the track of the previous suppuration. The atropine has brought into view an upward sinus in the pupil, but slightly filled with thin exudation layers, and the patient can already count fingers at a short distance from her. Although the artificial pupil we made is completely opaque and contracted, yet it undoubtedly caused the comparatively favourable course of the secondary iritis that set in. Without it there would probably have been complete suppurative adhesion of the edge of the pupil to the capsule of the lens, exudation behind, or cyclitis at a stage, when the advisability of any fresh operative procedure would have been very doubtful. In contradistinction to all this, the iris lies quite in its normal plane, is nowhere bulged forward, but slightly changed in texture, not pervaded by large vessels—in brief, there is no propagation perceptible in the course of the ciliary structures.

That the eye has not been destroyed by general suppuration, but, on the contrary, presents very favourable conditions for a subsequent artificial pupil, we have, no doubt, to thank the firm compress-bandage for, which we still continued for five days after our last report. Every surgeon will agree with this therapeutic inference who has learnt from his own experience the signification of these symptoms, occurring so shortly after extraction. If we could have seen the patient on the 6th, about eight hours before our visit in the evening, and then have ordered the firm compress-bandage, it would have doubtlessly produced still better results, inasmuch as it would have had a better ground to work upon.

J. Z. L.

ON PIGMENT IN THE OPTIC DISK.

BY DR. R. LIEBREICH.*

THE presence of pigment in the optic nerve may be regarded as one of the greatest ophthalmoscopic rarities. Apart from any minute isolated spots which are frequently met with in the papilla, I have only once observed the presence of pigment as a congenital anatomical peculiarity; it was in an eye of which the coloration generally was very deep, but which in other respects was normal. I have represented this occurrence in pl. XII., fig. 3 of my Ophthalmoscopic Atlas. I shall now describe the first case where I have observed pigment developed in the papilla as a result of disease.

Mary T., æt. 32, was twelve years ago, just at the time her catamenia appeared, thrown out of a carriage, without, however, according to her own account, having been stunned by the fall. Her catamenia stopped, she felt violent pains in her head, and her sight failed; she was therefore brought to the hospital, where she lost her consciousness. After a fortnight she recovered, but she only had feeble perception of light with either eye, and three days later she became stone blind.

The ophthalmoscope shows in both eyes complete atrophy of the optic nerve and an extensive pigmentation of the disk. The atrophy may be recognized by the tint, the chalky-white of the non-pigmented parts, and by the too abruptly defined contour of the papilla. No morbid excavation of it could be demonstrated. The excavation around the

* From the "Annales d'Oculistique" for July and August, 1864, p. 31.—J. Z. L.