A manual of the diseases of the human eye ; intended for surgeons commencing practice, from the best national and foreign works, and in particular those of Professor Beer / Tr. from the original German work, and illustrated with cases and observations, by George C. Monteath.

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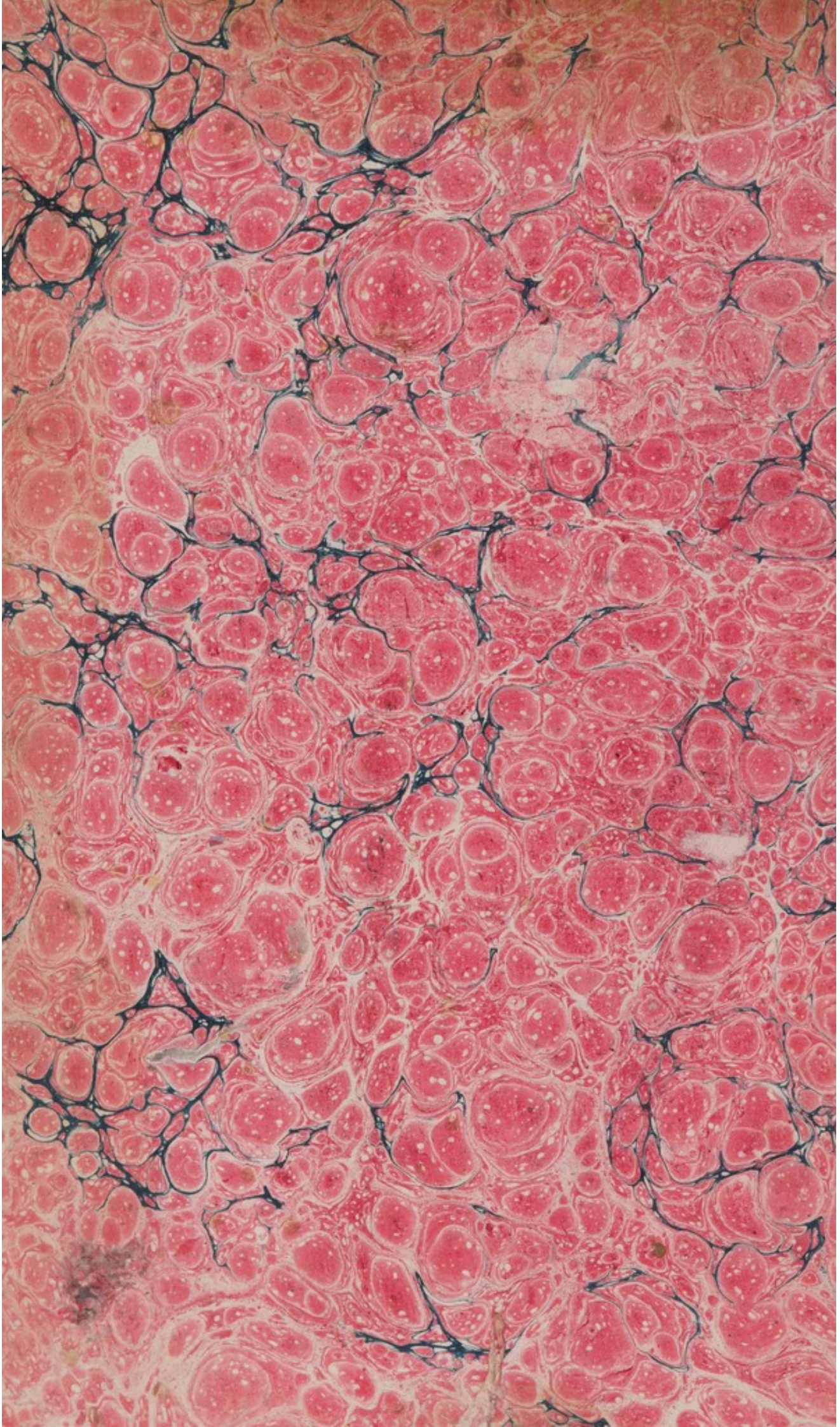

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A MANUAL

OF THE DISEASES OF

THE HUMAN EYE,

&c. &c.

VOL. I.

50818

A

MANUAL

OF

THE DISEASES OF

THE HUMAN EYE,

INTENDED FOR

SURGEONS COMMENCING PRACTICE,

FROM

The Best National and Foreign Works,

AND, IN PARTICULAR, THOSE OF

PROFESSOR BEER:

With the Observations of the Editor,

DR. CHARLES H. WELLER.

BERLIN, 1819.

Translated from the Original German Work, and Illustrated with Cases and Observations,

BY GEORGE C. MONTEATH, M. D.

MEMBER OF THE ROYAL COLLEGE OF SURGEONS OF LONDON, MEMBER OF THE FACULTY OF PHYSICIANS AND SURGEONS OF GLASGOW, AND ONE OF THE SENIOR SURGEONS OF THE GLASGOW ROYAL INFIRMARY, &c. &c.

ILLUSTRATED WITH PLATES.

IN TWO VOLUMES.

VOL. I.

GLASGOW:

PRINTED BY R. Chapman, TRONGATE,

FOR REID & HENDERSON, GLASGOW;

FAIRBAIRN & ANDERSON, EDINBURGH; JOHN MURRAY, AND T. & G. UNDERWOOD, LONDON.

1821.

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TO

MATHEW BAILLIE,

M. D. F. R. S.

PHYSICIAN EXTRAORDINARY TO HIS MAJESTY, &c. &c.

Dear Sir,

Having had the good fortune to enter on the discharge of my Professional duties under the favour of your recommendations, it has ever been my ambition, as well since resigning the appointment which your kindness had obtained for me, as during the years I held it, to justify, in some degree, the opinion for which I was thus early indebted to you. With pleasure

therefore, I avail myself of your kind permission, to inscribe to you the following Work on the Morbid States of the Eye, as a first humble contribution to a particular department of that Professional Science which, in the judgment of all, you have not less highly adorned by personal merit, than cultivated by the zealous and successful exertion of pre-eminent talents.

I have the honour to be,

With the greatest respect,

Your most obedient and very

Humble Servant,

GEO. C. MONTEATH.

TRANSLATOR'S PREFACE.

THE title-page prefixed to this Manual might, perhaps with propriety, supersede any further explanation of the Translator's motives for presenting it in an English dress, to those of his professional brethren who may not have extended their acquaintance with foreign writers beyond the medical schools, eminent as they confessedly are, of France and Italy. If however any thing further be expected on his part, in compliance with a custom not without its use, he has merely to state what follows.

During a course of seven years' practice in a city whose ascertained population is upwards of 145,000, and among numerous cases from the large towns and villages connected with this commercial metropolis of North Britain, he has had a very extensive field of observation in treating the diseases of the eye; a branch of medical science to which his attention was turned very early in life, and which he has cultivated with all possible assiduity. Among the very great number of applicants afflicted with eye complaints during that period, amounting in a single year (1820) to 1288, it may be presumed that a variety of cases occurred from time to time, which, with their treatment, might be submitted to the students of a science which can be improved only by patient induction and analysis.

Accordingly, so early as 1816, he began to collect a variety of cases, and had seven plates

representing a number of diseased eyes, engraved, with a view to early publication, by an artist of great eminence, Mr. Lizars of Edinburgh. Events, then very recent, had again restored that unrestrained intercourse with the Continent, which had been almost totally suspended for a considerable time. Free access was thus opened to those treasures of scientific and experimental knowledge, which the Oculists of Germany had been so industriously accumulating. A perusal of the works of Schmidt, Langenbeck, Himly, &c., and above all, of the celebrated Professor Beer of Vienna, convinced him that it would be an acceptable service to the profession, to present them with the following valuable Synopsis by Dr. Weller of Berlin, of the Ophthalmology of his distinguished countrymen.

With this view, he resolved to attempt the humble office now accomplished, with what

success, he pretends not to anticipate. The work he had meditated, and which was so far in progress, he has, without relinquishing it altogether, laid aside for the present, in the hopes that it may be so matured by future researches, observation and experience, as to be less unworthy of the public eye.

In the treatise now submitted, in its present form, to the candid judgment of his brethren, he is not sanguine enough to think that inaccuracies have not escaped him, though he would hope these are few, and such as will not detract from the usefulness of the work. He is aware of the difficulty of avoiding an air of stiffness in exhibiting a foreign writer in the English language, especially from a language of which a very high authority has pronounced, even regarding works of a lighter kind, " Ce sont les pensées memes, et non l'éclat qu'on leur donne qu'il faut admirer." ALLEMAGNE, par Mad. de Staël. To break

down long and intricate periods, to new-model those that appear hard and uncouth even in their native dress, and by varied, though equivalent, forms of speech, to accommodate the whole to the genius of our own language —though suitable to works of fancy or less important disquisition, he has cautiously admitted in a work requiring precision in form and expression.—The Translator however has, in a few instances, substituted modern for obsolete pharmaceutical names; he has also omitted the index at the end of the original work, which he conceived of little use, considering the great minuteness of the table of contents.

Cases and observations are occasionally subjoined in the form of foot-notes. These might have been considerably extended, but it seemed doubtful if it were compatible with the author's design of exhibiting a condensed view of what is most important in the principles and rules for practice.

The work in its present state is indebted to Mr. Swan, engraver, of this city, for a superior set of plates, as he not only brought to the undertaking superior talents, but copied all the figures from the works of the different authors by whom they were originally published,—rather than as they appear in Dr. Weller's publication.

15, GEORGE-SQUARE,
February, 1821.

PREFACE.

THE wish manifested on all hands to possess an abridged practical Manual of the Diseases of the Eyes, in which, along with the more important experience and discoveries of the most esteemed modern Surgeons, both of our own and foreign countries, the doctrines of the renowned Professor Beer of Vienna, my honoured Teacher, might be made public; but still more the hope of advancing that most important branch of the Healing Art among young Surgeons, as well as among those who

have the disadvantage of living at a distance from the fountains of knowledge, have determined me to publish the following work.

With this view, I have perused the best works I could procure, as well of this country as of others, and have particularly selected whatever manifold experience had sanctioned; nevertheless, the newest works almost alone will be cited, because, on the one hand, I presumed the more ancient works were already made known in previous manuals of the diseases of the eyes; and on the other, their citation would have occupied too much room. On the latter account I have often, even when possible, avoided bringing forward several methods of operating for one disease, as in general, an extended consideration of abilities and judgment in operations, might be less wished for than other matters of pure oculistic knowledge. In like manner, most of the

ancient methods of cure, &c., which must yield to the better curative measures of modern times, have not been described.

Still, however, I have endeavoured to treat minutely of those forms of disease which had been hitherto less generally known, such for example as the Fungus Hæmatodes Retinæ, the conical projection of the Cornea, &c.

When I have especially availed myself of the experience of Professor Beer; in particular when I have frequently selected the most important practical matter from his "Lehre von den Augenkrankheiten, Wien. 1813 and 1817," and even in many parts, modified short extracts from it, and made his voluminous work as it were the basis for the present Manual, I conceive that I have thereby met the wishes of many Surgeons, and enhanced the utility of the book.

I have brought forward whatever my own experience has taught me worthy of remark.

Many objections may be made to the Anatomical arrangement in which the diseases have been here brought forward, yet I could in fact find no other, which was not equally or more objectionable, and even rested often on far more slender recommendations, than that here adopted.

The paintings in the subjoined plates of the chief diseases of the eye capable of being represented, I have in part accurately copied from original drawings which correctly represent nature; in part, however, they have been carefully painted by myself, from the living subject.

I conceived it necessary to subjoin the instruments which the last plate represents, for the clearer elucidation of the described operations.

The accompanying Index will be very useful to the hasty consulter.

Whilst I commit the book to medical men, I shall willingly allot to myself particular merit, and feel rewarded, if my hope of being useful by the extension of Ophthalmological knowledge, shall not prove a dream.

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INTRODUCTION.

BEFORE proceeding to the description of the particular diseases of the eyes, it is necessary to premise a few words explanatory of the differences which exist, particularly between pure and specific inflammations of the eyes.

We observe in, and on, the organ of vision, so many, and so widely different states of inflammation, that it is not always easy to distinguish each of them sufficiently, and to apply a suitable treatment: on which account a clear and practical division of them must be of considerable use, and prevent, in the best possible man-

ner, a confusion of diseases differing essentially from each other.

In order to fulfil this as far as possible, I must describe *pure* inflammation of the eye, and then, in reference to this, *specific* inflammation, the one of which must be well distinguished from the other, in order to render its treatment rational.

By a pure inflammation I mean that which never has a specific disease for its foundation, in which rather the inflammation runs on, in its natural way, showing neither in the first, nor in the second stage, any specific or unusual symptom, and accordingly, in so far as concerns other circumstances which may afterwards occur, the *quantity* of inflammation only requires to be considered. The manner in which this natural form of inflammation appears, is known to every Surgeon. Yet this very inflammation shows several distinctions, and, as

might be expected, displays various pathological modifications, for we sometimes observe symptoms caused by the individual structure and function of the tissue inflamed; sometimes the pure inflammation is modified by the constitution, age, or sex of the patient; sometimes by the remote causes, &c. Distinctions are especially observed in almost all the particular species of inflammation of the eye, afterwards to be more minutely discussed, depending on the peculiarities of the inflamed structure, and which, for the most part, require attentive consideration during their cure. —For example, the symptoms which characterize pure inflammation of the Meibomian glands are very different from those which announce an inflamed cornea, iris, retina, &c.; for the first disease manifests itself in the second stage, whether slight or severe, by an unnaturally increased secretion of mucus: inflamma-

tion of the cornea again, when not very severe, by the affected membrane being changed to a whitish colour: inflammation of the iris by its changing, when naturally brown, into a reddish colour, &c. In all such cases of pure inflammation, the general treatment is the same, but each variety requires peculiar attentions during the cure, depending on the structure and function of the tissue affected.

In like manner, as already mentioned, the constitution and age of the patient are of much consequence in the symptoms and treatment; for pure ophthalmiæ are met with in weakly or in old people, where the inflammation is never predominant, but rather deficient in quantity, consequently, the first stage passes over very quickly, or even cannot be discovered, by the Surgeon, *Asthenic Inflammation.* In such cases, the symptoms commonly

belonging to the second stage of inflammation, may appear without any signs of inflammation having previously existed, or being now present, which can only be owing to an unusual relaxation of the diseased parts.*

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* If the relaxation, in such a case, exist in the eyelids, particularly in the Meibomian glands, and the former be also found adhering together in the morning; if hard and soft particles of matter secreted from these glands, be observed, particularly at the internal canthus, even during the day, unless the eyes be continually cleaned; if the patient has never experienced pain, redness, itching, or excoriations; in such cases, sometimes occurring in old people, I have used with much advantage the Spir. Corn. Cerv., at first diluted with one-half of Aqua Opii, afterwards pure. It is to be well rubbed upon the eyelids once every day.

The Aqua Opii is nothing else than Water distilled from pure Opium; from a pound of Opium, four pounds, or somewhat more of the water, may be prepared. The apothecary may easily procure it during the preparation of the common Extract. Opii, when he conducts the evaporation of the watery solution of Opium in the usual manner,

Although, even in Asthenic Inflammation, a first stage may be often met with, in which inflammation is observed to be more or less predominant, yet it must not in general be treated in the usual antiphlogistic manner, since it runs its course very rapidly, and leaves behind a more tedious second stage, often becoming habitual, and not unfrequently very destructive to the eye; it must therefore be carefully treated, both locally and constitutionally, by suitable diet and medicines.

But pure inflammation will not follow a similar course in every old and weakly person; it may rather, in a case of general debility, run

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in a water-bath, using, however, a small retort, with a well luted recipient. This water, particularly when some days old, smells very strong of opium; it must be preserved in a cellar, in a glass-stopper bottle, otherwise the smell diminishes in a very short time, and ultimately is entirely lost; on which account, it should be prepared in small quantity.

a very severe and acute course, which then depends especially on the remote cause, and the present particularly excited state of the powers of the eye.

When real inflammation, in a case of ophthalmia, no longer predominates, but the asthenic stage has already begun, Opium with wine, applied locally, is particularly and highly useful, and is, on that account, recommended in a particular manner by the most celebrated oculists. Such are the cases, also, in which the external applications may be used lukewarm with advantage. If the inflammation be of a more torpid nature, the applications must be more irritating and penetrating.

Pure inflammation is to be well distinguished from *Idiopathic*; for although the latter be in general pure, yet in every case it cannot be called so, for the irritation, which operated as a remote cause upon the eye, may readily at the

same time serve as a lure for a specific disease, existing in the body; hence it happens that sand, &c. falling into the eye of a scrofulous child, may immediately change the idiopathic inflammation, thereby excited, into a scrofulous ophthalmia. Even when only a disposition to scrofulous disease is present, it sometimes happens, that our opinion of the disease existing in the eye is formed from the previous irritation of the remote cause. *

Sometimes *pure* ophthalmiæ proceed from another disease existing in the body, and are then, at the same time, *sympathetic*. For example, very severe pure ophthalmiæ may arise from suppressed customary fluxes of blood;

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* I am not sure that I have been able to comprehend exactly what the Author means to express in the last sentence of this paragraph. The first part of the paragraph, however, points out a circumstance of vast practical importance. *Translator.*

they commonly occur very suddenly, are from the commencement accompanied with fever, and usually run their course very quickly and severely.—Also, in inflammatory fevers, inflammation may extend to the eye, and induce an ophthalmia, which, as in the former case, runs its course with rapidity and severity, and must be generally treated in the same way as the inflammatory fever.

Pure inflammation can affect every structure of the eye, can show itself, accordingly, in all the forms to be mentioned, and actually does so frequently; it will be treated of according as the sclerotica, cornea, or retina, &c. may be the point of origin, under the names Sclerotitis, Keratitis, &c. Even during the extension of the inflammation beyond these parts, it is usual to retain these names till a certain period, which will be more minutely determined during the treatment of the individual forms of inflammation.

When pure inflammation terminates in suppuration, it diminishes in point of intensity, yet always continues so powerful as sufficiently to produce the suppuration, and through its means to restore the parts destroyed. If, however, the inflammation has been so much reduced, either by too active antiphlogistic treatment in the first stage, or its too long continuance, that it cannot produce a kindly suppuration, or if it has occurred in a very weakly subject, or be asthenic, then an ichorous suppuration takes place, and the affected part becomes subject, in some degree, to the chemical laws of inanimate nature, as happens completely in sphacelus.

Specific inflammation has always for its foundation a specific cause, consisting in a peculiar quality of the living powers, and which has already in general changed the whole constitution of the body. From each specific cause, in each particular kind of inflammation, specific symp-

toms arise which belong to it alone, and by which it is customary to distinguish this from every other kind of inflammation. Specific, is different from pure inflammation in its nature, and requires a method of cure which must not only be conducted according to the degree of inflammation, the peculiarities of the tissue immediately affected, and the strong or weak state of constitution, but in a particular manner, according to the *causa specifica.*

In specific ophthalmia, the really inflammatory has, as it were, become amalgamated with the specific state, which latter directly establishes the kind of inflammation. If the inflammatory state predominate, and the living power, besides being changed in quality, be also unnaturally excited in the eye; if also a first stage has been observed, then the inflammation will be always characterized by more severe symptoms than

in opposite circumstances. In such a case the predominating inflammation must not always be subdued by antiphlogistic treatment, because the first stage will soon pass over without it. If, at the same time, a greater or less degree of general debility be present, as is the case, for example, in scorbutic, gouty, or scrofulous ophthalmia; if the first stage run its course so quickly, that the Surgeon does not observe it, then, by antiphlogistic treatment, the constitutional disease would be directly increased, and the local inflammatory reaction in the eye, would be rendered more tedious and obstinate.

Moreover, most specific inflammations of the eye have this peculiarity, that they particularly prefer this or that part, this or that membrane, &c. of the eye, and accordingly usually make choice of the same tissue for their seat. Specific, like pure inflammations of the eye, get their

names of iritis, &c. according as they have commenced from the iris, or some other part.

So far in regard to pure and specific ophthalmia in general. The more minute detail of the different kinds of each of these general classes of inflammations, will be more amply considered in the proper place.

In regard to the rules of caution belonging to the Oculist, all is applicable, and should be known to him, that is known to Surgeons in general; let him accordingly be guarded in giving too certain, or unconditional, a prognosis, and consider well, in every occurring case of disease, what he can do, and what he may promise. In operations however in particular, let him think well before-hand, whether the sight yet remain in some degree in the eye to be operated upon, and whether it may not be probably completely destroyed by the operation; whether the eye has perfectly recovered

from the inflammatory disease which probably existed previously; whether in general, any thing, and how much or little may be gained, by the proposed operation. At the same time, the peculiar constitution of the patient and of the eye * must never be omitted in his cal-

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* Many eyes appear to be exceedingly irritable, and to have inflammatory action excited by every mechanical injury of their texture, even when the cutaneous system is not very sensible to injury, and when no symptom denoting unsoundness is present, and in such cases, it is soon perceived how rapidly the inflammation destroys the organ of vision. Other eyes again, which have suffered very severe wounds, for example of the iris, seem scarcely affected by them, so that in the subsequent iritis, every severe symptom, mentioned under pure iritis, shall be wanting. How much the iris is capable of bearing, I saw lately in a young man with blue eyes, in whom the pupil had become closed in consequence of a syphilitic iritis. A quack operator, from want of other instruments, pierced the eye and cut up the iris eighteen times in a short period with a lancet-shaped cataract needle, expecting thus to establish

culation, which, alas! is not always done; and not unfrequently lays the foundation for the failure of the operation.

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an artificial pupil, in which he succeeded, though very imperfectly, at the eighteenth attempt.

A MANUAL

OF THE DISEASES OF

THE HUMAN EYE,

&c. &c.

OF

PURE OPHTHALMIA

IN GENERAL.

INFLAMMATION of the eyes has a first and a second stage.* The latter of which, however, is not always present; the inflammation may rather cease with the first stage, without leaving behind any thing more than a somewhat morbidly excited sensibility of the organ of vision.

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* What Richter and others call Acute and Chronic; what some physicians call Active and Passive; what Scarpa, in his "Trattato delle principali malattie degli Occhi, edizione quinta, 1816," vol. i. p. 180, with the Arabian physicians, calls Hot and Cold Ophthalmia, is comprehended under these two Stages.

Ophthalmia, like every other inflammation, is characterized by redness, heat, swelling and pain; yet sometimes one, sometimes the other of these symptoms is most prominent, and sometimes one or more are entirely wanting; this however generally depends on the seat of the inflammation, by which also it is variously modified.

Symptoms of the first stage.—With these general symptoms of inflammation, are observed a disposition constantly to close the eye and a flow of tears; which however in the acmé of severe degrees of inflammation entirely disappear, and leave in their place a troublesome dryness and immobility of the eyeball; with this is connected sometimes a greater, sometimes a less degree of aversion to light, which, in some severe degrees of the disease, ceases suddenly, in consequence of the supervention of palsy. If the inflammation reach a very high degree, it no longer continues local; the general system takes a share in the disease, and an inflammatory fever commences.

Symptoms of the second stage.—After the inflammation has arrived at its height, a state of remission commences in moderately severe Ophthalmiæ, so early as the fourth, fifth, or sixth day. The pain and heat of the eyes abate; the arterial redness of the first stage changes, and falls rather into a dirty blue, or a brownish red; sometimes effusions of blood are seen in different places; the patient commences to open his eye better; he bears more light, without as formerly, its increasing the lachrymation. Now recommence the secretions and excretions which were suppressed in the first stage, only much more copiously, and differently mixed, from what they are naturally. Sometimes the parts surrounding the eye become affected with œdematous swelling.

If the first stage was very severe, and neglected, or if the exciting cause produced a loss of substance, then suppuration readily commences; by which, nature endeavours to repair the parts probably to be lost; this reparation however, can only happen when the matter has

the well known properties of laudable pus. If it be ill smelled, thin, greenish, brownish, as it is often found in old, weak, cachectic people, it is called Ichor, and this is never favourable to the reproduction of the parts of the eye destroyed by inflammation; on the contrary it rather causes a greater loss of substance. Not unfrequently an actual suppurative fever now supervenes; which however, by no means attends every suppuration of the eye.

The causes which induce this disease are manifold. The following operate most frequently: an impure atmosphere, trichiasis, bodies falling into the eye, too bright light, or a quick change from darkness to light. Inflammations of the eyes in a particular manner, occur readily when the eyes are often and long exposed to the immediate reflection of light from very white objects. In like manner, all over-exertions of the eyes, wounds with sharp or blunt instruments, unnecessary or immoderate use of spectacles, and the improper use of many eye remedies, particularly of eye-salves,

which are often rancid, may be injurious. Also the kaleidoscope, lately come into fashion, and rubbing in tartar emetic ointment too near to the eyes, have not unfrequently been observed as causes of Pure Ophthalmia.

Congestion in the head, and particularly in the eyes, from pressure of the bowels by coughing, loud crying, too tightly applied neckcloths, and from passions, &c. belong also to the injurious causes operating, mediately however, upon the eye. So also suppressed fluxes of blood—*e. g.* hemorrhoidal, menstrual, and nasal—must not be forgotten as causes of Pure Ophthalmia. Even the irritation of cutting teeth in children, or of carious teeth, may produce a pure ophthalmia.

The prognosis of the first and second stage is very different, and depends, partly, on the intensity of the inflammation, on the particular part affected, and on the particular cause; as also, on the early or late call of surgical aid. Slight external idiopathic inflammations may often be resolved without bad conse-

quences. Inflammations of the eye-lids run a more tedious course in general than those of the eyes themselves. Inflammations of the internal structures of the eyes, much more readily leave behind them perfect or imperfect destruction of vision, than external superficial inflammations; which latter, on the other hand, more frequently indirectly limit or hinder vision by organic obstacles; for example, by leucoma, staphyloma, &c. Inflammations which attack the whole eyeball, which is often the case after deep wounds, proceed almost always to suppuration, or even to gangrene. Besides, the second stage may, by spontaneous accidental causes, readily revert into the first.

Treatment of the first stage.—The exciting causes must be removed. Foreign bodies which may have fallen into the eye, must be removed. Fine dust, when it has first entered the eye, will often be easily removed, by preventing the entrance of the tears into the lachrymal sac, by means of pressure of the finger, continued for some time, under the internal canthus. In this

way, the foreign bodies are often easily washed by the tears into the inner canthus, from which they can without difficulty be removed with the finger. If this does not succeed, let the foreign body be searched for, and wiped out of the eye by means of a probe; around one end of which, moistened charpie is to be applied, or with the rolled up corner of a pocket handkerchief,* or with a pencil. If several foreign bodies are supposed to be in the eye, it will be well to wash out the eye with water, or syringe it with the same fluid.†

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* Ware et Himly, des erstern, chirurg. Beobachtungen, über das Auge, Uebs. von Dr. Runde mit Aumerk. Vers. von Prof. Himly, B. i. S. 21.

† In the great majority of cases of this kind in which I have been consulted, if nothing is visible on the bulb, I immediately evert the upper eyelid, by laying hold of, and pulling gently its ciliæ, with the finger and thumb of the left hand; whilst with any blunt point, such as a pencil, a probe or a toothpick, a slight counterpressure is made on the skin of the eyelid, at the upper edge of the tarsal cartilage; which, it will be recollected, is nearly

If the foreign body has penetrated firmly into the conjunctiva of the palpebræ of the

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four lines broad at the middle part of the eyelid. These two opposing forces immediately produce an eversion of the eyelid, and the conjunctiva of the superior palpebra becomes exposed, and in very many cases, one black particle of dust will be observed upon it, and can be readily removed. This little operation will be more easily executed, by making the patient sit down on a low stool, the surgeon standing behind him. Another very simple method of examining whether a foreign body lies under the upper eyelid, is to make the patient sit down upon a chair, and recline his head over its back. The surgeon lays hold of the upper eyelid by the ciliæ, and pulls the eyelid so much as to put it gently on the stretch, whilst at the same time he raises it from the eye-ball, directing the patient to look down. This will enable the surgeon to see under it, and examine almost the whole conjunctiva of the upper eyelid. Should it be necessary to search for particles that cannot be seen, the hair-pencil should be smeared over with some mucilaginous fluid, or with fresh butter, which will more readily entangle them. See *Lehre von den Augenkrauk, peiten von G. Joseph Beer*, p. 135, Wien. 1813.

Foreign bodies of considerable size may lodge within the eyelids for many weeks, without inducing very violent symptoms. A young girl was brought to me on ac-

sclerotica or of the cornea, it may be easily removed by a fine spatula. But if hard pointed

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count of a soft red fungus growing out of the eye, and as large as a filbert nut. It was of some weeks' standing, and was attributed to a hurt inflicted by a straw striking the eye. With the assistance of my friend Mr. George M'Leod, surgeon here, I cut away this fungus, which originated in the conjunctiva where it is reflected from the lower eyelid to the eyeball, and I conceived that I had done it effectually. The girl however was in three weeks brought back again, with the fungus as large as ever. I again removed it, and at the point of reflection of the conjunctiva I discovered and extracted a portion of straw, fully half an inch in length. The cure was complete in a few days. The conjunctiva has a great tendency to produce such fungi when long irritated by a foreign body. I have since seen several such cases.

A patient from Argyllshire consulted me in the summer of 1818 for a tender inflamed state of his eye, induced by a fall five months before among some bushes, in descending a steep mountain. He felt some part of his eye wounded at the moment, and never enjoyed freedom from a tender state of the eye from that period, though he had applied a great variety of medicines. On everting the upper eyelid, I discovered very high up, viz. at the angle of reflection of the conjunctiva, a fungous state of this membrane, and on examining it freely with the probe I

particles have penetrated the internal surface of the eyelid, the cornea, or other parts, they must be carefully extracted by means of a lancet-shaped needle (Fig. 3.), or by a lancet, or by the fine forceps (Fig. 1.) If the foreign bodies have wounded the conjunctiva, and be in part covered by it, so that they cannot be extracted by means of the forceps, it will then be best carefully to elevate the wounded conjunctiva by means of a fine forceps, and to cut a portion of it out, around the foreign bodies, by which they are not only removed, but the lacerated wound of the conjunctiva will be converted into a clean incised wound. In rare

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discovered a foreign body lodged there. I laid hold of it and extracted it with the forceps, and it proved to be a portion of a twig of a bush, three quarters of an inch in length, and nearly as thick as a crow quill, and which had remained in the eye ever since his fall. I need not add that his eye was immediately restored to a healthy state. It is remarkable that so large a body could have got into the situation where it was found, without wounding the ball of the eye. *Translator.*

cases, it sometimes happens that foreign bodies become almost incorporated with the cornea, nature having formed a kind of sac around them.*

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* James Wardrop, *Essays on the Morbid Anatomy of the Human Eye*, p. 68. Ph. Fr. Walther found sacculated foreign bodies in the external angle of the eye. See his *Abhandlungen aus dem Gebiete der Pract. Medicin.* 1810, I. bd. S. 403.

A clergyman from Argyllshire applied to me in the summer of 1818 for the removal of a foreign body from the cornea. Several weeks before, when walking in the fields, he felt the sudden entrance of this body. Several attempts had been made to remove it. On applying to me, a small black substance was observed indented in the cornea, which was nearly obscured and overlapped by a network of little blood-vessels, the sources of which from the edge of the cornea could hardly be perceived. The foreign body was very easily turned from its nearly completed sac by means of Scarpa's needle, and proved to be one half of the firm hull of a small seed, convex on one side, concave on the other, by means of which concavity it fixed itself into the cornea. The uneasiness produced by this foreign body had been but trifling; it is therefore probable that a complete sac would have been formed in a very short time.

During the endeavours to remove the irritating body from the eye, a severe spasm of

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Foreign bodies may penetrate the cornea, and either drop into or adhere to some part forming the anterior chamber.

In the year 1815 Mr. Shanks, of Johnston, brought to me his son of nine years of age, on account of the following accident. The preceding day, whilst attempting to divide a penny piece with a hammer and chisel, a splinter flew from it with such violence as to penetrate the cornea and become fixed in the iris, where it was distinctly seen shining. The anterior chamber was plump, and the wound which the metal had made in passing through the cornea could be seen with difficulty. Inflammation had already commenced. With the assistance of my partner, Dr. James Monteath, a small incision was made in the cornea, as near as possible to its margin, and the foreign body extracted with a pair of fine forceps. It measured $1\frac{1}{2}$ line in length, and one line in breadth. No inflammation followed, and the young gentleman left me on the fourth day after the operation with perfect vision. The pupil remained a little angular, in consequence of the laceration of the iris. Had this substance been allowed to remain, there can be little doubt that iritis would have supervened, followed by one or more of its destructive consequences, viz. obliterated pupil, synechia, staphyloma, or suppuration of the eyeball.

the orbicularis palpebrarum frequently happens, particularly when the eye is irritated, both mechanically and chemically at the same time. Should this happen, let the patient be taken to a dark room and left quiet, and apply a moderately warm poultice formed of crumb of bread boiled in water or milk, with some Laudan. liquid. Sydenh. If the spasmodic closure of the eyelids have continued long and severe before the surgeon has been called, add to the

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Another boy was brought to me on account of a wound of the eye, received on leaping through a thorn hedge. On examining the eye, the point of a thorn prickle two lines in length was seen lying in the anterior chamber, which was plump, and the wound of the cornea inflicted by the thorn was healed, but opaque. The point of the thorn was sticking slightly in the iris—its blunt end hung down to the bottom of the anterior chamber. The prickle was removed as in the former case, and with the same happy result. The escape of the lens in these two cases from wound and concussion, was singularly fortunate, either of which causes would have produced cataract. *Translator.*

poultices some Fol. Hyosciami; only beware that the poultice never becomes cold upon the eye, otherwise the spasm will not be removed, but rather increased and prolonged.

A cooling poultice of a drachm of the Tinctura Stramonii c. Aq. Distill. ʒiii has also been recommended for this spasmodic shutting; in such cases the spasm must have arisen rather from nervous than from inflammatory irritation.

Hot ashes, unslaked lime, powdered caustic, and mortar, must be carefully extracted from the eye by means of a pencil moistened with fresh butter or pure oil, and the three last mentioned substances in particular must not be attempted to be removed with water, because the lime thereby slaking, and the caustic spreading farther, would produce much more injury.

Crab-lice, which sometimes nestle in the conjunctiva of the eyeball, may be perfectly removed by streaking the parts affected with a salve prepared with Ung. Hydr. ciner. and some

Ol. Spicæ. A few hours after, when they are dead, they may be wiped away with a pencil dipped in grease.

Wounds of the eye and of its appendages, must be treated according to the rules given under the diseases of the particular textures. When all such external causes have been removed as much as possible, then the greater or less degree of inflammation of the eye, determines a more or less active anti-phlogistic treatment.

If the inflammation be very severe in degree and extent, if inflammatory fever arising from it be present, then general blood-letting, repeated when necessary, is urgently indicated; and here when we have to do respecting the existence of a most precious organ, it is even advisable to perform the bleeding in the temporal artery or the external jugular vein, and to a sufficient extent. In less severe inflammation of the eyes without fever, or when it appears to arise from the irritation of an external cause, and recedes as soon as this is removed,

leeches are sufficient, which, from three to ten or more in number must be applied on the temple, or under the internal canthus, and around the whole eye, only, avoid placing them too near to the eyelid, since afterwards considerable swelling and effusions of blood in the eyelids are often observed, which may increase the inflammation by their irritation. Bleeding also from the vena angularis, from eight to twelve ounces, is here very suitable, and even in very severe ophthalmia often produces very rapid alleviation of the symptoms.

When the conjunctiva palpebrarum et scleroticæ is affected and swollen, scarifications of it are of great use. However, this will be more particularly treated of under the inflammation of these parts.

If the ophthalmia arose from congestion produced by suppressed menstruation,* hæmorr-

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* Ophthalmia from such causes not unfrequently occurs periodically. Reil, Walther, and many others, saw women who got ophthalmia at every menstruation. See *Memora-*

hoidal or nasal hæmorrhage; then the extraction of blood will be best performed at the place in which the disease originated; hence leeches are applied on the labia pudendi, around the anus, or on the alæ of the nose.

An ophthalmia sometimes shows itself in infants as a consequence of difficult teething: in such a case, the gum over the advancing tooth should be divided by two incisions crossing each other. Certain benefit is not often to be expected from this. Leeches applied on

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bilia Clinica Medico Practica, vol. i. Fascic. 1. p. 53. Walther, a. a. O. S. 395.

In a troublesome case of ophthalmia from this cause, which I treated for several months, I observed that the blood-vessels had a peculiar lake colour, and that there was always found on the inner surface of the eyelid a quantity of a whitish looking substance resembling wet hair-powder. This substance was formed by some part of the secreting apparatus of the eye. The inflammation resisted every kind of treatment till the cause, the suppression of menstruation, was discovered. The menses were readily recalled by the Ol. Sabinæ exhibited in pills, when the ophthalmia disappeared as if by a charm. *Translator.*

the gum of the suspected tooth have even been recommended.

Along with the general and local bleeding, we must not neglect an anti-phlogistic diet, anti-phlogistic mixtures of nitre, lukewarm pediluvia, clysters, and rest of the eye by enjoining darkness of the patient's chamber, and the use of a green shade.

Fomentations of cold water, applied by means of linen compresses from four to eight ply thick, diminish the great heat and pain, and aid the cure considerably.

Sometimes a pure ophthalmia is combined with an œdema of the upper eyelid, in consequence of which a proper examination of the eye is rendered impossible; in this case two punctures with a lancet may be carefully made in the skin of the eyelid near to its edge, on which, after a bloody water has flowed out, the swelling decreases, and the necessary means may be better applied. *

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* James Ware.

Mild, pure ophthalmiæ often require no detraction of blood, for after the remote cause has been removed, we may use cold water or poultices of oxycrat,* or mucilaginous mild eye-waters,† by which they, for the most part, disappear in a few days.

When the inflammation has been partly subdued by the above-mentioned means, most oculists recommend poulticing the eyes with different emollients, for example, with loaf bread and milk, boiled with some saffron, or Flor. Verbasc. c. Croco orient., or the Capita Papaverum, and so forth. However, we must well consider that there are many persons so irritable, that their inflamed eyes cannot bear the slightest pressure, and in whom, therefore, in place of these poultices, we may use with

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* A mixture of vinegar and water.

† As the following, recommended by Reil:

℞. Muc. Sem. psyll.
—— Cydonior. a. ʒi.
Aq. Rosar. ℥ii. M.

great advantage emollient, anodyne, and moderately warm fomentations. Such poultices and fomentations may be repeated often daily, as every two or three hours.

As these poultices are very useful when preceded by sufficient bloodletting, so in like manner are blisters, which, however, when the phlogosis in the eye is as yet great, or when it is very irritable, must not be applied too near to the eye, *e. g.* on the temple, &c., because the blister in this case would not always act as a derivative or counter-irritant, but would rather increase the irritable state of the eye; on which account, apply the blister according as the sensibility of the eye is greater or less, either at a greater distance, for example on the arm or neck, or on nearer parts, as behind the ear.

Treatment of the second stage.—After the first stage has passed over, and a local debility of the vessels of the eye has commenced, the emollient poultices must on no account be continued, but recourse had to other remedies to be mentioned immediately.

Here the Tinctura Thebaica * is one of the most preferable medicines. It is used locally

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* Ware and Scarpa recommend that which is prepared according to the London Pharmacopæia of the year 1746. The formula is as follows:

℞. Opii Colati ℥i.
Cinnamonii.
Caryophyllar. Arom. a. ʒss.
Vin. Alb. Hispan. lbss.

Macera per hebdomadam sine calore, deinde per chartam cola. That this preparation may not so readily spoil, a twentieth or twenty-fourth part of spirit of wine may be added to it.

As it is by no means a matter of indifference which kind of tincture of opium is used locally in ophthalmia, and as the above-named celebrated oculists have found this preparation decidedly useful, † it were much to be wished that this tincture were found in every apothecary's shop.

† Ware, and many others, found the Tinct. Opii Simp. hurtful or useless in these cases, when the Tinct. Thebaica was beneficial; and Scarpa says in another place, p. 200, of the Laudanum liquidum, "those who substitute liquid laudanum to the foresaid tincture, are very much deceived!!"

The Laudanum liquidum Sydenham, so often mentioned in this work, is the same preparation as that formed by the recipe given above, with the addition of half an ounce of saffron. *Translator.*

by allowing a drop of it to fall between the eyelids, once or twice daily. It increases at first the pain and lachrymation of the eyes, and augments the number of blood-vessels when they can be seen, but these effects are soon followed by decided relief. In severe inflammations of the eyes, when as yet no evacuations of blood have been premised, this medicine proves injurious, and increases the inflammation.

Astringent applications can now for the first time be applied, when a sufficient anti-phlogistic treatment has been used, and a local debility of the vessels of the eye has commenced. They may consist either of eye-waters or salves.

If the inflammation become chronic, a decoction of willow bark, with or without some drops of Laud. liquid. Syd. is often of real service.

The inflammations of this stage often yield to the use of an eye-water composed of Plumb. Acet. Aqua Distill. seu Rosarum, with some

drops of Spt. Camphor., or to the use of the Aqua Ophthalmica Conradi.* In like manner solutions of sulphat of zinc and alum are frequently used.

Astringents in the form of salves are also used in pure inflammations, particularly, however, when the inflammation has become very chronic.

All these remedies will be more particularly considered under the particular forms of inflammation.

During the use of these medicines, restore the eye to its hitherto unnecessary, but formerly customary influences, according to its existing state of sensibility; expose the eye therefore to the operation of free, dry, warm air, and if the inflammation advances to suppuration, let the eye have as much light as it can pleasantly bear, and let it be employed with

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* ℞. Mercur. Sub. Corr. gr. i.
Laudan. liquid. Sydenh. ʒiii.
Aq. Rosarum ℥vi. M. solvendo.

the observation of agreeable objects, and so forth. This will contribute much to a healthy suppuration.

If the suppuration extend, or if a bad ichorous suppuration take place, then it becomes highly necessary to assist by art the powers of restoration, so as either as soon as possible to bring about a healthy suppuration, or to limit it when too great. This is accomplished by the local application of tonic medicines, particularly volatile ones, suited to the debility of the eye, and by gradually giving up their use as soon as the unfavourable is changed into a favourable suppuration.

Use also dry warmth when necessary, with the addition of camphor, also bags of aromatic, dried herbs with camphor, warm poultices of crumb of bread and aromatic herbs, and of pulp of apples. Moist poultices, however, must never be allowed to become cold upon the eye.

If small ulcers exist upon the eyeball itself, the dropping into the eye and the bathing it

with a lukewarm solution of the Lap. Divinus, with the addition of some Laudan. liquid. Sydenh. is very efficacious. If a bad ichorous suppuration threaten to destroy the surrounding parts, some Acet. Plumbi is to be added to the solution. If the suppuration extend notwithstanding, the suppurating spots are to be smeared over once or twice daily, according to the degree of danger, with the Laud. liquid. Sydenh. In the most urgent cases the Laud. liquid. may be mixed with some Balsam. Vit. Hoffm., vitriolic æther, or Peruvian balsam in small proportions, only these means must not be used to excess, otherwise fleshy excrescences form, which when actually present must be destroyed by caustic or burnt alum. All other changes of structure arising in the first stage, are never to be treated with escharotics so long as the suppuration continues, and those abscesses only which lie too deep to allow a hope of their opening of themselves, may in this stage be opened with a lancet at their most depending part.

If a suppurative fever attend the suppuration, a nourishing diet is to be prescribed, with volatile stimulating medicines, *e. g.* Calamus Aromaticus, Camphor, Æther, &c. Let bark be given, and produce a derivation of the diseased tendency from the eye, by means of rubefacients applied at a little distance from it.

OF

THE DISEASES

OF THOSE PARTS WHICH SURROUND THE EYEBALL.

A.—OF THE DISEASES OF THE EXTERNAL COVERINGS OF THE EYES.

OF PURE INFLAMMATION OF THE EYELIDS.

CLASSIFICATION.—Inflammation of the eyelids is differently classified, according as all the parts of the eyelid are inflamed at the same time, or only particular parts of it; for, if all the textures which belong to the eyelid are attacked at the same time, it is then treated of under the appellation of General Pure Inflammation of the Eyelid, Blepharophthalmitis; if again the superficial parts only of the eyelid

are affected, it is called Blepharophthalmitis Erysipelatosa; or if the superficial parts only which lie over the lachrymal sac be inflamed, it is called Anchylops Erysipilatosa. If however the palpebral glands be the principally affected parts, then the inflammation will be considered under the name of Blepharophthalmitis Glandulosa, under which is included very properly the Ophthalmia Neonatorum; and lastly, if only a small part of the eyelid elevates itself into an inflammatory swelling, this circumscribed inflammation is called Furunculus Inflammatorius, or Hordeolum.

General Pure Inflammation of the Eyelids. Blepharophthalmitis.

There takes place at the edges of the eyelid a deep red, tense, very painful and hot swelling, which is extremely sensible to every touch, and which gradually extends over the whole eyelid, but becomes evidently bounded at the

edge of the orbit. The patient and even the surgeon feels a pulsation in the eyelid. The eyeball and nose become remarkably dry, and the eyelid can only be moved with the painful sensation as if foreign sharp-pointed bodies lay under it; the patient has also a feeling of dust in the nose, which is often so strong, that he must sneeze frequently, which is always accompanied with a considerable increase of pain and an extension of it into the eye and head, and is also attended with sensations of light in the eye, *Photopsia.*

An inflammatory fever often accompanies these symptoms, in which case the disease has reached its acmé.

By degrees the redness of the swelling increases, and becomes brownish or bluish red. The swelling enlarges, assumes a conical shape, and becomes softer and less painful. The pain becomes irregular, lancinating, burning, and is now only pulsating in the deep parts. The powers of secretion and excretion, which were at first suspended, are again restored, when

a sense of coldness and weight is felt in the region of the eye. The point of the swelling becomes pale red, yellowish, and soft, and matter is distinctly to be felt.

As a cause of this general inflammation of the eyelids, Professor Beer has hitherto only observed slight wounds.

The PROGNOSIS in the first stage is favourable, when it is properly treated at the very commencement; the inflammation will disappear, the use of the eyelid will return, and it will never go the length of suppuration. But if the inflammation be ill treated, and fever supervene, then gangrene or suppuration readily takes place. If gangrene have already commenced, then the patient may be thankful if he loses only the external parts of the eyelid, in consequence of which an Ectropium or Lagophthalmus remains permanently. If a healthy suppuration take place, and form no fistulæ, particularly in the lower eyelid, a good cicatrization will for the most part ensue, which will not impede the movements of the eyelid. If how-

ever the suppuration should, from neglect, proceed to a bad ichorous suppuration, then in consequence of the loss of substance occasioned by it, there may very readily supervene adhesion, contraction, or total destruction of the canaliculæ lachrymales, and a consequent stillicidium lachrymarum, prolapsus of the upper eyelid, and eversion or inversion of the eyelid.

So long as an active inflammatory state of the eyelid is present, and the disease is as yet local, apply poultices with cold water or oxycrat. If however inflammatory fever be already present, adopt a general and local anti-phlogistic treatment, according to the degree of inflammation and kind of constitution.

If the surgeon now perceive that suppuration can no longer be averted, he ought to promote it on the principles already laid down in the section on Inflammation of the Eyes in General. If an abscess forms, and if it be in the upper eyelid, it will generally open spontaneously, without injury to the future form of the palpebra. If it form in the angles of the eyelids, or in the under eyelid, it must be open-

ed with a lancet in the course of the fibres of the orbicularis muscle. When fistulæ are already present in the eyelids, it then becomes necessary, as is already sufficiently known in surgery, sometimes to form counter-openings, sometimes to enlarge them by the knife, or when this is not necessary, by prepared sponge. Injections, and pressure on the wounds, when practicable, must effect the rest of the cure.

Should gangrene have attacked the eyelid, the patient may be allowed a nourishing, easily digested diet, and let him have volatile and permanently stimulating and strengthening medicines, as calamus, old wine, bark, and so forth. Externally may be applied poultices of willow or oak-bark, mixed with spirituous fluids, also Jesuits' bark; for example the following, by Le Febure:

℞. Cort. Chin. ʒi.
Salis Ammoniac. ʒii. coq. c.
Aq. fontan. ad Colatur. ℥viii. adde.
Camphor. ℈ii.
Spir. Vin. Rect. ʒi.

To be applied to the eyelid by means of linen compresses.

Pure Erysipelatous Inflammation of the Eyelids. Blepharophthalmitis Erysipelatosa, Œdema calidum Palpebrarum.

A pale, yellowish red, transparent looking, shining swelling, takes place on both eyelids, and spreads quickly and far, without defined limits, as well upwards on the eyebrows, as often even downwards on the half of the face. The redness disappears by pressure applied for a moment. By and by the swelling becomes very soft and watery on the edges of the eyelids. The pain is trifling, not pulsating, rather burning, tensive and lancinating when touched. The heat of the swelling is not great. The secretions and excretions of the eye, as well as the mucous secretion of the nose, are sensibly increased.

Here constitutional disorder arises only in consequence of bad treatment. If it has actually arisen, gangrene may readily supervene.

The symptoms of the first stage go thus far.

But when the heat and pain have decreased, and the redness and swelling augmented, an effusion of glutinous lymph appears on the diseased parts, which quickly hardens in the air and forms a kind of crust, or when smaller or larger vesicles are observed, which burst and pour out a coagulating lymph, then is the second stage commenced.

Whatever can induce erysipelatous inflammation on other parts of the body, may the more readily do so on the eyelids. The sudden effect of a cold current of air, or the quick suppression of sweat, is a chief cause. Also stings of bees, of wasps, and other insects, &c.

The PROGNOSIS is very good in sound robust habits, for the affection disappears for the most part of itself, without going into the second stage.

If the disease have already gone into the second stage, there remains in weak people a great disposition to relapses.

If such patients wash the crusts with cold water, an Œdema frigidum Palpebrarum read-

ily forms, which may induce various improper shapes of the eyelid. If the erysipelatous inflammation of the eyelids have from neglect, proceeded to a true Blepharophthalmitis, a kindly suppuration never takes place, the matter makes an exit for itself in many parts, through the skin already in part disorganized, and then commonly, ill-conditioned tedious ulcers arise, which may leave behind them many diseased consequences.

In erysipelatous inflammations of the eyelids which have arisen from the sting of insects, and when the sting has not been extracted, gangrene or even sphacelus often takes place rapidly.

In regard to the CURE, in the first stage poultices of cold water are sufficient.

If the first stage be already over, then dry warm air, dry warm compresses, or light bags of herbs,* in weak people, with the addition of

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* ℞. Flor. Chamomel.
—— Sambuc, a. part. i.
Farin. Fabar. part. ii. M.

camphor, are to be recommended. In such patients, the cure will be much promoted by the exhibition of diaphoretics, even of camphor.

If an actual abscess form, all the rules of cure of the second stage of pure Blepharophthalmitis will apply.

Pure Inflammation of the Glands of the Eyelid. Blepharophthalmitis Glandulosa, Blepharoblennorrhœa, Lippitudo. Purulent Inflammation of the Eyelid, Blear-eye, &c.

This disease has been loaded with many other names, for sometimes it appears in old women, and then it has been described under the title of Ophthalmia Vetularum;* sometimes it has obtained a name from particular symptoms, as Ophthalmia Serosa, when the eyes were swimming in tears, or Ophthalmia Sicca, when the

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* Reil, *Memorab. Clinic. Medico-Pract.* vol. i. Fasciculi. p. 3, &c.

degree of inflammation was so high as to prevent the secretion of tears.

Sometimes it has been confounded even with Ophthalmiæ, which have a specific course, *e. g.* with the Psorophthalmia, * with Scrofulous Ophthalmia, and with many others.

The pure Blepharophthalmitis Glandulosa shall alone be treated of here, which however readily complicates itself with cachectic diseases, in which case it is no longer pure, but deserves to be distinguished according to the name of the cachectic disease, as Blepharophthalmitis Glandulosa Scrofulosa, and so forth.

The disease appears in the following manner: The edges of the eyelids become affected with a bright red, hardish, sensible swelling, accompanied with itching in the canthi, or even in the whole edge of the eyelids, sometimes alternating with a sense of burning. The secre-

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* As Ware, *Chirurgische Beobachtun. über das Auge, übersetzt von Runde, mit vorrede und Anmerkung verschen von Himly,* 1809, I. Bd. Seite 79.

tion of tears is at the same time more or less increased; they are acrid, and redden and excoriate the cheeks. If the inflammation become gradually more severe, and extend over the conjunctiva of the eyeball, then the secretion of tears ceases, and the eye becomes dry; the patients in consequence believe they feel sand under the eyelids, which they do not venture to move, from fear of pain.

Thus proceeds the first stage, which sometimes passes over so rapidly that the surgeon does not observe it.

By degrees the dryness, the burning and itching of the eyelids diminish, the Meibomian glands begin to form mucus, by which the eyelids and ciliæ are glued together, the conjunctiva palpebrarum is swelled and very red, the angles of the eye, and often the whole edges of the eyelids, become excoriated, and give to this inflammation sometimes a strong resemblance to Psorophthalmia, the secretion of mucus also increases more and more, and grows more puriform. The disease has an exacerba-

tion three or four hours after dinner and supper, when the chylification has commenced.

By this time the edges of the eyelids are often as if eroded, galled, painful, and the excoriations spread always farther when the disease is left to itself.

A similar chronic oozing-out of puriform fluid, has been in former times described under the name of Lippitudo, as a peculiar form of disease. When again the angles only suffered from a similar discharge, it was called Lippitudo Angularis, Uncleanness of the Canthi, Lemositas; and if excoriations arose which corroded the canthi, this state was called Peribrosis, Perivrasis.

Often when, from favourable circumstances, the puriform secretion of mucus abates, the excoriation also disappears, yet an unnatural secretion of Meibomian mucus still remains behind, which may readily become habitual. But if this secretion of mucus be removed by art or accidentally favourable circumstances,

then the whole disease terminates with an unusual serous secretion.

The disease arises particularly in those who dwell in an impure corrupted air, also in tanners. It attacks every age and sex, only it is more commonly met with in the female than in the male.

Too bright light, bad indigestible dishes, and such like, may also conduce much to the production of the disease.

The PROGNOSIS is good when the inflammation is met with in the first stage, and when it is not too severe. This inflammation when pure does not go so far as to produce constitutional disorder, unless by improper management it have already advanced to a Bepharophthalmitis.

If a flow of puriform mucus be already present, a trichiasis may readily happen; and when at the same time considerable excoriations of the edges of the eyelids are present, an Anchyloblepharon Partiale may take place.

If the excoriations be particularly severe in the angles of the eyelids, and their commissures have become corroded, an eversion of the lower eyelid will commonly arise, which, as it occurs most frequently in old relaxed subjects, is named Ectropium Senile. If the flow of mucus from the eyelids be very strong, and be treated by too cold or too astringent eye-waters and salves, which may probably suppress it suddenly, a permanent weakness of sight may follow, particularly in very irritable individuals.

When the disease is met with in its first stage, it may be often suppressed in the bud by cold poultices of water, or a weak oxycrat. The noxious causes must also be removed as much as possible.

But when an actual secretion of mucus has taken place, we may use, according to Beer, a very weak solution of Sublimate, with Mucilage of Quince seed, and Laudan. Liquid. Sydenh., washing the eye with it from four to

six times daily, drying the eye carefully after each application.

℞. Merc. Sublim. Corros. gr. i. vel ss.
Aquæ Rosar. ℥iv.
Mucilag. Sem. Cydon. ʒi.
Laud. Liquid. Syd. ♈i. M. solvendo.

If excoriations be already present, or of some standing, then use the Ung. Ophthalm. Janini, which consists of Axung. Porcin. ℥ss., Tut. Præpar. Bol. Armen. a. a. ʒii., et Merc. Precip. Alb. ʒi.; only it is to be remarked, that the difference of individuals must be here considered, for if the eye be already in an irritable state, or if the patient have great sensibility, the proportion of the mercury and of the astringent substances must be diminished. As it is now known* that the white bole is the least

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* The immortal Adam Schmidt has treated of all this more particularly and in a superior manner, in the *Bibliotheca Ophthalmica*, published by the meritorious Himly, vol. iii. p. 63, 1st ¶.

astringent, the red a stronger, and the Armenian still more so, it will be well, at the same time that the white precipitate is diminished, to add at first in young irritable subjects and children, the white bole in place of the Armenian, and to smear only the size of a lentil seed of the salve on the eyelid once a-day. In such patients the following will suffice:

℞. Axung. Porc. ℥ss.
Bol. Alb. ℈iv.
Merc. Precip. Alb. ʒss.

Old callous people, on the other hand, bear very well the usual proportions of Janin's ointment.

There are however individuals who cannot bear the local application of mercury, nor are they benefited by unguents. In such cases have recourse to the Lapis Divinus of St. Yves.*

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* The mode of preparing it is as follows:
℞. Nitri Depurati.
Vitriol. Cærul.
Aluminis Crud. a. a. ℥viii.

Even in the use of this application the peculiarities of the patient must be considered; the more irritable the eye, and the longer the disease has continued, the less quantity must be dissolved in a certain proportion of water. At first ten to fifteen grains dissolved in six to eight, or ten ounces of water, and mixed with a drachm of spirit, is sufficient; it is to be gradually increased to thirty grains, dissolved in six to ten ounces of water, with the addition of Spt. Camphoræ. It is to be made always lukewarm, and applied by means of a fine sponge held over the eye, until the fluid entering it excites some smarting. It is to be used three or four times daily, and seldomer during the decrease of the disease.

The eye-water must never become cold upon the eye.

Sometimes when the excoriations of the edges of the eyelids, under the continuance of the

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Contrita et mixta fluant in crucibulo, quibus sub finem addatur Camphoræ Tritæ ℥ss. rite agitata refrigerantur.

most pernicious causes, and in old, relaxed, callous people, increase more and more, and terminate in larger or smaller ulcers, which obstinately resist all the above means, recourse must be had to the use of the Ung. Citrin. Pharmacop. Londin.* praised by James Ware, and in the worst cases even to the local use of the Lapis Infernalis, already recommended by St. Yves; the latter however must be used with caution. Commonly, however, these obstinate cases do not belong to the pure Blepharophthalmia Glandulosa, but are consequences of different cachectic diseases.

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* It is prepared in the following manner:

℞. Hydrargyri Puri ℥i.
Spirit. Nitri ℥ii.

Digere super arenam, ut fiat solutio, quæ calidissima adhuc misceatur cum Axung. Porcinæ liquefactæ et in coagulum denuo tendentis libra una, strenne agitando in mortario marmoreo ut fiat Unguentum. The edges of the eyelids are to be rubbed once daily with this ointment, before going to bed.

Inflammation of the Eyes of New-born Children. Ophthalmia Neonatorum.

The Ophthalmia Purulenta, Oculus Purulentus of Ware, Clap of the Eyelid and of the Eye, Blepharoblennorrhœa, Ophthalmoblennorrhœa of Adam Schmidt. Also known by the name Ophthalmia Puriformis, Lippitudo Neonatorum, Blear-eye of new-born children.*

Symptoms of the disease.—At the third, sixth, eighth, fourteenth day, or even later† after the birth of the child, this often quickly destructive inflammation commences with aversion to light, with a slight redness of the conjunctiva palpebrarum, particularly at the inner

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* This inflammation is considered here as a variety of Blepharophthalmia Glandulosa. It may be either pure or specific.

† Walther.

canthus,* and with an itching of the eyelids, which are covered with a glutinous mucus, that hardens and glues the eyelids together. If they are opened, tears trickle from the eye. At the same time the palpebral conjunctiva is more or less affected with swelling, which is at first soft, somewhat elastic, smooth, and bleeds readily.

The aversion to light and the secretion of mucus are now greater; the mucus acquires a more puriform appearance, becomes thicker, and yellowish. The swelling of the palpebral conjunctiva, particularly of the upper eyelid, as well as the redness, increase, and give it (according to Saunders) the appearance of a finely injected fœtal stomach. Also the epidermis of the upper eyelid acquires a redness, which when the children stretch themselves or cry, verges to a livid colour, during which, at the same

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* See a *Treatise on some Practical Points relating to the Diseases of the Eye,* by the late John Cunningham Saunders, Lond. 1816, p. 37.

time the muscles of the eye push the eyeball forwards. If, after having softened the glued eyelids with lukewarm water, the eye be now opened, there passes out from between the eyelids, according to the greater or less severity of the disease, more or less of a whitish, sometimes yellowish, sometimes greenish-yellow mucus, often mixed with streaks of blood, or in bad cases with an ichor which, resembling the washings of flesh, is often so copious as to cover the whole cheek. The eyeball is now frequently, so covered over with mucus, that its external tunics cannot be distinguished. If the eye be cleared of the mucus as well as possible, and if only Blepharoblennorrhœa be present, the conjunctiva-bulbi will be found very little reddened; the conjunctiva palpebrarum, on the other hand, will be found very red, swollen, and loaded with matter. If the inflammation be more violent, and Ophthalmoblennorrhœa be present, then the conjunctiva-bulbi is also very red, and already so much swollen, that it almost entirely covers the cornea, the

centre of which can with difficulty be discovered. When during these examinations of the eye the infants cry much, and endeavour to close the eye, it not unfrequently happens that the upper eyelid, which is now much swollen and fleshy, becomes everted, and a permanent Ectropium remains, if the eyelid be not immediately replaced in the manner to be described hereafter.

Afterwards, the secretion of puriform mucus ceases by degrees, and a secretion of pure mucus comes on, and at last the whole disease goes off with a flow of tears. If the diseased action has been extensive, but has not penetrated deeply, then at the termination of the disease there only remains a muddiness of the cornea, which not unfrequently disappears afterwards spontaneously. If however the inflammation have been very severe, and the secretion of puriform mucus considerable, then the cornea exfoliates, is converted into a mass of matter, which at last bursts in the centre, either suddenly, under severe pain, or slowly without

pain, and the aqueous humour being now discharged, the iris comes to lie in the aperture. Should the ravages proceed farther, the iris may even at last fall out of the eye, along with a greater or smaller part of the vitreous humour, and complete colliquation of the latter ensue. The disease does not always stop here, for even in less destructive degrees of this affection, the children often continue afterwards imperfectly nourished, and become atrophic.

If several ulcers take place in the now loosened texture of the cornea, if they penetrate deeper, and destroy in different places the innermost lamellæ of the cornea, then the aqueous humour flows out, and the iris penetrates through the holes and exhibits a Staphyloma racemosum.

If at first the one eye only be affected, the other follows soon afterwards.

Sometimes before the secretion of puriform mucus has as yet increased to a great degree, either in the Blepharo- or in the Ophthalmo-blennorrhœa, a pretty smart hæmorrhage from

the eye appears, which often returns two or three times, and which must be welcomed by the surgeon, for if the blood have the natural appearance, then the secretion of puriform mucus becomes afterwards less severe and destructive, and the swelling of the affected parts rapidly declines.

Causes.—Young, weakly, newly-born children, twin children, children born three at a birth, children in foundling hospitals, in lying-in houses, and those who live in bad, damp habitations, become most readily attacked by this disease. Children who, during birth, have been infected in consequence of the mother having Fluor Albus, suffer also this inflammation; if the Fluor Albus was of a venereal nature, the suffering for the most part attains an exceedingly severe degree, on which point the observations of great men, as of Ph. Fr. Walther, Adam Schmidt, Scarpa, and others, agree. In like manner children who, immediately after birth, are exposed to cold, to a current of air, or to the effects of a bright light, who are scan-

tily nourished, who are scrofulous, who are exposed to cold during the presence of measles or of scarlatina, are not unfrequently subjected to the disease.

Also in weakly adults of both sexes who live in polluted air, and who are ill nourished, a Blepharo- and Ophthalmoblennorrhœa not unfrequently are met with, which however never run their course so rapidly and destructively as in new-born infants, and which are much modified by the habit of the patient.

Prognosis.—When the disease has consisted only in a Blepharoblennorrhœa, the prognosis is very favourable, for if the inflammation leave bad effects behind it, they for the most part consist only in a dimness of the cornea, which can be removed, or even disappears spontaneously, or they may consist sometimes in an eversion of the upper eyelid, Ectropium.

When however Ophthalmoblennorrhœa has taken place, and the cornea has become perforated even in a small point, there readily remains a partial adhesion of the iris with the

cornea, Synechia Anterior, along with a more or less extensive cicatrix, which sometimes entirely destroys the sight. If, during the inflammation, either the greatest part or the whole circumference of the iris have become adherent to the cornea, even though the cornea be not perforated, then in the first case a partial, and in the second case a total staphyloma of the cornea takes place. If however colliquation of the whole bulb have taken place, then there remains an ill shaped, small, whitish stump in place of the eyeball; the eyelids fall inwards, and the opening of the eyelids remains for ever closed.

Cure.—If called at the commencement of the disease, which is rarely the case, the antiphlogistic practice must always be had recourse to, and more or less actively employed according to the degree of the disease and constitution of the patient. One leech may be applied at the inner canthus over the lachrymal sac. The disease may be often cured without this, if

only poultices of cold water be immediately used. *

At the same time remove all causes of the disease, and consider the mother's milk when good as the best nourishment for the infant. If disorder in the bowels be present, as retention of the meconium, order a gentle laxative. †

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* Saunders, a deceased English surgeon, and one of the latest writers on this subject, was more bold in the use of the anti-phlogistic cure. He applied leeches around the eye, and allowed them to bleed afterwards until the child became pale, so that the topical bleeding operated also as a general one. Within twenty-four hours the danger to the eye was already on the wane, on which, he gradually proceeded to the use of gently astringent medicines. He rejects the scarifications of the conjunctiva recommended by Ware, Reil, &c., because they injure the eye too much, and do not procure a sufficient evacuation of blood.

† A mixture of magnesia and rhubarb with some liquid is given by most surgeons. Beer and others recommend, at the commencement of the disease, a strong purge of calomel and jalap; Saunders, when he finds the rhubarb and magnesia too weak, gives rhubarb with calomel.

If the secretion of mucus increase and become puriform, the eye must be cleaned from the superfluous mucus by frequently washing it out, or cautiously syringing it by means of Anel's syringe, with a warm eye-water,* after which the eye should be carefully dried with a warm cloth, and lastly covered with a compress

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* For this purpose, the following solution recommended by Saunders is suitable:

℞. Zinci Sulphat. gr. i.
Aq. Distill. ℥i.

To which some Quince Mucilage may be added. The following mixture by Adam Schmidt (*Ophthalmolog. Biblioth. von Himly und Ad. Schmidt,* III. Bd. 2 st. S. 107.) is also used with advantage:

℞. Aq. Distill. ℥x.
Vitriol. Alb. ℈i.
Ext. Saturn. ʒss.
Spt. Camphor. ʒii. M.

For washing the eye two to four times daily. When the secretion of mucus is so profuse that the washing out with the solution must be performed every two or three hours, then the proportion of the ingredients to the water should be reduced one half. On the contrary, this eye-water must be made stronger when an older child or an adult is the subject of treatment.

rubbed over with camphor, or with a little bag of herbs.

In the stage named Suppurative, and when ulcers present themselves on the cornea, the introduction of the Laudan. Sydenh. into the eye once or twice daily, is of essential service.*

If the flow of puriform mucus diminish

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* In place of the Laudan. liq. Sydenh. Ware, Schmidt, Reil, and many others, use Bate's liquor, which is a strong astringent, and soon diminishes the secretion of mucus. It is composed as follows:

℞. Vitriol. Cærul.
Boli. Armen. a. a. ℥iv.
Camphor. ℥i. M. ft. pulvis.

An ounce of this is to be thrown into four pounds of boiling water, then removed from the fire and allowed to settle. For use, a drachm of this fluid is mixed with two ounces of well-water. Beer has seen no benefit from this liquid, and Saunders never used stronger astringents for the Ophthalmia Neonatorum than the already mentioned solution of zinc, or a solution of from two to six grains of alum in one ounce of distilled water. With these two local means he succeeded always, and cured the disease for the most part in fourteen days or three weeks. He says, that stronger astringents often renew the inflammation, and increase the secretion of mucus.

under this treatment, and yet much thin whitish mucus continues to be discharged from the eye, or if the conjunctiva has a granular appearance, then the salves of mercury,* with or without styptics, and laying aside all eye-waters during their use, will show their powers, and remove the disease for the most part within a few days. Slight remaining opacities of the cornea, as already stated, often disappear of themselves, but their removal may be accelerated by the careful use of Janin's salve.

To prevent an Ectropium, the eye must be opened as little as possible, and only with the greatest delicacy, and never in children when they are in the act of stretching themselves, of yawning, or of crying.† If however an eversion have already taken place, the palpebra

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* As the Janin's ointment, or a simple mixture of ointment with Merc. Precip. Rub.

† I have never seen any harm arise from opening the eyelids, which I do daily to ascertain the state of the cornea. *Translator.*

is to be replaced immediately, according to Schmidt, in the following manner:—after having smeared the points of the forefinger and thumb of both hands with fresh unsalted butter, the tarsus is to be laid hold of with these fingers, at the external and internal canthus, and stretched slowly a little upwards, and then quickly downwards. If the swelling of the conjunctiva be great, hard, and granular, the thumbs must be more pressed in the middle of the eyelid when the replacement will succeed. If it do not succeed, the termination of the inflammation must be waited for, and the ectropium treated as a disease consequent to it.

So much in regard to topical means.

In regard to general treatment in the blennorrhœal stage of the disease, when the powers of puriform secretion flag, and the object is to excite the powers of reproduction, Calamus Aromaticus, or Bark, with Opium and Æther, must be given. In children a month old, six grains of Extract of Bark, mixed with the

child's food, has been given every four hours, with the greatest advantage. *

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* *Note of the Translator.*

In this populous city, I have many opportunities of treating this frequently formidable disease in all its stages. The proportion of the lower orders of society in this, as in all other manufacturing towns, is very great, in whom the predisposing causes arising from bad lodging, improper diet, filth, carelessness, and debilitated scrofulous habits, are in powerful, extensive, and constant operation. Several children of the poor, and even of the middle ranks, are brought to me every year with the cornea sloughed, and the little patients irremediably doomed to permanent blindness. In the most of such cases, I have discovered that this formidable event has been the consequence of midwives and nurses assuring the parents that the complaint was not at all dangerous, thus causing a ruinous delay before they have recourse to proper medical aid. That this complaint sometimes exists in so very slight a degree, as hardly to merit attention or treatment further than many old women can afford, cannot be doubted, but in all cases when it has assumed its decided form, no nurse should for one day be trusted with the treatment of a disease so fraught with danger to this precious organ.

From the many miserable victims to this disease which come within my notice, I conceive it a duty which the

teachers of midwifery owe to mankind, to impress this circumstance on the minds of their pupils, whether males or females.

If the inflammation be merely confined to the eyelids, (Blepharoblennorrhœa,) the disease may continue long of a very formidable aspect, with a profuse discharge of puriform fluid, without causing any serious mischief to the organ, provided the nurse do nothing else than keep the parts clean by washing with tepid milk and water. But the great cause of misfortune is, that the nurse cannot know, in consequence of the great swelling of the parts, whether the inflammation has not already extended to the conjunctiva bulbi, and to the cornea, (Ophthalmoblennorrhœa,) where, in the space of forty-eight hours, it often works incurable mischief. The exact state of the bulb when the eyelids are thus much swelled can only be ascertained by the surgeon, and I have always been able to accomplish this, however great the swelling may have been, either by the fingers alone, or by the gentle use of Pellier's Speculum.

I have seen one case in which the disease commenced so late as the twenty-first day, and I have met with only three cases in which it affected one eye only.

In regard to the causes of this affection, I am inclined to suspect, in the great majority of cases, inoculation with Fluor Albus. The mothers of patients affected with this disease will at least generally be found the subjects of this discharge. The other alleged causes, in so far as I have been able to observe, are much less frequent.

As to the treatment, there is no doubt in my mind that a

decidedly anti-phlogistic one is the best, provided the disease be met with in the first week, and I have often witnessed, in the Infirmary for Diseases of the Eye, in Charter-House Square, London, first instituted by Saunders, the efficacy and advantage of his very active plan of treatment, as mentioned above. If, however, the disease be not met with till the second or third week, which is by no means uncommon among the poor, then, in place of leeches, the bleeding caused by which in new-born infants is sometimes really alarming, unless the surgeon be in attendance, I almost invariably practise scarification of the eyelids. That the bleeding in this way is either inadequate or irritating to the eye, is quite contrary to my observations. In all operations on the eye, very much depends on the mode of performing them, and in none more so than in scarification of the eyelids. The child should be laid horizontally, and its head held between the knees of the surgeon. The eyelids, one after the other, should be everted, which is most readily accomplished, almost indeed without aid, on account of their swelled state, augmented by the crying of the child. One gentle stroke with the side of a lancet along the fleshy granular looking conjunctiva will now cause the blood to flow in profusion. The flow, however, will be almost instantly stopt, unless the eversion be continued by the surgeon's fingers for the space of two minutes, during all which time the crying of the child invariably forces such a profusion of blood into the whole capillary vessels of the head and face, that as much blood can be discharged in this way as will almost immediately give a check to the

disease. A second, third, or even fourth scarification on the succeeding days may be required, but this operation is so expeditious, so efficient, and so free of all danger, that it in my opinion far surpasses in utility the tedious, sometimes hazardous, and always troublesome plan of leeching. Even at the very commencement of the disease this plan will be found exceedingly advantageous.

Blisters have been too little recommended in this complaint. They are most decidedly advantageous after previous bleeding, and infants born even in the seventh month bear them well. Immediately after the first bleeding, a small blister, two inches square, may be applied on the middle and back part of the scalp. It will blister the part in eight or ten hours, when it should be removed, and many children hardly cry during its action. The blistered part should be dressed once daily with Ung. Pulv. Canth., but as soon as it causes the child to become fretful, it should be removed, and Ung. Resinos applied in place of it. In this way a flow of pus from the part will be excited in less than three days, and from the hour a flow of pus is obtained, the discharge and swelling of the eye begin to decline.

Now is the period for commencing astringents. When employed sooner they certainly do more harm than good. If after four trials of a weak astringent, decided benefit be not observed, I deem it a proof that it has been commenced too early in the disease. I find a solution of Argentum Nitratum, one grain and a half to an ounce of water, more efficacious than any other application, particularly when the cornea and conjunctiva are excoriated or

ulcerated. It should be applied only twice a-day, in which cases the intermediate washings of the eye should be made with tepid milk and water. With these three means, and the daily exhibition of a gentle doze of magnesia, all cases of the Ophthalmia Neonatorum in the stages prior to sloughing of the cornea, may be successfully combated. The salves recommended above, however, will be found very useful towards the end of the disease, applied once daily, in very small quantity.

The trials I have made of Bate's astringent, so strongly recommended by Ware, do not enable me to speak at all favourably of it, nor have I found so much advantage from the Vin. Opii, so greatly recommended by Beer in this affection, as I do from it in the declining stages of almost every other inflammation of the eyes. If the surgeon wish to vary his applications, the Zinc lotions recommended above, or a solution of four grains of Lapis Divinus in one ounce of water, dropt into the eye twice a-day, will be found very serviceable.

The Pure Stye. Hardeolum Crithe.

This circumscribed inflammation, which commonly has its seat in a Meibomian gland, often only in the cellular substance, is very seldom pure, for generally it is connected with cachectic diseases, particularly with scrofula.

In the first stage, a small circumscribed inflamed boil appears, with tension and severe itching on the edge of one eyelid, and by its increase of size hinders the movement of the eyelid; towards the end of this stage, the boil becomes dark red, hard, and more irritable. The swelling becomes more round, or bean-shaped, and in the latter case has reached its height, but it is always equally elevated, and glistening. The eyelids are more or less glued together during night.

In the second stage, the redness of the abscess increases quickly, becomes brownish-red, the swelling becomes conical, with a feeling of weight in the eyelid, and shows at its apex a

yellowish-red white point, which opens and emits matter, and then either immediately or after discharging for some days, the boil falls, and heals with a good cicatrix.

I can only adduce a pinch of the eyelid with a blunt pair of pincers, as a cause of this disease, of which I have seen only one case. Professor Beer met with it only in dirty drunkards of bad constitutions. However, a stye arising in this latter manner is not in every instance to be called a Pure Stye.

If the patient avoid the hurtful causes, the disease will, for the most part, resolve in the first stage.

If these causes be not removed in the second stage, then the suppuration readily ends in induration, and a hard, insensible, oval, scarcely reddened swelling remains, which is called Hail Stone, Chalazion, Grando, Lythiasis, Tophus, Porosis, &c.

To resolve this little inflammation in the first stage, apply often to the eye linen cloths, moistened with cold water or oxycrat, or make

use of poultices of ice, which prove often speedily beneficial.

In the second stage, the suppuration is to be promoted by poultices of crumb of bread boiled in milk, with the addition of much saffron. Also poultices of roasted apples are suitable. The abscess will soon open spontaneously, and by afterwards dressing with Empl. Diachyl. Comp. the disease will yield in a short time. It is to be carefully observed however, that the surgeon have resolved all hardness which existed around the swelling, before he heals the abscess, so that no Chalazion may form.

Pure Erysipelatous Swelling of the Internal Canthus. Anchylops Erysipelatosa.

This disease is not unfrequently confounded with an inflammation of the lachrymal sac.

Symptoms of the first stage.—This inflammation has, *upon this spot*, all the possible

characteristic marks which attend the Pure Erysipelatous Inflammation of the Eyelids, and it even extends, not unfrequently, more or less over the eyelids. As the inflammation attacks the lachrymal papillæ and canaliculi, the absorption of the tears is consequently suspended, and the lachrymal papillæ are shrivelled. So long as the lachrymal sac partakes not in the inflammation, the swelling in the internal canthus is not very hard; but if it partake in it, then by careful examination, a bean-shaped, hard elevation may be felt under the erysipelatous inflammation, and it even sometimes shows itself by a projecting redness, which however announces merely a severe inflammation in the anterior wall of the lachrymal sac. The lachrymal punctæ are now entirely shut, the lachrymal papillæ are shrivelled, the nostril of the affected side is dry and uncommonly sensible, so that a slight irritation excites severe sneezing.

Symptoms of the second stage.—Here also the principal symptoms of the second stage of

Pure Erysipelatous Inflammation of the Eyelids take place. The tears become again absorbed, and the caruncula lachrymalis throws out much mucus, by which it appears entirely covered. Even in the lachrymal sac a secretion of mucus occurs, and it may be pressed out as well through the puncta lachrymalia as the nose.

If the inflammation has been very severe on the lachrymal papillæ and canaliculi, the absorption of tears is not re-established in this stage, but there frequently remains for a long time, a considerable stillicidium lachrymarum from atony of these parts. If the lachrymal sac were much inflamed in the first stage, a considerable collection of mucus is found in it in the second stage; this mucus can neither be evacuated through the lachrymal puncta, nor through the nasal canal, but the superficial suppuration penetrates always deeper, and at last perforates the anterior wall of the sac, particularly when the disease is neglected; this forms a state which Professor Beer calls

a false fistula of the lachrymal sac, because the pus has not been formed in the lachrymal sac itself, nor made for itself a fistulous outlet, on the contrary, the matter has poured itself from without into the lachrymal sac. An abscess which does not penetrate into the lachrymal sac, but has its seat only in the caruncula and so forth, is named by Beer Ægylops Simplex, and he distinguishes it from the false fistula of the lachrymal sac, partly by the probe, partly by the mucus and matter, which flow out on the slightest pressure, and which generally appear mixed, but not blended with tears, and partly by the quantity of the fluid that issues, which in the Ægylops Simplex is much smaller.

Causes.—Much weeping in those who have a vulnerable cutaneous system, * and subse-

* People, particularly the pale complexioned, who have a fine, thin, reddish, glistening skin, in whom the cheeks are full of minute blood-vessels, are endowed, according to Ad. Schmidt, with a vulnerable cutaneous system. The skins of such patients become easily red, they are prone to erysipelas, and seldom bear the application of salves.

quent exposure to a cold current of air, often gives rise to this form of disease; moreover, the causes producing erysipelatous inflammation of the eyelids, are also causes of the present affection.

Prognosis in the first stage.—If the disease be simple, and properly managed, the prognosis is very good, for at most, a temporary stillicidium lachrymarum, occasioned by atony of the lachrymal papillæ, will remain, which will be chiefly felt in a cold air. If, however, the lachrymal sac be at the same time inflamed, the prognosis is much more unfavourable, for then a perforation of the anterior wall of the lachrymal sac often takes place, and by unguarded treatment a blennorrhœa of the sac may remain.

Prognosis in the second stage.—So long as the suppuration is superficial, the prognosis continues favourable; it becomes more unfavourable when an abscess forms, and most so when already a false fistula lachrymalis has been produced, for then, besides an obstinate blennorrhœa being left behind, there may also

remain an entire destruction of the lachrymal canaliculi, and an incurable stillicidium lachrymarum may be produced.

In the latter case the mucous membrane of the lachrymal sac must be destroyed, and the whole sac, so to speak, annihilated, to prevent with certainty another after-disease of the lachrymal sac, called Hydrops sacci lacrymalis.

CURE.—In the first stage, poultices of cold water and exposure to cold fresh air are the best remedies.

In the second stage the cure entirely corresponds with that of the same stage of erysipelatous inflammation of the eyelids, only, when the sac partakes in the disease, attention must be paid to it. Hence, if an abscess form, it must be soon ripened by poultices, and then never wait for spontaneous opening, but open it as soon as fluctuation is perceived, as the perforation of the sac will thus be best prevented. If the latter, however, have already taken place, the probe is to be used as little as possible, and the abscess is to be cleaned at

most once a-day, with Anel's syringe and lukewarm water, mixed with laudanum, and then some charpie, moistened with laudanum, is to be carefully introduced into the anterior part of the wound, so as not to hinder the healing of the aperture in the sac.

Of Wounds of the Region of the Eyes and of the Eyelids.

These must be treated with great attention, because otherwise they may not only leave behind them incurable deformity of the wounded part, but are even capable of disturbing the function of the retina, or of entirely destroying it.

Horizontal wounds of the skin on the forehead, when not far distant from the eyebrow, and if of considerable length, must be brought together quickly and carefully, otherwsie the integuments of the eyebrow sink down, and if a lengthening of the integuments of the upper

eyelid, or a sensible prolapsus of it (Blepharoptosis) does not follow as a consequence, the harmony of the features will be at least disturbed. If the wound be very large, if the patient have the custom of often knitting the brow, and if the skin in general be relaxed, the dry suture alone is not to be trusted to, but the wound must be united with at least two stitches, at the same time applying plaster and a suitable bandage.

Perpendicular cutaneous wounds of the forehead require only the dry suture and a uniting bandage.

Oblique cutaneous wounds of the forehead require, according to their direction, at one time the dry, at other times the bloody suture.

In all simple cutaneous wounds of the forehead, inflammation and suppuration must be prevented for both retard the cure, and can readily change the previously good suppuration into an ichorous one, in consequence of which, after a loss of substance has been caused, an ectropium of the upper eyelid, or rather an

inability completely to shut the eyelids, viz. a shortening of the whole eyelid, *Lagophthalmos*, will be often induced.

The PROGNOSIS of these cutaneous wounds of the forehead is favourable in obedient, quiet people, and becomes unfavourable, the more the wound is neglected, and the more untractable the patient is, for the superciliary nerve may be readily wounded, and a bad suppuration succeeding, may produce, after cicatrization, an amaurotic weakness of sight, or even complete amaurosis, in which the iris is immoveable, and the pupil is either uncommonly dilated or contracted.

Professor Beer ascribes this weakness of sight, or amaurosis itself, to the tearing and tension of the twigs of the superciliary nerve, caused by the bad cicatrix, and cures it by bold incisions in the region of the supraciliary foramen, penetrating to the bone.

This species of amaurosis, in cases of inconsiderable wounds, often appears for the first time when the wound is fully cicatrized; on

the other hand, in greater wounds it may take place immediately after the inflicting of the wound, when, it is not to be attributed to a tearing of the superciliary nerve, but to a concussion of the internal structures of the eye, or to a laceration of the retina.

It may be known that the amaurotic blindness is to be ascribed to a weakness of the eye produced by concussion, when there is no remarkable contusion or laceration in the site of the branches of the superciliary nerve, and when the iris of the half or entirely blind eye is perfectly motionless and extended in a high degree, in consequence of which the pupil is much contracted. If there be, moreover, an extravasation of blood in the chambers of the eye, or even, without this, if there be a deep pressing pain in the whole eye, and such a degree of sensibility that the eyeball cannot bear the least touch, and if at the same time the vision be so destroyed, as merely to leave the smallest sense of light, the surgeon will not err if he declare an actual laceration of the

retina, and prognosticate an incurable blindness. The appearances are very different in the eye when only a contusion, laceration, and imperfect division of the greater branches of the superciliary nerve have suddenly produced the amaurosis, for, even when the eye is blind, it yet retains in such a case a more or less distinct sensation of light, and although the iris be even motionless, yet the pupil is found not only very unusually dilated, but the iris much narrower towards the canthi than above or below, so that the pupil appears like that of ruminating animals, and the pupillary edge of the iris seems so reclined backwards, that the small circle of the iris is no longer observable.

If the amaurosis be the product of a contusion combined with dilaceration of the superciliary nerve, the above enumerated characteristic symptoms will be found mixed; only the iris will have nearly or entirely vanished.

From what has been said, it follows that amaurosis, succeeding wounds of the eyebrows, may form in four ways, viz. First, by powerful

laceration and extension of the larger branches of the superciliary nerve, when it is the consequence only of a bad cicatrization: in this case the amaurosis shows itself either during the formation, or soon after the completion of the cicatrix. Secondly, by mere concussion or actual laceration of the retina, and by displacement and dislocation of several other internal structures of the eyeball. In both cases the blindness manifests itself immediately after the wound, only in the first, it appears more as mere amaurotic weakness of sight, but in the second always as perfect amaurosis. Thirdly, by contusion and imperfect dilaceration of the branches of the superciliary nerve. Even here the amaurotic weakness of sight, more rarely perfect amaurosis, follows closely on the accident, yet never so quickly as in the foregoing case. Fourthly and lastly, by severe concussion of the eyeball and of its surrounding parts, and contusion and tearing asunder of the superciliary nerve at the same time;—here the amau-

rotic blindness arises in the very moment of the accident.

Wounds of the lower region of the eye may leave behind them not only amaurotic amblyopy, but even perfect amaurosis, when, namely, the nervus infraorbitalis is wounded, and the consequent irregular cicatrization presses upon and tears its branches.

By neglect of these wounds of the inferior region of the eye, ectropium or lagophthalmus is often produced.

The prognosis in all such wounds must be given with the greatest caution, and even declined so long as the extent of the wound has not been fully considered. Even when the greater or less severity of the wound has been certainly known, the prognosis must still be given with the greatest circumspection.

Very severe wounds of the upper region of the eye are the more serious, the more the wound penetrates the frontal bone, and the more concussion is connected with it; for some-

times such symptoms evince themselves after these wounds, as excite apprehension more for the life than the eye of the person injured. If the wound was accompanied with great force, it commonly shows its injurious consequence, not only upon the eye of the affected side, but upon both eyes by an amaurotic amblyopy, which seems to be produced by a powerful concussion of the anterior part of the brain, and by an atony of both optic nerves.

Here, also, the prognosis must be cautious, because the blindness often continues during life. If the amaurosis have arisen very quickly after the wound of the forehead, and yet have neither increased nor diminished since that time, if the patient never complain of headach in the region of the eyebrow, and the eye be bright, clear, and lively, if no one of the mental faculties have suffered, then there is well-grounded hope of the surgeon perfectly re-establishing the sight.

But if the weakness of sight always increase,

if the eyes meantime be irritated by the light, if the patient complain of severe continued headach in the region of the eyebrow, and if his faculties have suffered, beware of a favourable prognosis, for in such a case not only does a perfect amaurosis form, but there appear sometimes consequences, dangerous to life.

Intensely severe wounds of the eyebrows are often dangerous, particularly when the supraorbitory nerve is torn and dilacerated, and a severe concussion of the brain accompanies. There often remains a weakness of the Levator palpebræ superioris, *Atoniatonblepharon*, or an actual palsy of this muscle, *Blepharoptosis paralytica*, *Blepharoplegia*, or an actual palsy of the muscles of the eyeball, and a consequent prolapsus of the eyeball, *Ophthalmoptosis Paralytica*, or *Ophthalmoplegia*.

As almost all such severe wounds are more or less accompanied with loss of substance, and can seldom be healed by the first intention, the surgeon must so conduct the inflammation which follows, that the lost parts be as quickly

reproduced as possible by a healthy suppuration; on which account he must remove the splinters of bone which may be present, and if the patient be of a strong habit, and no contusions or extravasations of blood be present, he must avert all hurtful external agents by the application of warm, emollient, light poultices. If on the other hand contusions and extravasations be complicated with the wound, if the patient be old, and the powers which are necessary to the formation of good matter be declining, or if he be reckoned among the weak and relaxed, then in place of emollient poultices, let the surgeon rather make use of warm aromatic, vinous poultices, along with which may be advantageously used, particularly for example immediately after the wound has happened, the following mixture recommended by Le Febure, for sugillation of the eyelids:

℞. Sal. Ammoniac. depur. ʒss.
Aq. Distill. ℥viii.
Spt. Vin. Rect. ʒii. M. solvendo.

When an amaurotic weakness of sight has

arisen from a slight concussion of the eye, it will gradually disappear of itself, when properly treated according to the rules of surgery. But if along with the concussion of the eye there was also combined even a slight laceration of the retina, or a displacement of other internal structures of the eye, then, even with the most careful treatment of the wounded spot, the amaurosis will not disappear. If the blindness be caused only by a wound of the superciliary nerve, all its branches must be cut across, immediately after the wound has happened, by an incision down to the bone, for the operation will not always have a curative effect, if not performed till after the wound have cicatrized, and the amaurosis become more complete and of longer standing.

When only atony of the retina forms the ground of the amaurosis which may be present, the disease must then be treated as a local evil, which will be considered more fully and separately under the division of Amaurosis.

If after considerable wounds of the region of

the eyebrows, deformities of the upper eyelid remain, and if the wound be perfectly but ill cicatrized, they are for the most part entirely incurable; when such deformities are foreseen previous to perfect cicatrization, they may be often prevented.

Wounds of the *eyelids* may induce the same diseases, which wounds of the eyebrows and of the forehead produce, only they cannot give rise to the amaurotic state of the eye, unless they have been much mismanaged. These wounds are either penetrating or non-penetrating. The penetrating wounds of the eyelid readily leave behind them, when not properly treated, a slit in the eyelid, Coloboma. The prognosis is here very doubtful, and the more so the greater the loss of substance has been, and the more the eye itself has suffered from pressure, &c.

To heal non-penetrating wounds of the eyelids, the following rules must be observed. Remove whatever may be lying in the wound, as protruding parts of the orbicular muscle, then unite the wound (whether it lie in a per-

pendicular or horizontal direction) when more than one fourth of an inch in length, and in the upper eyelid, by both the bloody* and dry suture, and treat the patient with much general care, so that no eversion, prolapsus, inversion, or Lagophthalmos may follow.

In non-penetrating wounds of the under eyelid, the dry suture and a proper bandage are sufficient to produce reunion.

The treatment of penetrating wounds of the eyelid is the same with that of non-penetrating wounds, only the bloody suture must be still more frequently used even in the under eyelid.† The prognosis is here very various; fa-

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* Even superficial cutaneous wounds of the upper eyelid, whether oblique, horizontal, or perpendicular, must be stitched with the needle, because the powerful motion of the orbicular muscle would destroy the mere dry suture.

† Wounds dividing the commissures of the eyelids, and which may often cause an ectropium, must, when possible, be united with the bloody, or at all events with the dry suture.

vourable when no loss of substance is connected with the wound, and when the patient has immediately applied for aid, for in such a case, not only the form but the use of the eyelid may be again restored; unfavourable, when there is loss of substance, for then the patient must be contented with a partial restoration of the shape of the eyelid; the prognosis will again become still more unfavourable, when the slit of the eyelid, coloboma, is neglected, when it is not immediately stitched, and when the edges have become callous. In this case it becomes necessary to cut off the callous edge, in order to unite the slit. If loss of substance be combined with a slit in the eyelid, not unfrequently no reunion can be brought about; in such a case, the sight and form of the eye are gradually lost, for it is no longer protected from external agents, and is not kept properly moist. Palliative means, as mucilaginous eye-waters, may prevent for a short time this unfavourable result.

In order to apply the bloody suture on the

eyelid and cure a coloboma, (which is sometimes observed as a congenital disease,) the following circumstances are to be observed:— first, one stitch must be applied immediately above the tarsus, without, however, penetrating either it or the palpebral conjunctiva; the remaining necessary stitches are to be afterwards applied higher up. * After dry slips of English court plaster have been neatly applied between the stitches, the threads of the lowest stitches are to be fixed, by means of a plaster on the cheek, those of the highest stitches, in the same manner on the brow, so that the motions of the eyelid may hinder as little as possible the quick union of the wound.

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* Most surgeons, as Richter, Beer, Callisens, &c. recommended this, fearing that disfiguration of the eyelids might remain: sometimes a needle has been passed through the tarsus itself, (*e. g.* by Prof. Dzoudi,) and in this manner the slit has been cured to the very edge of the tarsus, without any disagreeable consequence. †

† *Siehe dessen Geschichte, des Clinischen Institutes für Chirurgie und Augenheilkunde auf der Universitat zu Halle*, 1818, S. 157.

Callosity of the Eyelid. Tylosis, Pacheablepharosis, Pacheablephara, Pachytes.

An equable, or uneven, knotty, very insensible, hard callous swelling of the edges of the eyelid, is the disease to be here treated of. For the most part it comes on after scrofulous inflammations of the eyelids which have frequently relapsed; relaxed, torpid and gouty patients are however also subject to the disease. A partial or total loss of the ciliæ, *Psilosis*, *Ptilosis*, is at the same time not unfrequently observed, which however nature can restore, because for the most part the bulbs of the ciliæ have not suffered.

The tylosis is in many cases very difficult of cure, particularly when a scrofulous or arthritic diathesis still continues, and when the disease occurs in old people; in such cases it may go on to scirrhus palpebræ. If the puncta lachrymalia have also become callous, insensible, and incapable of absorbing the tears,

which is often the case in old people, a stillicidium lachrymarum sometimes remains, even when the tylosis has been in a great measure removed.

After having paid as much attention as possible to the Scrofula or Gout, and when no œdema of the eyelid is present, we may, according to Graefe, * make use of the following lukewarm poultice:

℞. Pulv. herbæ Hyosciam.
—— ——— Cicutæ.
Farin. Sem. Lini. a. a. q. v. coque c. suffic.
Aquæ ad consistentiam Cataplasmatis.

Beer † very properly recommends warm poultices of Cicuta and Saponaria, with Camphor, which he employs in swellings of the edges of the eyelids, and continues them until they

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* *Repertorium augenarztlicher heilformeln,* Berlin, 1817, p. 55.

† *Lehre von den Augenkrankheiten,* Wien. 1813 and 1817, 2 B. S. 52.

become red and irritable. Afterwards, the use of salves of red or white precipitate, at first weak, and gradually made stronger, with or without camphor, but best without any styptic, will be found of great use. If these means prove ineffectual, then the Ung. Citrinum Pharm. Edinburg. (the preparation of which will be given in another place) will certainly complete the cure.

Hail-stone, Chalazion, Chalazosis, Grando, Lapis Palpebrarum, Lythiasis, Tophus, Porosis.

A hardened stye not advancing to suppuration, which is sometimes observed single, sometimes along with several other hardened, (often even recent) styes on the edges of the eyelids, and which exhibits a circumscribed, round, or bean-shaped, moveable, insensible and hardish swelling, is called Grando, Chalazion, and if this swelling contain a very hard, firm, some-

what stony substance, it is then known by the name of Lythiasis, Lapis Palpebrarum.

As all that can induce and keep up stye is also favourable to the production of chalazion, so here the scrofulous diathesis, or actual scrofulous disease, will generally be found present, which renders the prognosis unfavourable, particularly if several chalazions be present at the same time, and have been treated with escharotics; in which case they may sometimes proceed to a more or less extended induration of the eyelid, Scirrhus Palpebræ. Also the chalazions which we sometimes see originate in old, cachectic, filthy drunkards, may sometimes change by mismanagement into a scirrhus palpebræ. Chalazions with an uneven nodulated surface, which appear in people who suffer from malignant swellings of the glands, particularly in old maids, and after the cessation of the menses, may sometimes, after becoming discoloured and causing stinging, burning pains, advance to a cancerous ulcer.

The PROGNOSIS in chalazion however is very

favourable, if the scrofulous and other predisposing causes of disease have been removed.

In regard to the CURE, the following is to be observed:

First, if the chalazion be as yet small, if it lie immediately under the external integuments, and if it have not already advanced to induration of the eyelid, then its resolution may still be attempted. This is done by rubbing the small swelling, either between the fingers or by the topical use of the Balsam. Vitæ Hoffm., the Cologne Water, Æther with Tinct. Opii, or by Hartshorn and Tinct. Cantharidis. After each rubbing, the chalazion is to be covered with a plaster of Empl. Diachyl. C. et Emp. Cicutæ. By this the chalazion resolves, or inflaming, will be brought to suppuration, or it remains as it was, in which last case we must proceed to the most certain cure, viz. the operation, which consists in laying bare the swelling by an incision over it, taking hold of it with a hook and cutting it out.

For the cure of the malignant chalazion, escharotics were formerly used, which however do more harm than good; the excision of the swelling, removes the disease sometimes with much more certainty. If mammary or uterine cancer be present at the same time, and the affection of the eyelid be evidently connected with these diseases, it must for the most part be considered a noli me tangere.

Callosity and Cancer of the Eyelid. Scirrhus et Cancer Palpebræ.

Scirrhus of the palpebra consists in a circumscribed, very hard, immoveable swelling of the eyelid, often corresponding in colour with the rest of the skin, but often distinctly furnished with varicose vessels; so long as it continues benign, it is entirely free of pain.

Such indurations commonly originate from blows on the eyelid, from frequent relapses of

inflammation of the eyelid, from tylosis, less frequently from stye.

In regard to the cure, many surgeons have used narcotics, antimonials, mercurials and other means, for the most part without the smallest benefit.

Beer considers the real scirrhus of the eyelid to be a real noli me tangere, so long as it continues benign.

If external mechanical causes give occasion to inflammation of an induration of the eyelid, or if, without evident cause, in cachectic and other patients, continued, deep-penetrating, lancinating pains take place in the induration; if the swelling increase, if varicose vessels form more and more upon it and its neighbourhood, if the skin become discoloured, and at last a suspicious, varicose, livid redness show itself in the conjunctiva bulbi, if by chance fever also be added, then the surgeon cannot doubt the perfect developement of an occult cancer.

An actual cancer of the eyelid also sometimes forms from a wart-like fungus, or from a hard,

nodulated, small swelling or papula, surrounded with varicose blood-vessels, without being preceded by any scirrhus palpebræ.

The prognosis in this case is naturally very bad; and even the cure, which, according to the modern surgeons, consists only in complete excision of the suspected carcinomatous part of the palpebra, is dubious.

Of Carbuncle of the Eyelids.

This disease, sometimes supervening in the lowest and filthiest of mankind, and which commonly shows itself in the upper eyelid, consists in nothing else than an inflammatory furuncle, which proceeds to gangrene, and presents itself in the following manner. After a dark red swelling has formed under severe, burning, stinging pains, ash-coloured vesicles appear upon it, which burst, and soon change the swelling into a pit containing ichor; more frequently however no vesicles form upon the

swelling, but it terminates a few days after its commencement, or even sooner, in gangrene, and a cavity excreting an ichorous fluid. The cure is accomplished by external, and also on account of the importance of the affected parts, by internal means. On this account, let small scarifications be made through the mortified parts, make use of poultices of a decoction of bark with tincture of myrrh and camphor, and let mineral acids with bark be taken internally. By adopting this treatment, the cellular membrane, lost by the gangrene, will readily be restored by the granulation which follows.

Watery Swelling of the Eyelid. Œdema Palpebrarum, Leucophlegmatia Palpebrarum. Cutaneous Dropsy of the Eyelid.

Watery swellings of the eyelids are particularly observed after erysipelatous inflammations of the eyelids, after scarlatinous ophthalmiæ, and after the too frequent use of emollient fo-

mentations and poultices during different inflammatory affections of the eyes, particularly when these poultices are inadvertently allowed to become cold upon the eyes. They appear particularly in the upper eyelid, and are characterized by an unirritable, soft, pale, doughy swelling, in which the finger leaves a pit when pressed upon it.

Bags of aromatic, warm, dry herbs, with and without camphor, or gentle friction with flannel which has been well smoked with frankincense, mastic, or other aromatic resins, are sufficient to effect a cure.

When an ophthalmia in the acute stage is accompanied with a watery swelling of the eyelid, the above means are by no means suitable; if the inflammation be properly treated, the œdema will often disappear along with it.

Prolapsus of the Upper Eyelid. Ptosis, Lapsus Palpebræ Superioris, Blepharoptosis.

This disease is produced, First, by a relaxation and extension of the common integuments of the upper eyelid, and consequent folds of the skin, by which the energy of the levator palpebræ superioris is somewhat, but not very considerably diminished. The patient in this state cannot elevate the eyelid, at least not properly, it hangs over the cornea, yet the efforts of the levator may be seen if the patient in the first place, open the eyelid. If the superfluous skin which causes the ptosis be pinched between the fingers, without however dragging it, then the patient can open the eyelids, because the oppression of the superfluous folds of skin no longer prevents the levator palpebræ from showing its power.

The causes which in this case, produce the prolapsus, are, particularly, horizontal wounds of the forehead, swellings which have long kept

the skin of the eyelid upon the stretch; also, too long employment of emollient, and relaxing means, particularly in scrofulous ophthalmia, and in torpid people, &c. Sometimes ptosis palpebræ is congenital.

The best cure, is by the operation which consists in removing the folds of skin and stitching the wound. Cauterization with sulphuric acid, the hot iron, and other means, have also however been used with success.

The operation is best performed in the following manner:

After laying hold of, with proper forceps, which are broad at the point of the blades,* the relaxed skin of the eyelid, in such a way that the patient can properly open it, and perfectly shut it, the surgeon by means of bent scissors cuts away at one stroke the superfluous skin. The bloody suture is to be applied after the bleeding is stopped, with the addition of strips of plaster, on which account two stitches

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* See Beer, vol. ii. Plate of Instruments, fig. 1.

only are required, and thus the wound is to be healed quickly, and with the utmost possible care.

A second kind of blepharoptosis, arises from a relaxation of the levator of the upper eyelid, without any accompanying organic disease, Atoniatonblepharon, Atonia Palpebræ.

When both eyelids hang down over the cornea, the patient being unable to raise them, then the orbicularis palpebrarum is generally atonic, or paralyzed. With this paralysis of the eyelid (Blepharoplegia) there is combined a feeling of numbness, of disorder of the head on the affected side, and not unfrequently a degree of palsy and weakness in the neighbouring parts. In this state the eyelid is slightly swollen with œdema, and when raised by the finger sinks down again very gradually. The eyeball itself has moreover for the most part a dull appearance, the iris is sluggish, the pupil dilated, and the vision weakened or entirely destroyed. Sometimes the muscles of the eye

appear to be paralyzed even when vision continues, in which case they allow the bulb to fall as if it were out of the orbit, Ophthalmoptosis Paralytica.

The causes which may induce an atony or palsy of the eyelid, are different. It has often arisen from the too long continued use of emollient poultices during inflammation of the eyes, or from continued firm binding of the eye; it is often the consequence of an apoplexy, and is then commonly combined with palsy of other parts; sometimes it comes on also in chlorotic girls, and in general in relaxed subjects, without being attended with other evident causes. In rare cases, prolapsus of the eyelid has been observed to return periodically.

The CURE of blepharoptosis is often accomplished in the more slight cases by proper diet, dry air, a moderate use of spirituous drinks, and rubbing the eyelid with warmed flannel. In more obstinate cases, make use of frictions, with irritating means, *e. g.* with Spir. Serpilli,

Liquor Ammon. Caust., and Aq. Calcar. Ust, Tinct. Cantharid., or, according to Reil, with the following mixture:

℞. Olei Laur. ʒii.
— Mac. Exprim. ʒiss.
— Caryophyll. ℈i.
Bals. Peruvian. ʒii. M.

to be rubbed in upon the temple and eyelid. Shower baths on the back of the head are often efficacious.

In very obstinate cases galvanism may be made use of, or even the method of cure proposed by Adam Schmidt.* He applied between the angle of the lower jaw and the process mastoideus, a plaster, having in it an opening one inch in diameter, and covered this opening with a paste of Lap. Caust. and water. He laid over this escharotic paste a covering

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* *Neue heilung, der Augenliedlähmung, und des anhaltenden, Augenliedkrampfes. In den Abhandlungen der K. K. Med. Chir. Josephsakademie zu Wien.* 2 Bd. S. 365. *Auch in der Ophthalmolog. Biblioth. v. Himly und Schmidt.*

of plaster, and allowed it time to operate, for which purpose three to four hours are commonly sufficient. He dressed the black slough which forms, with digestive salve, and in six or eight days after, when it had fallen out, he kept up the suppuration thus produced, by dressing with the same salve, or if the ulcer required a stimulus, with the addition of Tinct. Cantharidis or red Precipitate. The intention of this practice was to irritate some nervous ramifications of the third branch of the fifth pair, lying near to the mastoid process, which are known to give twigs to the eyelid.

If the blepharoptosis have arisen from a general disease, then the latter must of course be treated according to the common rules; give internally, when necessary, stimulating medicines, as Arnica, Antimonials, Rad. Valerian or Caryophilat., and such like.

Cramp of the Eyelid. Spasmus Palpebrarum, Blepharospasmus.

Although this disease scarcely merits particular consideration, as it almost always appears to be a symptom or consequence of other diseases, yet I shall briefly notice it, so that in regard to Diagnosis, it may in no case be confounded with Ptosis Palpebræ.

Blepharospasmus is always an involuntary, suddenly arising contraction of both eyelids, for the most part periodical, and sometimes accompanied with pain, in consequence of which the external skin of the upper eyelid appears wrinkled, and the muscles surrounding the eye distorted. Sometimes hemicrania and deafness precede. During the spasm, even the surgeon finds a difficulty in opening the eye. When this cramp of the eyelid continues, it is called Blepharospasmus tonicus, which may often continue for a long time; if however it show itself by a continual spasmodic shutting and opening

of the eyelids, it is consequently clonic, and then this phenomenon is called Nictitatio Palpebrarum, blinking of the eyelid.

The causes of this cramp reside most frequently in general diseases, on which account it is found in hypochondriasis hysteria, chorea, cases of worms, in scrofulous ophthalmiæ, &c.

The treatment is to be directed according to the general disease. In very obstinate cramp of the eyelid, the plan of cure of Schmidt by caustics, as mentioned under Blepharoptosis, is of great use. In like manner, moxa or blisters applied at a greater or less distance from the eye, afford sometimes speedy benefit.

If the cramp have been caused by foreign bodies falling into the eye, the rules given for pure ophthalmia in general are to be followed.

Blinking is often congenital, often also it is the consequence of loss of the eyebrows, ciliæ, &c.

Want of Power to Shut the Eyelids. Lagophthalmus, Oculus Leporinus.

By this is understood that unusual state of the eyelid, in which for the most part the upper, less frequently the under eyelid, appears shortened, and on that account is not capable of covering the eyeball.

As causes of this deformity may be enumerated, not unfrequently a spasm of the Levator. Palpeb. super., or a relaxation of the eyelid, often also ill cicatrized wounds or ulcers of the integuments of the eye, accompanied with loss of substance. In rare cases a short eyelid is congenital. *

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* I have frequently met with lagophthalmus occasioned by a temporary palsy of one half of the face produced by exposure to a current of air. I have seen this disease continue from two weeks to twelve months, during all which time the eye could not be closed, on account of the paralysis of the orbicularis palpebrarum. I have accurately noted a number of these cases, and feel convinced that

The PROGNOSIS is often favourable, particularly when no organic diseases induce the affection. When however the shortening has arisen after considerable loss of substance of the palpebra, then, as the eye is exposed to all external injuries, ophthalmia, opacity and dryness of the cornea may result. If however the short-

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cold is the invariable cause, producing at first an inflammatory state of the pes anserinus, and perhaps in some cases, an inflammatory swelling and diminution of the caliber of the aquæ ductus Fallopii, causing consequent pressure on the trunk of the nerve. Pain radiates from the ear along all the branches of the nerve for some days; it then ceases, and perfect semifacial palsy follows. This disease is soonest overcome by antiphlogistic treatment for the first few days, then by applying a semilunar-shaped blister around the ear, and rubbing the paralyzed parts with stimulating liniments. The only description of this affection I have met with is in Duncan's *Annals of Medicine* for 1800. The paper is entitled, " De Paralysi Musculorum Faciei Rheumatica," by Nicolaus Friedrèich. The affection might be mistaken, by a careless observer, for palsy dependent on the state of the sensorium, and I have even seen it treated as such by a medical man of the first eminence in his profession. *Translator.*

ening be inconsiderable, the prognosis, at least in regard to the function of the eye, will be much more favourable, because in this case the eyeball will be but partially uncovered.

In regard to the CURE, spasm must be removed by antispasmodic means, and if relaxation have been the cause, it is to be treated by topical stimuli and tonics, during which, however, the general diseases from which the spasm and relaxation have sprung, are on no account to be overlooked.

If cicatrices of the integuments of the eyelid have been the cause, then, as in ectropium, an incision of the eyelid, and mechanical extension of the wound till healed, has been recommended, but a favourable issue has seldom been found. Professor Dzondi * has very lately made known a plan, by which he has already often removed the shortening or eversion of the eyelid; viz. after having loosened the cica-

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* *Beitrage zur Vervallkommnung, der Heilkunde,* 1816, S. 169.

trice, which is often immoveable in consequence of the shortened subjacent cellular substance, by means of frequently moving it backwards and forwards, and continuing this from four to eight weeks, it is then to be cut through perfectly and horizontally, and the cellular substance beneath is to be loosened with the knife, so that nothing may oppose the stretching of the wound. On the day of operation the wound is to be dressed dry, but afterwards with Ung. Cantharidis and Basilicon, commonly in equal parts, so as to excite, by means of this irritating salve, a strong granulation; this dressing is to be continued at least for four weeks, once in twenty-four hours, and the granulations which have shot forth are not to be allowed to heal until they project at least a line above the edge of the wound, and are sufficiently firm to retain the former wound extended, after cicatrization has taken place.

Inversion of the Edge of the Eyelid. Entropium, Introversio Palpebrarum.

This defect of the eye consists in such inversion of the edge of the lower or of the upper, or of both eyelids at once, that the external margin of the edge of the eyelid, which in the natural state stands off from the bulb, in this case directly touches it, in consequence of which, the ciliæ are at the same time so directed towards the eyeball that they touch its surface (trichiasis) and irritate it; they cause constant lachrymation of the eyes, and when the disease is neglected they readily induce chronic, destructive inflammation of the eyes,* and panniform opacity of the cornea.

The chief causes capable of producing entropia are relaxations or elongations of the external skin of the eyelid, also inflammations of different kinds which attack the tarsus, crumple

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* See Plate I. fig. 1.

it, and leave it as if it were in a kind of corrugated condition. Even without the tarsus being attacked, ophthalmiæ may become exciting causes of an entropium, when namely those afflicted with inflammation are constantly occupied in working with, and observing very small, particularly shining objects, during which they often find themselves obliged spasmodically to shut the eyelids. Also shortening of the inner surface of the eyelid by cicatrices, &c. or even swellings of the eyelid, not unfrequently excite its inversion.

When relaxation and lengthening of the external skin, or contraction of the internal membrane of the palpebræ, is the cause of entropium,* and the eyelid, by pinching up and making gentle abduction of its external skin, can be brought into a proper direction, it is then necessary to cut away the superfluous skin, and to heal the wound by the first intention, accor-

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* In the former case, the entropium commences with blepharoptosis.

ding to the operation recommended for ptosis palpebræ.* When the inversion is met with at its commencement in old relaxed people, and is of a paralytic nature, the local use of different stimuli, as of the Tinctura Cantharidis, &c. is serviceable.

If, however, the entropium have arisen from frequent, particularly scrofulous inflammations of the glands of the eyelids, which have caused a crumpling and curving of the tarsus, whereby the vitiated, reddened and swollen edge of the eyelid, cannot, by drawing or lifting up its external skin, be brought into a proper direction, but on the contrary always remains inclined

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* Entropia arising from slight relaxation of the skin from previous œdema of the cellular substance, are cured by Demours, (*Traité des Maladies des Yeux, avec des planches coloriées, representant ces maladies, d'apres nature,* à Paris, 1818, tom. 1. page 106,) by the already long known method of applying two or three slips of court plaster, with which the entropium is brought to a proper direction, and he asserts that he has sometimes cured the inversion in this way, in twenty days.

towards the eyeball, then the cure is very doubtful. Even the most celebrated oculists reckon this disease amongst the most incurable, and recommend, so as in some degree to save the eyeball, the tearing out those ciliæ that are turned in, because they irritate the eye, and favour the formation of a pannus. In place of this, a practice has been a short time ago employed in England, which I shall not omit to describe here.

Saunders, relying that the levator palpebræ superioris inserts itself in the integuments and conjunctiva of the eyelid, performed in the following manner the complete excision of the crumpled and bent tarsus. After he had introduced between the eyelid and the eyeball, a thin bony or silver plate, bent to the shape of the eyelid, so as to render it tense, he made an incision through the skin and orbicularis palpebrarum, in the direction of the tarsus, and immediately above the roots of the ciliæ, then exposed carefully the external surface of the tarsus, until its orbital edge was laid bare, he

then cut through the conjunctiva and lateral parts where the tarsus had still to be separated, without however wounding the puncta.*

The integuments and conjunctiva healed in a few days, yet in all the cases in which Saunders operated, a fungus of considerable size grew from the incision, which however could be removed by escharotics, though best of all by the knife.

A small cicatrix on the inner surface of the tarsus, sometimes causes a partial entropium, and the inverted ciliæ irritate very much the eyeball, in which case Saunders cuts out as much of the skin of the eyelid which lies in a faulty direction, as will remove the bulbs of the ciliæ belonging to this part.

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* Tab. I. fig. 2. represents the open eye deprived of its tarsus, and fig. 3. represents the closed eye.

Inversion of the Ciliæ, Trichiasis, Trichosis, and the Double Row of Eyelashes, Distichiasis, Phalangosis.

That disease which consists in a more or less irregular direction of the eyelashes towards the bulb, is called Trichiasis. This fault of the ciliæ occurring most frequently in the lower eyelid, either extends over all the ciliæ, (which however seldom happens, unless when trichiasis is the consequence of entropium,) or there are only some of the lashes turned in upon the eyeball, in which case the diagnosis is not always easy. The effect of the inversion of the ciliæ is a constant irritation upon the anterior surface of the eyeball, from which result not unfrequently lachrymation, pains with inflammation, formation of pannus, specks and ulcerations of the cornea.

When besides the regular row of ciliæ, there exists a more or less perfect row of pseudociliæ, which is turned in upon and irritates the eyeball,

the disease is called Distichiasis, Phalangosis; see Tab. I. fig. 4. The deviation of the regular ciliæ, in which some of them are bent forwards and others backwards, and thus form as if it were a double row, has also had the above name applied to it. The first kind, or proper distichiasis, occurs sometimes with the hairs growing from the conjunctiva bulbi, and other structures of the eye,* and is rarely met with,

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* Similar remarkable cases of production of hairs, in parts where commonly, hairs are never seen, have been described by many surgeons. De Gazelles (*Journal de Medicine*, tom. xxiv.) met with a hair which grew from the cornea, and always grew again after being extracted. Wardrop has seen hairs grow from excrescences on the cornea, and Himly from excrescences on the conjunctiva, (*Albinus Acad. Annot.* Lib. III. cap. viii.) and Morgagni observed them in the caruncula lachrymalis. In like manner, Demours (*Traité des Maladies des Yeux*) and others have observed hairs sometimes on the cornea, sclerotica, or other parts of the eye. Wardrop and Demours have painted such cases.

I lately met with a case, in which one exceedingly strong hair grew out of the conjunctiva lining the lower tarsus. It was directed perpendicularly towards the bulb,

so that many celebrated surgeons, as Scarpa, &c. have never seen it, and doubt its existence. Others again, among these Demours, have seen it more than twenty times, and Beer sees this disease at least once yearly.

Besides entropium, which is always accompanied with trichiasis, the latter disease has many other causes. Neglected scrofulous inflammations of the glands of the eyelids, psorophthalmiæ, and such like, which are accompanied with excoriations and ulcers of the edges of the eyelid, in a particular manner induce this disease. In such cases the edges of the eyelids become callous, cicatrized, and thoroughly misshapen; the ciliæ are consequently thrown from their natural direction, and not unfrequently obliged to grow at the inner margin of the edge of the eyelid. Sometimes however, the bulbs of the edge of

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and irritated it much. The natural ciliæ were of a light colour, the pseudocilia jet black, and double the strength of the common ciliæ. *Translator.*

the eyelid have grown properly, and the ciliæ only have become curved towards the bulb; this may happen not unfrequently in pure inflammation of the glands of the eyelid, in which there are no excoriations, ulcers and cicatrices, if the patients lie constantly on their face, with the ciliæ glued and crusted together.

The PROGNOSIS in trichiasis is favourable, when the cause does not consist in any deranged form of the edge of the eyelid. If caused however, by such a vitiation, a radical cure will rarely be practicable.*

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* Dr. Jäger, of Vienna, has lately proposed the following operation for the removal of complete trichiasis, caused by disorganization of the edge of the eyelid, and it has been already performed by him, repeatedly, with very favourable results. He fixes, with forceps, the external part of the edge of the eyelid near to the external canthus, and then cuts away, with a knife formed for the purpose, (for which however a good scalpel can be used,) the external margin of the eyelid which contains the roots of the ciliæ, commencing at the temporal angle. The incision must be so conducted as to reach, but not to wound, the tarsus. I saw this operation performed by Dr. Rossa, in the Cli-

The cure is performed by gradually * and frequently tearing out the faulty ciliæ by means of hair forceps, with which the ciliæ are laid hold of as near to the edge of the eyelids as possible, and then quickly extracted in a straight direction. If the direction of the bulbs of the ciliæ be regular, (which is generally the case when there are no disorganizations present in consequence of cicatrices, &c.) the ciliæ which soon grow, will resume their regular form. In all other cases, the extraction is only a palliative measure, but may sometimes become a radical cure, when the extraction is diligently persevered in. Callisens, Rowley, Beer and others, have seen the reproduction of the ciliæ and pseudociliæ cease, particularly in young people. The trichiasis

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nical Hospital of Professor Beer, in the year 1817, but could not wait for the result of the operation, on account of my journey to the south of Europe.

* In order to prevent too strong an irritation, from three to four only of the ciliæ are to be extracted daily.

which accompanies entropium can only be removed by curing the latter affection.

Everted Eyelid, Ectropium, Ectropion, Eversio Palpebrarum, Blear-eye.

This disease, occurring chiefly in the lower eyelid, consists in a turning outwards of the inner surface of the eyelid, see Table I. fig. 5, which besides producing a great deformity, for the most part also causes a stillicidium of tears if the ectropium be in the lower eyelid, because the gutter formed by this eyelid, and which leads the tears to the lower punctum, is wanting.

The cause of this disease, is often a shortening of the integuments of the eyelid produced by wounds, ulcers, &c., in which case, it not unfrequently appears along with an inability to shut the eye completely, (Lagophthalmus,) or the cause may be a lengthening and extension of the inner membrane of the eyelid,

from a soft and fleshy swelling, or by a general fungous state of this membrane, (Ectropium Sarcomatosum vel Luxurians,) which is often occasioned by a palpebral blennorrhœa, an ophthalmia gonorrhoica, by scrofulous ophthalmiæ, or even pure ophthalmiæ when they appear with great swelling of the conjunctiva. Sometimes a blepharophthalmia glandulosa pura gives rise to ectropium of the eyelid, particularly in old relaxed subjects, in whom the commissures of the eyelids become by degrees corroded; in this case it is called Ectropium Senile. That ectropium which occurs in old people, and is caused by a palsy of the orbicularis muscle, has the same name applied to it.

In those ectropiums which have arisen from cicatrices, and consequent shortening of the external parts of the eyelid, the prognosis is very unfavourable, the deformity being for the most part incurable. The same, nearly, may be said of the ectropium senile. The ectropium sarcomatosum, on the other hand, particularly when recent, admits of a much more fa-

vourable prognosis, and, even when of long standing, can for the most part be removed without much trouble.

The CURE, as already seen from the prognosis, is very uncertain when cicatrices of the eyelids produce the disease; horizontal incisions in the integuments of the eyelid, and drawing asunder the wound, so as to lengthen it, have been long since recommended, but no advantage has been found from this treatment. Parts of the conjunctiva connected with the ectropium have been cut out with more advantage. When practicable, the external cicatrices have also been cut out, and the wound allowed to heal during the proper replacement of the ectropium.

All proposed measures to soften and stretch out the cicatrices are of no avail.

In ectropium senile, from relaxation and palsy of the orbicularis muscle, when recent, the Oleum Fœniculi, or Tinct. Cantharid. &c., may be used; when the disease is already of

long standing, these, as well as the use of suitable internal remedies, as of Bark, Steel, &c., are of no avail.

Eversions which have arisen from wounds of the canthi must be reduced and treated according to the rules given in wounds of the eyelids.

In order to heal the ectropium sarcomatosum, when the disease is as yet recent, streak the still sensible fungus daily, with Tinct. Opii Simplex, to which is afterwards added, Æther Sulphuric., then proceed to the use of weak salves, with red Precipitate; exchange these afterwards for Lapis Infernalis, and lastly, for Butter of Antimony, in using which, the parts must be previously scarified, if they be entirely insensible. If the fungous conjunctiva be hard, horny, insensible, and of long standing, the hard swelling is to be drawn out as much as possible from the eyelid, by means of a hook, and to be cut away as clean as possible from the tarsus, without however wounding the latter. The eyelid immediately unites

in its natural position, inflames gently, and heals in a few days.

Adhesion of the Edges of the Eyelids to each other, Anchyloblepharon, and Adhesion of the Eyeball with the Eyelid, Symblepharon, Prophysis, Enothes.

The definition of these two diseases is given in the title.

There is a complete and an incomplete adhesion of the edges of the eyelids with each other, Anchyloblepharon perfectum et imperfectum. There is also an adhesion of the eyelid with the greatest part of the conjunctiva bulbi, Symblepharon perfectum, and an adhesion occurring only at particular points of it, Symblepharon imperfectum. Both kinds of symblepharon occur most frequently in the upper eyelid only.

A more important distinction exists, when the anchyloblepharon and symblepharon are

produced directly, or through the medium of a particular membrane; in the first case, between the edges of both eyelids, in the latter, between the eyelid and the eyeball, because this kind of intermediate adhesion must have much influence on the prognosis.

The least important distinction which has been made, is that between anchyloblepharon spurium et verum, the latter of which means an actual adhesion, the former only a glueing together of the eyelids.

The CAUSES which most frequently induce both diseases are especially of a traumatic kind; for example, burns from fire, quick lime, or concentrated mineral acids. Also, psorophthalmiæ attended with excoriation, sometimes leave behind them these adhesions. In rare cases the disease is congenital.

The PROGNOSIS depends entirely on the particular form of the disease, the greater the clearness in the perception of light, and the more partial the adhesions, the greater are the hopes of a cure, and, on the other hand, the

more the perception of light is obscured, and the stronger the adhesions are, particularly those which take place directly with the eyeball, the less are the hopes to be entertained from an operation, which is the sole method of cure.

Operation for Anchyloblepharon.—That the adhesion of the edges of the eyelids is not combined with symblepharon, is discovered by laying hold of the upper eyelid with the finger, and drawing it from the eyeball, and then causing the eye to be strongly moved; in this way the smallest adhesion of the eyeball with the eyelid will not only be discovered, but even its extent may be pretty correctly determined. Also, by means of a fine whalebone probe, the presence of symblepharon is readily discovered. That the cornea is not adherent to the conjunctiva palpebrarum, will be known by the clear perception of light, because the patient discovers through the eyelid weak degrees of light; it may also be ascertained by the probe. If the patient has not

even the slightest perception of light, then we may be convinced of a perfect adhesion of the cornea with the eyelid, and the operation would be useless. If, by the feel of the eyeball through the eyelid, the former be found in any way disorganized, and the perception of light be indistinct, nothing is to be hoped for from the operation.

In order to separate a direct union of the eyelids, the operator, whilst his assistant lays hold of the upper eyelid by a cross fold, and draws it upwards and out from the eyeball, and he himself, in like manner, draws the lower eyelid down and away from the eyeball, introduces a small blunt-pointed bistoury at the inner canthus, between the eyeball and the eyelid, in such a manner, that the incision may be carried slowly towards the outer canthus without wounding either eyelid. If the adhesion be through the medium of a membrane, then the incision must be carried along the edge of the upper eyelid, and the membrane attached to the lower eyelid be

afterwards cut away with a straight pair of scissors.

To prevent a reunion of the separated eyelids, the patient must if possible continue awake during the next night, wash the edges of the wound with Aq. Rosarum et Acet. Saturn., and frequently smear them with a salve of butter and tutia.

Operation for Symblepharon.—If the eyeball adhere immediately with the eyelid, the eyelids are to be pulled out as above, and by means of the small blunt-pointed and elastic scalpel of Leber, the union is to be destroyed rather by gentle pressure than cutting. If on the other hand the adhesion be formed by membraneous bands, these are to be first separated from the conjunctiva palpebræ, then laid hold of with a pair of forceps, and neatly cut away from the conjunctiva bulbi.

Should a relapse occur, which may be prevented by continual motion of the eye, the operation must be repeated.

Pulpy, Melicerous, and Steatomatous encysted Tumours of the Eyelids, and of the parts around.

The patient first observes a very small, soft, elastic, circumscribed, more or less moveable, insensible swelling in the upper eyelid, in the vicinity of the external canthus, near to the eyelid, or in very rare cases in the under eyelid, which does not retain the pressure of the finger, and does not in any way differ from the skin in respect to colour.

The *Pulpy and Melicerous* swellings often increase to the size of a small hen's egg, in which case fluctuation is felt, and they often contain a whitish substance which much resembles the cheesy part of milk. The *Steatomatous* tumours which always appear to form in the vicinity of the eyelid, and never upon it, only attain at most the size of a hazel-nut, and do not of course give the feeling of fluctuation. Those encysted tumours which adhere

to the tarsus are not in general moveable, yet they sometimes give a deceitful feeling of mobility, even when they have adhered firmly to the tarsus. In order to be perfectly convinced of this adhesion before the operation, it must be frequently attempted to move about the tumour gradually in the cellular substance, so as finally to bring it over the edge of the orbit, and as far as the arch of the eyebrow. If this do not happen, it is a certain sign that the sac has adhered to the tarsal cartilage itself, or at least, that it is seated under the orbicularis muscle, and not immediately under the skin. The operation, which is the only remedy, is to be conducted with a regard to this circumstance.

The prognosis in all these encysted tumours is favourable, and there remains behind only a small scar on the skin, when suitable aid has been timeously afforded. If the sac, however, have been awkwardly turned out or destroyed by escharotics, Ec- and Entropia, Lagophthalmus, crumpling of the tarsus, and other incur-

able forms of disease may readily remain behind.

The extirpation of the sac, and the cure of the wound by the first intention, is the most radical and quick remedy for all these encysted tumours. The more easily to perform this, the sac is to be made moveable by frequently shifting it about under the skin, some days before the operation; the skin over the tumour is then to be divided by a simple incision, which however must be more extensive than the tumour, so that the latter may be more readily turned out; then by means of a simple hook, the unopened sac, which is recognized by its whitish colour, is to be laid hold of without perforating it, and partly to be torn loose from the cellular substance and muscles by means of a Leber's knife, blunt and rounded at its point, elastic and cutting on its side; partly when this is impossible it is to be cut loose with the sharp cutting side of the knife, and the wound is to be afterwards healed by the first intention. But if the

tumour were adherent to the tarsus, and could not on that account be wholly extirpated, then a piece of charpie, moistened with warm water, is to be laid in the hole, and a strip of plaster laid over it, and it must be observed whether the remainder of the sac be thrown off by suppuration. If the suppuration be too weak, the charpie is to be first moistened with Laudan. Liquid. Sydenham., and afterwards with Unguentum Digestivum. If the bottom of the wound have now a clean red appearance, the charpie is to be entirely removed, so that it may heal.

If, in patients who are afraid of the knife, we be obliged to empty the contents of the tumour by a free cut in the skin, (a mere lancet puncture is not sufficient,) we must observe, at the first, whether the sac may not throw itself off by the subsequent suppuration, and whether it cannot be extracted by means of a forceps, either piecemeal or at once. If this cannot be done, on account of the thickness and firmness of the sac, let the escharotics now rendered ne-

cessary, be cautiously used, and observe generally in these encysted tumours, what surgery teaches of all such diseases, that there is in the vicinity a delicate and important organ which can very readily be injured.

Watery Vesicle, Phlictenula, Hydatis. Fatty Vesicle, or Millet-grain, Milium. Warts and Mulberry Fungi of the Eyelid.

When a small oblong part of the epidermis of an eyelid forms in a fine transparent insensible vesicle filled with water, it is called Phlictenula, Hydatis.

To CURE this trifling complaint, the vesicle is to be opened lengthwise, the cuticle at the edge of the eyelid is to be cut away with a proper pair of scissors, and the part is to be washed with some Saturnine water, with which some Laudanum may be mixed. In twenty-four hours the complaint will have disappeared.

Small white tumors like millet seeds, containing a suetty looking substance, are more commonly met with on the external surface of the eyelid than these watery vesicles. Opening them by means of a needle, and pressing out the contents sufficiently afterwards, is adequate to the cure.

The warts, verrucæ, which appear on the eyelids, especially of old people, not unfrequently also in children, are either provided with a pedicle or they sit firm upon the skin by a broad base. The former must be cut out with their root, or have merely a ligature tied around them, the latter should, according to Beer, much rather be let alone, and extirpated only when, in consequence of the use of escharotics, they have become painful and threaten to become malignant. In otherwise sound people, and when we go carefully to work, there is no reason to fear a malignant transition; on the contrary, we may extirpate these broad based warts in their commencement, or gradually destroy them without bad conse-

quences by means of Lapis Infern., Muriatic acid, &c. In cachectic and old people, on the other hand, we must proceed with these growths cautiously, for escharotics may increase the mournful examples which surgeons have recorded in many writings.

Malignant, very painful, and rapidly growing warts, surrounded by varicose blood-vessels, and commonly degenerating into cancer, (Akrochondon,) which Professor Beer always found associated with cancer or scirrhus of the breast or of the uterus, must always if possible be left untouched by the knife. The Pulvis Cosmii * must never be used in these cases.

Besides these, there are sometimes found on the eyelids some other excrescences, &c., as violet-coloured moles on the outer surface, and mulberry-like growths on the inner surface, against which various escharotic and other means have been recommended; among these the Lapis Infernalis is to be preferred, we can

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* A compound Arsenical Powder. *Translator.*

by means of it not only remove these growths, but often, even in moles, wash away every mark of their former existence. Even to myself it afforded speedy aid in two cases.

B.—OF

THE DISEASES

OF THE ORGANS WHICH ARE SITUATED BETWEEN THE ORBIT AND THE BULB.

OF PURE INFLAMMATION OF THE CAVITY OF THE ORBIT IN GENERAL.

In the same manner as an inflammatory state of all the textures of the eyelid was understood by the name of Inflammation of the Eyelid in General, so will the name of Inflammation of the Orbit in General, be applied to that inflammatory affection only, which has extended over all the textures which lie between the eyeball and the orbit.

Symptoms.—Obtuse, deep, and progressively increasing pain in the whole region of the orbit, combined with immobility of the eyeball,

difficult elevation and motion of the upper eyelid, and a feeling as if the eyeball were too large for the orbit, are the first symptoms of this inflammation. By degrees the eyeball projects from the orbit, Exophthalmus, the vision becomes always more and more impaired, and in a few hours the most complete amaurotic blindness, with manifest contraction of the pupil, perfect immobility of the iris, and great sensibility of the eyeball, often take place, accompanied with the disengagement of very painful flashes of light, Photopsia. Now at length the sclerotica, and then the conjunctiva, begin to redden, the iris becomes arched, changes its blue or grey colour into a greenish, or its brown into a dark red, the pupil closes, and the anterior chamber becomes always smaller, at the same time the pain has reached its acmé, and the patient becomes delirious and in danger, in consequence of the previous synocha, and the inflammation extending rapidly over the membranes of the brain.

With the commencement of the second

stage, the eyeball projects still more from the orbit, and the flashes of light increase, at least the patient speaks constantly of them in his delirium. If recollected for a moment, he complains of obtuse pain in the eye, accompanied with a sensation of coldness and great weight, and consequently he often creeps together, shivering with cold. At length there rises at the circumference of the eyeball, a red, soft swelling, which soon presents, in several places, pale points of matter and fluctuation between the eyeball and orbit. Upon this the eyelids, particularly the under one, becomes œdematous, and symptoms of suppurative fever take place. If only one point of matter appear, the eyeball is projected at this part, and the abscess does not implicate the whole circumference of the orbit.

This rare disease occurs most frequently, according to Beer, during the scrofulous, gouty, or syphilitic dyscrasis, and is then in fact not to be called pure. However, I saw a short time since, one case, in a menstruating sound

girl, where the inflammation was very pure. The orbit was lacerated by a small wound, a simultaneous fright caused a cessation of menstruation, from which, without any other cause, a very severe inflammation took place in the whole cavity of the orbit.

The prognosis in the first stage is very unfavourable, particularly when, from ignorance, the disease has been neglected at its commencement. If it have already established itself, it proceeds to a suppuration more or less dangerous to the life of the patient, and there is now no further treatment in regard to the vision, but only for the preservation of life and of the eye.

In the second stage, even a good form of the eye cannot be preserved, and regard is to be paid only to the saving of life, for if very suitable aid be not now given, the suppuration extends into the cavity of the cranium, bursts from the orbit, through an opening in the bone, into the cavity of the skull, or the

bones of the orbit suppurate slowly, and sooner or later the patient dies.

The CURE in the first stage is accomplished by a very severe general and topical antiphlogistic treatment.

In the second stage, when the hope of a resolution has already gone past, the suppuration must be promoted, as well by internal general means as by poultices, which must not be allowed to become cold. The Emp. Diachyl. comp. may be applied with benefit upon any one purulent point, with the poultice however over it, and this is to be continued until the fluctuation is quite evident, when immediately a free outlet for the matter must be procured by a large opening with a lancet, and the wound must be kept open by means of a tent moistened with Laudanum. In this manner the cure will be gradually accomplished.

Of Wounds of the Orbit.

When wounds of the orbit are deep and considerable, the prognosis for the most part will be bad, for often not only do loss of vision and of the eye follow, but even death. However, nature is often capable of more than the surgeon is aware of, on which account the prognosis must not be pronounced too hurriedly. The cured wound often leaves behind it an atony or complete palsy, laceration and incurable uselessness of one of the muscles of the eyeball, and a consequent oblique position of the eye, Luscitas; often transient or permanent amaurotic weakness of sight, or perfect amaurosis, from concussion of the eye, or laceration of its particular textures; often permanent prolapsus of the eye, Ophthalmoptosis, with amaurotic blindness, and so forth; often also there remains adhesion of most of the excretory ducts of the lachrymal gland, with unusual dryness of the eye, Xeromicter.

The rules of CURE are upon the whole the same as those given for severe wounds of the region of the eyebrows; nothing remains therefore to be considered here except the modifications from the particular parts wounded. If accordingly a prolapsus of the eyeball be present, let the pieces of the instrument which inflicted the wound, and which may remain in the orbit, be extracted. If infiltrations of blood in the cellular tissue between the orbit and eyeball be present, and press the latter from its natural position, let the wound be dilated so that the extravasation may be removed, when, the eyeball will immediately and spontaneously recede. If the surgeon be called too late, and the swelling produced by inflammation have pushed forward the eyeball, immediate replacement of the bulb cannot be thought of; the inflammatory and suppurative process must be waited for, and when the suppuration has been properly conducted, and the muscles of the eyeball have not been disorganized, the eyeball will spontaneously recede when the

suppuration has terminated. If the cause of the prolapsus consist in a want of cohesion of the muscles of the eyeball, the eye will be directed towards the side on which the existing muscles act most powerfully. Even here all artificial replacement of the eye is of no avail, the perfect cure of the wound must be waited for. * If this be properly conducted, the eyeball spontaneously recedes into the orbit during the suppuration, generally either entirely or in a great measure. If however, after the cicatrization of the wound, it still remain exterior to the orbit, the local means must be used which were recommended for blepharoplegia. If the wound shall have been so severe, that the eyeball hangs upon the cheek completely exterior to the orbit, if the eyeball itself be severely wounded, if the chambers of the eye be full of blood, if perfect blindness be present,

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* The application of some kind of suspensory is all that can be done here, otherwise the half-palsied muscles of the eyeball suffer still more in their cohesion from the weight of the depending eyeball.

then its replacement is of no use; we must, in order to save the patient's life, immediately cut away the whole eyeball, with the torn cellular membrane attached to it. However, the eyeball, rendered blind by projection from the orbit, may have lain a long time, even nine weeks out of it, and yet the lost vision be restored, if the eyeball itself has remained uninjured.

Slighter consequences of severe wounds of the orbit, are on the contrary not always curable; for example, when an oblique position of the eye, Luscitas, has succeeded in consequence of the laceration of a muscle of the eyeball, or when the excretory ducts of the lachrymal gland have adhered, from being surrounded with a callous cicatrix; yet in the latter case, the remaining excretory ducts which have not become obliterated, gradually dilate, and cause the existing dryness of the eye to disappear.*

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* Professor Beer never saw a permanent, considerable dryness of the eye from such mechanical wounds, but has observed it from chemical wounds; in the latter case the conjunctiva bulbi always became dry and rumpled, and the form of the eye and vision were destroyed.

a,—OF THE DISEASES OF THE LACHRYMAL GLAND.

Inflammation of the Lachrymal Gland, Dacryoadenitis, and of its consequences.

This inflammation, very often observed by Adam Schmidt, * but very seldom observed by Beer, Reil, and many others, commences always in the cellular substance which surrounds the lachrymal gland, penetrates afterwards into the cellular matter which invests the acini glandulæ lacrymalis, but never attacks the substance of the gland itself. From the near connexion of this cellular substance with the dura mater, with the periosteum of

* *Ueber die Krankheiten des Thränenorgans*, Wien. 1803, S. 134.

the orbit, with the many nerves and other delicate and important parts in the neighbourhood of the lachrymal gland, it becomes evident why this inflammation is to be accounted among the most dangerous.

Symptoms.—During a progressively increasing dryness of the eye, the patient is suddenly attacked with a fixed, oppressive, stinging pain in the region of the temple, extending over the eyeball, over the brow, and as far as the upper and lower jaw and occiput, and is felt as if it were behind the eye. The upper eyelid swells opposite to where the lachrymal gland has its seat in the orbit, becomes hard, dark red, tense, glistening, and extremely sensible. At the same time the conjunctiva reddens, and swells a little, for the most part however in the external canthus only; the eyeball being very hard, and highly sensible. Now also, the lachrymal gland enlarging, pushes forward the eyeball from the orbit at the external canthus, in such a way that the cornea is evidently thrown towards the nose. Along with the

projection of the eyeball the vision declines more and more, the pupil contracts, the iris becomes perfectly immoveable, frequent flashes of light are felt, and the mobility of the eyeball is gradually more and more limited. With an increase of pain there now supervenes synocha, with more or less delirium.

After the inflammation has reached its height, there take place, commonly in the course of from three to six days, along with an increase of photopsia, a greater jutting out of the eyeball towards the nose, pulsating pain, increased swelling of the upper eyelid, with a troublesome feeling of coldness and of weight in the eye, and lastly, a yellowish evidently suppurated point, in the conjunctiva of the eyeball, or on the external surface of the upper eyelid, accompanied with constant shivering.

The CAUSES of Dacryoadenitis are as yet in great obscurity. Schmidt says that, particularly young people from seven to nineteen years of age, sound in other respects, but who have had a previous appearance of scrofulous

dyscrasis, may be attacked with it. The disease was always brought on by sudden changes of temperature, or from a current of air. It seldom takes place as pure inflammation.

In regard to the PROGNOSIS in the inflammatory stage, when the disease is properly known and treated, it is not so unfavourable as that of inflammation of the orbit in general, but it accords with the prognosis of the latter disease, when it has extended to the whole orbit by bad treatment, &c. When the bulb has already projected from the orbit, resolution is no longer possible.

The prognosis in the suppurative stage is not very unfavourable, if the abscess be immediately opened, and an outlet procured to the matter, for after its evacuation, the eyeball retreats into the orbit, and even the vision often gradually returns, only the eye remains always for a longer or shorter time turned towards the nose, and an oblique position of the eye, Luscitas, also continues. If the suppuration however has extended over all the structures of the

orbit, the prognosis will accord with that of the second stage of inflammation of the orbit in general.

The CURE in the inflammatory stage must be always powerfully antiphlogistic. Let a bleeding therefore be ordered, and if amendment do not soon follow, let from five to six leeches be applied, make use also of cold poultices, and let a spare diet be recommended, make revulsion also by the intestinal canal when necessary, &c. &c.

As soon as the inflammation has advanced to suppuration, let it be promoted by warm poultices of Flor. Chamœn. et Herb. Cicutæ, mixed with other emollient medicines, and cover the swelling with a plaster of Emplast. Diachyl. et Cicutæ, so long as deep hardness is observed, and the eyeball has not receded into the orbit. In case of great pain and restlessness, give opium internally, and when the abscess is ripe, and the fluctuation sensible to the touch, open it with a lancet. After the matter has been discharged, a tent moistened

with Tinct. Opii, Ol. Amygdal., or Digestive Ointment, is to be laid into the opening, and to extend to the bottom of the ulcer, so as to irritate it. By degrees the wound is filled up, commencing at its bottom, and soon heals.

But the cure does not always go on so easily; for sometimes the matter which flows out changes into ichor, and a pale red, easily bleeding fungus sprouts out from the now callous opening, and announces the probable presence of a fistulous ulcer from caries of the orbital process of the frontal bone. If a probe be introduced, and it strike upon a rough and uneven part of the denuded bone, the presence of caries is certain. In this case let the whole opening be dilated with the knife, introduce tents covered with Ung. Digestiv. mixed with Pulv. Myrrh., promote in this way the exfoliation, and then heal the ulcer.

Besides caries, abscess of the lachrymal gland causes another consequence, namely, a fistulous ulcer without caries, arising from a wounded excretary duct of the lachrymal gland. In this

case, ichor and tears flow from the fistulous opening, or pure tears, fistula lachrymalis, or rather fistula of the lachrymal gland. Lastly, even when the ulcer has already healed, there sometimes remains a callous capillary opening in the upper eyelid, near to its temporal angle, from which a very clear lachrymal fluid oozes from time to time during the day. These minute openings from the lachrymal gland are very difficult to heal; hitherto they have been made to adhere best by touching the bottom of the wound with Lapis Infernalis, or with a red hot needle carefully introduced to the bottom of the callous opening, and turned round in it several times.

Scirrhus of the Lachrymal Gland. Scirrhus Glandulæ Lachrymalis.

An actual Scirrhus of the Lachrymal Gland (not a mere transient hardening, remaining after Dacryoadenitis) comes on, for the most

part, in conjunction with scirrhus of the neighbourhood, and even with Scirrhus Bulbi. This very rare disease is discoverable by the following appearances: The eyeball is pressed towards the internal canthus, also downwards and outwards from the cavity of the orbit; it is not painful, very little reddened, almost immoveable, and particularly cannot be turned towards the lachrymal gland. Along with these symptoms, a tumour is observed in the temporal angle, which is very firmly fixed, hard, uneven, and so long as the scirrhus has no disposition to cancer, insensible; the eyeball itself is very dry, the edges of the eyelids are crusted with half dried meibomian mucus, the cornea is more or less dim, and even cadaverous, if the disease has continued long. Moreover, it will be clear from the history, that an inflammation of the lachrymal gland has immediately preceded this disorganization.

Scrofulous people of a phlegmatic, insensible habit, are, according to Beer's experience, the most subject to this malady.

In regard to the prognosis, it is to be remarked, that the patient may bear this disease many years without inconvenience to the constitution. It is only when the induration has gone the length of carcinoma, that the prognosis becomes very bad.

There is no cure for a Scirrhus of the Lachrymal Gland. Beer rejects its extirpation.

Unnaturally increased secretion of tears from the Lachrymal Gland. Epiphora. Dacryorhysis. Flow of Tears.

Formerly, by flow of tears, was understood an overflow of tears from the eyes, the cause of which might consist in an increased action of the lachrymal gland, or in a diminished or interrupted excretion of the tears, though secreted in a natural quantity. The celebrated Ad. Schmidt first properly distinguished these states, and named the first Dacryorhysis, (Epiphora,) the other, in which the fault lies in the excret-

ing parts of the lachrymal organs, he called, Dacryostargon, Stillicidium lacrymarum, the trickling down of the tears.

The Dacryorhysis varies, and must be differently treated; at *one time* it is a forerunner and attendant symptom of almost all considerable pure inflammations of the eyes; this species goes off for the most part with the inflammation, and therefore does not require any further consideration.—A *second* kind of Dacryorhysis often remains after inflammation of the eyes, particularly in very irritable people, it may become chronic, becomes worse in wet weather, and on the other hand better in dry, warm weather. The cure of this Epiphora is accomplished by proper care of the irritable eye, by the application of warm, dry linen compresses, and when the general sensibility of the system is increased, by giving at the same time internal medicines, for example, at first Extract. Hyosciami, to blunt as it were the sensibility, afterwards tonics. Derivatives may be used externally, by the application of blisters and issues,

and locally an eye-water, with Sublimate and Opium, or Solut. Lap. Divin. c. Acet. Saturn. and Tinct. Opii Croc. may be applied, &c. The proportions of these must be regulated by the sensibility of the patient.—A *third species* of Epiphora is observed, in the first place, as an attendant phenomenon of scarlatina, of the measles and small pocks, in which case it for the most part, disappears with the eruption, and on that account, requires no further treatment; if, however, the flow of tears continue, and become chronic, the treatment corresponds with that of the former species of Dacryorhysis. In the second place, this third species of Epiphora occurs as a permanent symptom, in syphilitic, itched, scrofulous, gouty and scorbutic people, in which cases the above-named diseases discover themselves by their usual symptoms, along with a flow of tears.

The CURE in syphilitic and itched cases is accomplished internally, in the former disease, by mercury, in the latter by sulphur, and externally in both by an eye-water with sublimate,

or by the introduction, twice daily, of Ung. Citrin. into the internal canthus. The internal treatment in scrofulous Dacryorhysis is to be conducted according to the ordinary rules for the cure of scrofula. Topically, may be used, according to the sensibility of the patient, and of the eye in particular, either mere dry warmth, or when the patient is of a more torpid nature, the styptic medicines, already recommended, or red precipitate salve.

The cure of gouty Dacryorhysis, when the surgeon cannot remove the gout, is best effected by issues of long continuance, by which the diseased tendency of the lachrymal gland will be directed to another seat.

The Epiphora in scorbutic patients, which only occurs in the most indigent class of people, and in whom the tears are sometimes like flesh water, or are mixed with blood, will be best cured by an improvement in the manner of living, by a better habitation, and by proper exercise in fresh, pure air. Externally, styptic medicines in general, particu-

larly Decoct. Cort. Querc. cum Alum. produce good effects.

Obliteration of the Excretory Ducts of the Lachrymal Gland. Atresia ductuum excretoriorum Glandulæ Lacrymalis.

These obliterations often arise after wounds, or burns by fire or escharotics in the region of the Lachrymal Gland, and for the most part are of such a nature, that some of the excretory ducts still remain pervious. We are convinced of the presence of this disease by the patient's complaining of dryness, xerophthalmus, scheroma, and immobility of the eye, with the feeling of dust between the eyelids, also, there may be discovered, in the upper part of the external canthus, a cicatrix which often extends to the conjunctiva. However, the dryness of the bulb is not visible to the surgeon, for the eye has a bright, clear and moist appearance.

The PROGNOSIS is favourable, for by degrees

the excretory ducts which still remain pervious, dilate, and sufficiently moisten the eye.

As a palliative CURE, which is all that can be undertaken, various pure mucilaginous waters, for example, the mucilage of Saloop root or of Mallow root, the decoction of Mallows, Muc. gum. mimos, &c. with which the eye is to be often moistened, will be sufficient.

Encysted Lachrymal Swelling. Dacryops.

Symptoms.—If this encysted swelling, which quickly enlarges during weeping, be of considerable size, there appears in the upper eyelid, near to its temporal angle, an elastic, insensible, circumscribed swelling, perfectly resembling the skin in colour, and which, to the feel of the finger, must extend deep into the orbit. When it is considerably pressed, a feeling of weight on the eyeball itself is excited, producing the momentary sensation of sparks of fire. If the upper eyelid be lifted up, and at the

same time drawn out from the eyeball, and the swelling be pressed externally, then the conjunctiva projects in the form of a well-filled roundish bag, in which is distinctly perceived the fluctuation of the contained water.

The proximate cause of this disease exists, according to Schmidt, in the unnatural opening of an excreting duct of the lachrymal gland, in the cellular substance under the conjunctiva bulbi, in which many tears collect, distend the cells, and form as it were a sac. Schmidt and Beer, who describe this rare disease, saw it always in children, and the latter observed the swelling in two instances, as the consequence of a wound.

Although this swelling be not hurtful to the eye itself, yet it is very difficult to cure it radically, from want of perseverance in the patients, and the dangerous nature of its situation.

The CURE is effected in the following manner: After an assistant has raised the upper eyelid, and at the same time drawn it out from

the eyeball, and pressed the swelling from above downwards and forwards, the conjunctiva, which covers it, is to be divided with a scalpel, down to the sac which is always thin: it is then to be laid hold of, by means of a fine toothed forceps, and with the aid of an elastic knife, blunt and round at the point, it is to be turned out as far as it extends, rather by pressure than by cutting. When this is accomplished, a crooked needle, armed, with a thick, single silk thread, introduced by the wound, is to be thrust through the remaining part of the sac, the orbicularis muscle and the external coverings of the upper eyelid, so that it may pass out near to the edge of the upper eyelid at the external canthus, and form a real seton. If this, by being frequently drawn backwards and forwards, do not cause inflammation of the wound in twenty-four hours, it is to be streaked over at first with weak, afterwards with the strongest escharotics, for example, with Solut. Lap. Infernalis, Lapid. Caust., or with Butyr. Antimon. If the inflammation thus excited be

insufficient to cause adhesion of the sac, or to destroy it by the suppuration which follows, nothing more than a palliative cure is effected. The thread, which is to be frequently drawn backwards and forwards, is to be smeared often with Solut. Plumb. Acet., Tutia ointment, and so forth, to make the opening callous, so that the patient, when the thread has been removed, may as often as necessary empty the lachrymal tumour, which is constantly reappearing.—This encysted lachrymal swelling, furnished with an opening, is called by Schmidt Dacryops fistulosus.

Watery Vesicle of the Lachrymal Gland. Hydatis Glandulæ Lacrymalis. Glandula Lacrymalis hydatoidea.

This very rare and formidable disease, according to the description of the Observer, is of the following nature: A cell of the cellular

substance which connects the individual parts (Acini) of the Lachrymal Gland, distends into a vesicle, from the effusion of tears into it, which become acrid. At length it separates itself from the rest of the cellular membrane adhering to it, and thus forms an isolated Hydatid, lying among the Lachrymal Acini, which, by a slowly advancing growth pushes forward the eyeball from the orbit, either without exciting inflammation, exophthalmus, or if the increase be rapid, with inflammation of the eyeball, exophthalmia, and in such a manner that the eyeball is pressed towards the nose.

If this disease grow slowly, and appear with exophthalmos, it is known by the following symptoms. The patient complains of an obtuse, deep pain in the orbit, with the feeling of the ball being pressed out from behind, which is made particularly distinct by moving the eyeball towards the lachrymal gland. The slightly reddened eyeball now projects from the orbit in the direction de-

scribed, with tensive pain of the eye and of the whole half of the head; the eye becomes progressively dryer, at first moves with difficulty, and with the sensation of flashes of light being disengaged, at last it loses all power of motion. Hitherto, vision is present, but the patient sees the objects sometimes double, misshapen, or even for some moments does not see them at all. At length the sight becomes progressively more confused, and finally ceases entirely; the uninterrupted headache increases, the superior oblique muscle is, according to Schmidt, in continual spasmodic movement, (which however Beer never observed,) the eye acquires a dirty appearance, gradually grows more like the eye of a dead person, and indicates approaching death, even when the functions of life are yet going on well. A resisting hardness is now distinctly felt in the temporal angle betwixt the eyeball and the external edge of the socket.

When the disease appears with exophthalmia, it then shows itself by the following ap-

pearances. Under similar pains in the back part of the orbit, but seated more in the ball itself, the eyeball, inflamed and increasing in size, projects from the orbit, and is soon so much destroyed by supervening suppuration, that when not timeously opened, it bursts under the most violent pains, on which a mass consisting of bad matter and blood, flows from the opening. The eyeball does not in consequence sink together, but remains in the shape of an irregular mass of flesh external to the orbit. Even now the headach continues. Sleep and appetite are lost, and the parotid of the affected side becomes swollen. There is felt in the region of the lachrymal gland, as in the former case, a resisting, firm, and fluctuating hardness.

The peculiar cause of the Glandula lacrymalis hydatoidea, is hitherto undiscovered.

The PROGNOSIS is always uncertain. If the watery vesicle be already considerably formed, the prognosis is unfavourable. As soon as the eye is projected from the orbit, the vision lost,

and the eye has acquired a death-like appearance without the presence of exophthalmia, the patient sinks, under soporose, and finally apoplectic symptoms. When however exophthalmia is present, the eye, by long neglect of the disease, is not only lost, but even the bones of the orbit are gradually destroyed, and death follows slowly.

CURE.—As the disease, in its first stage, cannot be determinately known, nor the watery vesicle extirpated, on account of the important parts lying in its vicinity, for example the ophthalmic ganglion, the lachrymal gland, the external rectus muscle, &c., without certainly wounding these parts, it becomes necessary that the following operation be undertaken as a palliative cure. Under the upper eyelid, and near to its external commissure, plunge a small lancet, deep in the direction of the lachrymal gland, until the lachrymal fluid flows out of the vesicle, then introduce into the wound a fine bougie made of charpie, and smeared over with Saturnine water or salve, or a piece

of catgut, so as to form a fistulous opening, through which the fluid, afterwards collecting anew, can be frequently emptied. Afterwards it is sometimes even possible to extract the loose bag by means of forceps, through this opening. If the eyeball be already pushed out of the orbit, the vision gone, and the eye of a dirty appearance, death-like, or severely inflamed and consequently altered in texture, even this palliative practice will hardly do any good.

b.—OF THE DISEASES OF THE LACHRYMAL SAC.

Pure Inflammation of the Lachrymal Sac. Dacryocystitis.

Symptoms.—With the symptoms of a cold in the head, and a flow of irritating mucus from the nose, there forms in the region of the lachrymal sac, a bean-shaped, circumscribed, hard and sensible swelling, accompanied with obtuse pain extending to the nose and eyeball; at last it becomes much reddened, and cannot bear the slightest touch; at the same time stillicidium lacrymarum and dryness in the nostril, are present. The cheeks and other neighbouring parts, are now not unfrequently affected with erysipelatous inflammation, with which at

last, particularly in delicate people, general indisposition and fever are associated.

When *the second or blennorrhœal stage* has begun, such a quantity of mucus is formed in the lachrymal sac, that, as the nasal canal is often closed, the anterior part of the sac where not covered by bones, swells and gives a sense of fluctuation before suppuration has actually commenced. The mucous membrane of the nose and of the caruncula lachrymalis also secretes more mucus than usual. The issue of the disease is now on the point of being determined, for according to the intensity of the inflammatory symptoms, either the permeability of the nasal canal is again restored, and the mucous secretion becomes thinner, and continues for a long time, or, after the swelling of the lachrymal sac has increased, the redness of a darker colour, and the skin glistening, a yellowish-white suppurated point appears in the centre of the sac, along with more evident fluctuation, which must be immediately open-

ed, so as to prevent the formation of a real fistula of the sac. If the swelling be allowed to open spontaneously, it takes place by an external, very small, fistulous aperture, which does not permit the more consistent matter to flow out, on which account the swelling does not entirely disappear.

At last, by suitable treatment, this increased secretion ceases, and the lachrymal sac secretes mucus again, in proper quantity and quality. The opening of the sac heals either spontaneously or by the assistance of art, but for the most part only so far, as to leave a capillary opening, the treatment of which will be pointed out below.

Contusions at the internal canthus may, in otherwise sound subjects, produce a pure Dacryocystitis; it is however very rare; for the most part inflammatory affections of the lachrymal sac take their rise from scrofula, syphilis, gout, &c.

The PROGNOSIS in the inflammatory stage is favourable when the lachrymal sac has not

been much bruised or lacerated. If the inflammation cannot be fully resolved, there generally remains a diseased secretion of mucus, and an accumulation of it in the lachrymal sac, (Dacryops Blennoideus of Schmidt,) which however is soon cured by art. If, however, the previous inflammation have been very severe and neglected, there remains, for the most part, a partial or complete closure of the nasal canal; the canaliculi lachrymales also sometimes close, by which a permanent and incurable stillicidium lachrymarum is produced.

The prognosis in the second stage, in regard to the excreting parts, is very dubious; it is more favourable in the first part of this stage, when only pure mucus is secreted into the lachrymal sac, for in this state the surgeon may yet induce a favourable suppuration. When however the suppuration already exists, the prognosis is more favourable, provided the suppuration has been of short duration, it is more unfavourable when the sac is ready to burst, or when a fistulous opening is already present,

in which latter case, a permanent atony of the papillæ and canaliculi, or even a perfect destruction of them may be the result. If the surgeon heals the fistulous opening unguardedly, without paying attention to the closed nasal canal and the canaliculi, the mucus accumulates in the sac, for it constantly secretes, and a swelling arises resembling the skin in colour, and which Professor Beer calls Dropsy of the lachrymal sac, Hydrops sacci lacrymalis.

The CURE in the inflammatory stage is effected by poultices of cold water or oxycrat, and by frequently drawing cold water into the nostril. When necessary, leeches must be also applied, and the after-bleeding be prolonged.

In the second stage, when attempts at resolution no longer succeed, it is best to promote the suppuration by emollients, and as soon as the centre of the swelling becomes soft, and gives a sense of fluctuation, to open it with a lancet-shaped knife, fig. 2. If the hardness do not disappear entirely after

the evacuation of the matter and mucus, it is to be softened by poultices of cicuta and camphor, &c. At the same time, a little bit of charpie, moistened with laudanum, is to be introduced into the wound, and covered with Emp. Diach. comp. If the suppuration recede, and an unusual secretion of mucus remain, make use of the Solut. Lapid. Divin., which may be dropped into the inner canthus. If salves be necessary, let the tent, introduced into the wound, be smeared over with them once daily. If the secretion of mucus be again natural, the surgeon may now, for the first time, think of restoring the impeded passage of the tears through the nasal canal, after having previously satisfied himself of the permeability of the canaliculi lachrymales, or of the possiblity of opening them. If these excreting ducts be again actually in a state fit for use, then the surgeon may cure the wound, with the hope of having permanently removed the disease. If the surgeon has to do with a fistula of the lachrymal sac, which has a callous

aperture in the skin, the latter must be enlarged upwards and downwards, and charpie with Laudan. Liquid. laid deep into the wound, over this apply strips of diachylon plaster, and over all warm poultices of milk, Cicuta, and Saponaria, mixed with Camphor, until all callosities have disappeared.

The cure, in cases of obstruction of the canaliculi and of the nasal canal, will be further considered under Fistula lacrymalis.*

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* The Dacryocystitis has been here considered as a pure inflammation; it seldom however, as I have already said, occurs as such. The variolous, morbillous, scarlatinous, psoric, syphilitic, and scrofulous, &c. inflammations of the sac, are much more frequently met with; on which account, a few words may be said of the differences between these mixed inflammations of the lachrymal sac and the pure cases.

The Dacryocystitis arising from measles, scarlatina, and small pox, are not unfrequently observed, and must, so long as the phlogosis predominates, be very gently treated on antiphlogistic principles, because for the most part the disease occurs in very weak subjects; at the same time, baths and moderate warmth are useful. In this manner the inflammation cannot indeed be cut short, but yet the

suppuration may be often prevented. The inflammation in this case will often leave behind a tedious flow of lachrymal mucus, Dacryoblennorrhœa, Blennorrhœa sacci lacrymalis, which, as was already observed above, forms the limit between suppuration and resolution, and which sometimes disappears spontaneously in young women, at the first appearance of the menses, or during the first pregnancy, if not previously cured. In such cases of Blennorrhœa, the lachrymal sac must be often emptied by pressure, and the eye cleaned, so that the collection of mucus in the lachrymal sac may not cause a Hernia sacci lacrymalis.

In the syphilitic Dacryocystitis, mercury is indicated; externally the Ung. Hydrarg. Cin. has proved very useful. This species of inflammation of the lachrymal sac readily induces caries.

The psoric Dacryocystitis requires particular attention to the functions of the skin, and the use of sulphur-baths.

The arthritic Dacryocystitis, which often come on suddenly in the form of an erysipelas, and the scrofulous, which are of a much more chronic nature, and are more difficult of cure than the former, appear most frequently in women and girls, and when in very weak people, admit of a very unfavourable prognosis. For the cure of Scrofula, see Ophthalmia Scrofulosa.

Hernia of the Lachrymal Sac. Hernia Sacci Lacrymalis, and Dropsy of the Lachrymal Sac, Hydrops sacci Lacrymalis.

As both these diseases often arise from each other, they may be suitably considered in connexion.

Hernia of the Lachrymal Sac is known by a bean-shaped, insensible swelling, perfectly resembling the skin in colour, situated immediately under the internal canthus, from which, when pressed by the finger, a mucous fluid readily flows, either through the puncta lachrymalia, or through the nasal canal, (provided the puncta are closed by pressure with the point of the finger,) in consequence of which the tumour is emptied, but soon fills again. The disease consists in a relaxation and distension of the anterior wall of the lachrymal sac, and will be generally observed to be a consequence of a Dacryocystitis.

The PROGNOSIS in a case of mere Hernia, is very favourable.

The CURE is effected by the application of constant pressure, produced by graduated compresses, and a leather cushion laid over them, which, by means of a narrow uniting bandage, sufficiently press together the bean-shaped swelling; the effect of the pressure may be assisted by moistening the compresses with astringents.

On the other hand, the disease called Dropsy of the Lachrymal Sac, is known by a bean-shaped swelling in the nasal canthus, which becomes always larger, and at last discoloured, see Table I. fig. 6; it is elastic and insensible, its contents cannot be emptied either through the puncta lachrymalia, or through the nasal canal, and when it has attained the size of a pigeon's egg, and threatens to burst, it causes a continual pressure on the nose, on the region of the eyebrow, and on the eye itself.

That the disease originated from obstruction

of the canaliculi lacrymales, and of the nasal duct, may have been already discovered by the symptoms. As the lachrymal sac, obstructed both above and below, still continues to secrete mucus, it gradually fills, and appears, according as the disease has existed for a shorter or longer time, or according as the contents of the sac may be more or less fluid, in the form of a swelling, sometimes fluctuating, sometimes hard and immoveable.

The PROGNOSIS is always very dubious in such a case, for although the swelling can be always removed by the operation, it cannot yet be known whether the canaliculi and the nasal canal can afterwards be opened, and consequently, whether the tears can in future be conducted away or not.

In order to remove the tumour, it is to be opened with a lancet-shaped knife, the mucus present in it is to be pressed out, and the lachrymal sac well syringed with warm water, by means of an Anel's syringe, so that no mucus may remain behind. When the mucus, how-

ever, is very thick and tenacious, it is to be gradually extracted by means of a fine eye-forceps, and the firm mass adhering to the bottom of the lachrymal sac, is to be broken in pieces by means of a whalebone probe, and washed out with a syringe. A small tent, moistened with lukewarm water, is now to be laid into the wound, and pushed in as far as the sac, it is then to be fixed by a piece of court plaster of the shape of a half moon, and this dressing allowed to remain till the following day.

As the treatment which follows entirely corresponds with that of true

Fistula of the Lachrymal Sac, Fistula Sacci Lacrymalis,

which is nothing more than an ulcer of the mucous coat of the lachrymal sac, provided with a narrow callous opening, I may be allowed to consider the treatment of the lachrymal sac opened for Hydrops Sacci Lacrymalis, along

with the treatment of real Fistula Lacrymalis.

Above all things, it is necessary carefully to examine into the state of the puncta, the canaliculi, and the opening of the nasal canal. If, on examination with Anel's probe, a real closure of the canaliculi lacrymales be discovered, * in performing which the probe is introduced perpendicularly into the punctum and canaliculus, and carried quickly to the angle of the latter; † it is then to be pushed on in a horizontal direction in the *under eyelid*, and obliquely downwards in the *upper eyelid*, until it reach the lachrymal sac, during which process the canaliculi should be kept on the stretch by gently pulling the skin, so that the probe may meet with no obstruction. If

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* The papillæ lacrymales are very seldom obliterated, they are more frequently found contracted, and are then hardly discoverable by the eye of the examinator.

† Sometimes the canaliculus closes spasmodically and powerfully during this operation, by which the passing of the probe is prevented.

the internal wall of the lachrymal sac can now be distinctly felt, there is certainly no closure in the lachrymal canaliculi; if an obstruction actually exist, the probe cannot get thus far, on account of an invincible obstruction.

If the obstruction of the canaliculi be caused by relaxation, it is known by an unusual gaping of the puncta, and a total want of the contractile power which they always evince in a healthy state, when touched with the probe. An obstruction of the canaliculi by mucus, or a narrowing of them by swelling of their internal membrane, is discovered with the probe, and a finger possessed of a delicate sense of touch. If the permeability of the canaliculi has been restored, we may be soon convinced of their absorbing power having commenced properly, by dropping into the internal canthus two drops of a mild, coloured liquid, which will disappear here, but will come to be distinctly seen at the external opening of the lachrymal sac.

After being perfectly convinced of the per-

meability of the canaliculi, we at last proceed to the examination of the nasal canal. This is done in the following manner: A very fine whalebone probe is carried horizontally into the opened lachrymal sac, as far as its posterior wall, when the horizontal direction of the probe is to be changed to the perpendicular, and an attempt made to push it through the opening of the nasal canal, in doing which it is to be continually rolled between the fingers. If the probe do not reach into the nose, or the sac be found thickened or fungous, or even callous growths be detected in the mucous membrane of the nasal canal, preventing the whalebone probe from passing, it may be attempted with the silver probe of Mejean. If even this do not penetrate; if a permanent elastic obstruction be discovered with it, and the patient complain of no pain during the pressure of the probe on the resisting part, then the surgeon may be convinced of the presence of an actual obliteration of the nasal canal. If the probe on the other hand penetrate, though

not for several days, and with difficulty, it will still be possible to establish a permanent passage. *

If the probe has penetrated so far into the nasal canal as to remain fast, it may be allowed to continue till the next day, only it must be bound firm to the brow, and a tent laid alongside of it into the opening of the lachrymal sac, and covered with a piece of court plaster of a semilunar shape. Every day it will be possible to go deeper, and at last entirely through the nasal canal, into which when it is open, but not sufficiently so, is to be introduced an E violin-string, † somewhat pointed, and

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* The different methods which Anel, Mejean, La Forest, Cabani, Blizard, Wathen and others, have proposed to remove obstruction of the canaliculi and of the nasal canal, and for maintaining their permeability, have all their good qualities, but in the present state of science need not be treated of here.

† Catgut is better adapted to keep open and to dilate the nasal canal, than the leaden styles used by Richter, and similar means used and recommended by others.

smeared with almond oil, and it is to be pushed on, until six inches have been introduced, so that in some hours, when the gut in the nostril has become soft, it may be blown out from it without difficulty. The upper and still uncoiled extremity of the string, is to be bound fast down upon the brow, and the tent and half-moon-shaped plaster recommended above, during the introduction of the probe, is to be used as a dressing, and the portion of string lying out of the nostril is to be fastened with plaster upon the ala nasi.

This dressing is to be renewed daily, a portion of the uncoiled string is to be pushed through the nasal canal by the patient himself, whilst he draws out the nasal extremity of the string, and at the same time (provided cachexiæ have been removed, or do not exist) an injection, which may be suitable to the swollen or ulcerated state of the nasal canal, is to be made use of. Should the mucous coat of the nasal canal be only soft and swollen, of which the probe conveys information, then

smearing the string with Laudanum, and syringing with the Solut. Lap. Divin., or with Laudanum cum Aqua Saturnina, will be sufficient.

If, however, the internal surface of the lachrymal sac be hard and swollen, but not granular, then, at the commencement, weak salves of Red Precipitate, gradually increased in strength, and afterwards solutions of Sublimate, with Laudan. Liquid., made more and more strong, and used as an injection, are indicated.

When granular thickening of the lachrymal sac is present, recourse must be had to the use of the Ung. Citrin. Pharmac. Edinburg., and to the rubbing in of the Ung. Hyd. Ciner. around the opening of the lachrymal sac.

Along with the use of these means, the surgeon is gradually to proceed from the E string to the A string, and lastly to the D string, during which the state of the parts is to be occasionally explored with the syringe.

When caries is present in a fistula lachry-

malis, which is made known by livid, pasty, circumscribed spots, by soft fungi, black granular ichor, but most certainly by the probe, with which a rough denuded portion of bone is felt, then it must, when originating in cachectic diseases, be cured by the removal of the latter, and at the same time by the topical application of Asafœtida with Myrrh. If the cachexiæ, however, are not concerned in the caries, if it has rather originated in neglect, we may succeed with the same local applications.* If the caries has extended far into the lachrymal sac, then all hope is lost of its future utility, for in general the saccus lacrymalis will become wholly, or in a great measure obliterated.

If the swelling of the nasal canal be perfectly and permanently removed; (for which months are required,) if the warm water injected into the opening of the lachrymal sac, run readily

* Perforating the carious os unguis, as Richter recommends, is rejected by celebrated oculists.

and in a full stream from the nose; if no more mucus come from the opening on removing the tent, then we may heal with assurance the external opening in the sac. The lips of the wound are afterwards to be scarified, and brought together with court plaster, when the wound generally closes to a small capillary opening, which must be perfectly cured by touching it slightly with caustic.

Obliterations of the canaliculi, as also adhesions of a great part of the nasal canal, cannot be removed: on which account, the lachrymal sac must, in the first case, undergo complete obliteration by being artificially inflamed, in the latter case, however, the patient may make choice between the frequent emptying of the sac by pressure, or its perfect obliteration. If, however, the obstruction of the nasal canal exist in its lower part only, this part may be readily perforated with the hope of a happy result, by means of a sharp probe, the point of which is to be covered with a small ball of wax, to prevent its piercing any where too soon. A

few drops of blood flowing from the nose, will announce the actual perforation, after which the passage is to be gradually dilated by probes and catgut, as pointed out above.*

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* The accuracy in describing the diseases of the lachrymal passages, and of their arrangement, as also of the methods of curing them given in this work, will hardly be doubted, and I believe it would be well if British surgeons should act for the most part on the above principles. At the same time, I conceive it right to mention, that from experience in the treatment of a very great number of these cases, I can conscientiously affirm, that Ware's styles in general, however, thicker and longer than recommended by him, will answer almost every purpose to be obtained by the catgut. They should be kept of graduated sizes, and the passage be gradually dilated by them to its full size. They are much neater, and infinitely more easily managed than the gut.

I may also state, that though dilatation of the nasal canal by catgut, or by the style, be here recommended only in cases of fistula of the sac, or when the canal is nearly or entirely closed, I have often cured cases of troublesome blennorrhœa of the sac, without fistula or a great degree of obstruction of the nasal canal, by opening the sac and passing a style, when they had resisted methodical treatment by applications and medicines. The fact seems to be, that in most cases even of blennorrhœa, the top of the

nasal canal is more or less strictured, and aids in keeping up the morbid state of the sac, probably by preventing the tears from descending with their natural freedom. This degree of stricture is readily removed by the style, the mere mechanical action of which seems also to produce the most beneficial effects on the interior of the sac. Do we not daily see cures of morbid urethra and bladder, and of chronic discharges from them, by the daily, though but momentary passage of a sound or of a bougie, on principles very analagous to those of the action of the style in the lachrymal passages. As the operation of opening the lachrymal sac and passing down a style, in these cases, is exceedingly simple; as the wearing the style is attended with but little inconvenience; and as the operation does not, when properly performed, injure the functions of the sac permanently; why should patients persist in using medicines and applications for years, when the disease may be generally removed in a few months by a trivial operation. I have performed this operation with success in several cases even of scrofulous blennorrhœa of the sac, of years' duration. The trouble the patient often experiences in such cases, particularly in winter, from stillicidium lacrymarum, and from occasional painful attacks of inflammation of the sac, extending to the nasal side of the eyeball, readily induces him to accede to the operation, and two of my patients still prefer wearing the style for life, to the risk of a return of the evils they formerly experienced from the disease.

In three cases of fistula lacrymalis, with a large fungus sprouting from the opening in the sac, and at least

one of them, if not all of a scrofulous nature, I have seen the fungi disappear, and a perfect cure effected by the mere wearing of the style, without escharotics or any tenting of the wound. All of these people lived in the country, managed the styles themselves, and only showed themselves to me occasionally. From these cases, and the effects of the style in blennorrhœa sacci mentioned above, it would appear that the point of the greatest consequence in their treatment, is producing sufficient dilatation of the nasal duct. If this be obtained, if the injections and salves mentioned be at the same time occasionally applied, along with suitable constitutional treatment, a great majority of the diseases of the lachrymal sac and nasal canal, may be nearly or perfectly cured.

The Hernia Sacci Lach. is a disease, however, which cannot always be cured by the style or gut, and very few patients will submit to the inconvenience of pressure in the manner recommended above by Professor Beer. My disappointments in the treatment of this modification of the complaint will lead me to the trial of some new method. Is there reason to think that a free incision of the sac, even cutting across the round tendon of the orbicularis palpebrarum, which is attended with no bad consequence, and tenting the wound with escharotic dressings, until the sac contracts by inflammation to a natural size, as recommended by Scarpa in some cases of diseased sac, and dilating, at the same time, if necessary, the nasal canal, would be attended with success?—but on this point I cannot yet speak from experience. *Translator.*

C.—OF THE DISEASES OF THE CARUNCULA LACRYMALIS.

Pure Inflammation of the Caruncula Lacrymalis. Encanthis Inflammatoria.

In this disease the valvula semilunaris, and the caruncula lacrymalis, swell, become red, and are very painful, particularly in closing the eye; at the same time the absorption of the tears into the lachrymal sac is impeded, because the inflammation for the most part extends over the puncta lacrymalia, and over the whole conjunctiva.

When the inflammation resolves, much mucus will be separated from the caruncula for some time, during which the caruncula will return to its natural state. But if suppura-

tion take place, the redness and swelling of the caruncula increase, it becomes darker coloured, and there appears, mostly at its under part, a whitish-yellow point of matter, which soon opens, and sometimes forms the commencement of a complete distortion of the caruncula, rhyas. By neglect of the suppuration, spongy excrescences are apt to sprout from the suppurated surface, which may often become of large size.

The CAUSES of this inflammation consist chiefly in mechanical wounds of the caruncula.*

The PROGNOSIS is however very favourable, and the suppuration only sometimes, leaves behind it permanent disease; for example, a stil-

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* I have seen this disease in two instances, produced by a loose eyelash, the root or thick end of which had fairly entered the upper punctum and canaliculus. Its other extremity consequently pointed downwards to the caruncula, which it constantly irritated. The troublesome irritation which had been excited in both these instances, was immediately cured by removing the eyelash from the canaliculus. *Translator.*

licidium lacrymarum, a thorough suppuration of the caruncle, &c.

To CURE the disease, so long as there is no appearance of suppuration, cold water must be diligently applied, after having previously removed the foreign bodies which may probably adhere to, and remain in, the wounded caruncle.

Suppuration already established is to be carefully treated with desiccative medicines, and the diseased spot is to be streaked over with Laudan. Liquid., particularly when there is a disposition to spongy excrescences. If the fungous growths are not removed by this, which is seldom the case, the following powder, which is to be sprinkled upon them, may be used with advantage:

℞. Sach. Alb. ʒii.
Alumin. Usti. gr. xv.
Vitriol. Alb. gr. iv. M.

If the inflammation has been neglected; or if it be not pure, or occur in cachectic people; then a swelling of the caruncle gradually in-

creasing in size, (Purinam saw it the size of a fist,) is not unfrequently observed; it acquires a whitish, ash-colour, and extends often in the form of a swallow-tail, as far as the cornea, and partially prevents vision. The best way of curing this fungous swelling is to extirpate it. Poultices of cold water applied afterwards, will diminish the inflammation which follows, and in the end the use of gently astringent means will permanently remove the disease.

Encanthides which are not of an inflammatory kind, and appear in the form of a mulberry, are to be cured in the same manner when large, or if they appear as a growth from the caruncula, and have a small base, they may be removed by the ligature. If however they are small and trifling, the local application of drying and astringent means will often succeed.

If inflammations of the caruncula which are not pure, continue for a length of time and be neglected, particularly after scrofulous oph-

thalmia, combined with syphilis, there takes place, in very rare instances, a

Scirrhus and Cancer of the Caruncula Lacrymalis. Encanthis Scirrhosa, et Carcinomatosa, aut Maligna,

the former of which is known by a very hard, uneven, pale red, and insensible swelling, which occasions a continued stillicidum lacrymarum. When cancer approaches, there is also a troublesome stillicidium lacrymarum, and the caruncula is hard, but has a bluish-red appearance, and is very painful; a scirrhous state of the caruncula has also preceded. In open cancer the swollen caruncula is attacked by a very painful, fungous ulcer, which bleeds readily, and has hard everted edges; from which an offensive ichor flows, quickly corroding the puncta and other neighbouring parts, and by producing peribrosis may readily cause an ectropium of the lower eyelid.

The PROGNOSIS and CURE correspond entirely with these of scirrhus and cancer of the eyelid.

Of Encysted Tumours of the Orbit.

Dacryops, and Hydatis Gland. Lacrym. not only occur in the cellular substance which surrounds the eyeball, but also, though seldom, real encysted tumours, which contain a compact, fattish, or puriform mass.* These encysted tumours have their seat sometimes deeper, sometimes more superficially in the orbit, generally under the eyeball, † seldom at its side,

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* Scarpa.

† St. Yves has already remarked that they are chiefly situated here. Many English cases are also related, in which this was the seat of the swelling.

Within the last twelve months I have extirpated two large tumours from the orbit. The first was in a young girl. The tumour was on the upper and outer side of the orbit. In order to get at it, I was obliged to cut across,

and accordingly, during the increasing growth of the tumour, it presses the eyeball so much

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perpendicularly, the whole breadth of the upper eyelid, and dissect back the two flaps. The tumour was nearly the size of a plum, and reached as far back as the eyeball. It was slightly encysted, perfectly organized, and of anomalous texture. The healing of the wound was rapid, and, contrary to my expectation, the eyelid reunited perfectly, and regained very nearly its natural power and extent of motion. The eyeball did so also, and the vision was perfect. This girl went to England some months after, and I was concerned to learn from the surgeon under whose care she was, that the tumour had begun to grow again.

The second case was in a young adult woman. The disease was of two years' standing before I was consulted, and had produced hideous exophthalmos. It was found impracticable to extirpate the tumour without also removing the eyeball, which was accordingly done. The tumour exceeded the size of the eyeball, lay directly behind it, and so completely encircled the optic nerve that the latter was diminished one half in thickness by the pressure of the tumour. The vision had been rapidly declining previous to the operation. This tumour was exceedingly hard, of anomalous texture, and surrounded by a layer of condensed cellular substance. The anterior aspect of the tumour touched and pressed upon the posterior aspect of

outwards and upwards, that it acquires a peculiar appearance; the tears run constantly over the cheek, and aversion to light, with pain in the eye, and in the whole head takes place, during the returns of inflammation of the eyeball.

The CURE of this rare disease can only be accomplished by extirpation of the sac. On this account the under eyelid is to be made tense, the skin and the orbicularis in the direction of its fibres, are to be divided by a bistoury with a convex edge, the sac is then to be laid hold of with a suitable hook, drawn as much out from the orbit as possible, and then carefully extirpated.

If the eyeball do not soon replace itself after

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the eyeball, but had no connexion with it except through the medium of the optic nerve and of the cellular substance. This young woman has continued well for twenty months, and is in perfect health. Dr. Monteath, Senior, and my friend Mr. Rainy of this city, witnessed and assisted me in these operations. *Translator.*

the extirpation of the tumour, Scarpa applies graduated compresses by means of a bandage, and thus, by moderate pressure, retains it in its proper position.

Of Aneurisms in the Orbit.

From the few cases which have as yet been observed, and which Scarpa partially quotes, it appears that before Aneurisms have formed in the orbit, they are almost always preceded by pains in the eye and in the head. By degrees a pulsation begins, which becomes more and more sensible; there is as it were a feeling of rushing and thrilling on touching the eye. The headaches consequently become more frequent, humming in the ears takes place, and the eye itself is sometimes much pressed out from the orbit. All the usual ophthalmic medicines are here of no avail; the application of cold water alone, often brings relief. Compressing the carotid of the affected side,

diminishes the humming in the ear, and the sense of pulsation in the eye. Ligature of the carotid of the affected side, is, as far as it is yet known, the best method of effecting a cure.

II.—OF

THE DISEASES

OF THE EYEBALL.

OF WOUNDS OF THE EYEBALL.

EVERY considerable wound of the eyeball requires in general much circumspection in regard to its cure and prognosis.

The following is particularly to be observed in regard to the individual structures wounded.

When the conjunctiva is any way tense, the lacerated, is to be changed into an incised wound, remove at the same time all remnants of the wounding instrument, wash the eye when there is no extravasation under the conjunctiva, with a mucilaginous lukewarm eye-water, but if extravasation of blood exist, with

a vinous eye-water, * after having previously removed as much of the blood as possible through an incision, provided the extravasation has been considerable. In order to promote the absorbing process, Aq. Ammoniæ may be mixed with the above eye-waters. If fungi should form, in consequence of splinters remaining behind, they are to be cut off with the scissors, the splinter is to be removed, and the spot to be often touched with Laudan. Liquid. to destroy completely the remaining parts of the growth.

In lacerated wounds of the cornea, we must be guarded in our PROGNOSIS, on account of the concussion and bruising of the eye which may be connected with it. These wounds may be met with, either penetrating or non-penetrating. If in such wounds the inflammation and suppuration be not prevented, or

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* A more suitable phlogosis may be excited by a mixture of Brandy and Aqua Menthæ, or by the vapour of Æther rubbed in the hand, &c.

if a thin ichorous suppuration take place, a more or less visible cicatrix remains, which impedes vision when it forms in the centre of the cornea. On this account, the patient must be treated as after extraction of the cataract, and the wound healed by the first intention. Even when the wound is quickly healed, there often remains a visible cicatrix, which however soon disappears in young subjects, and in those who have strong powers of reproduction. In old people, in whom this power is much weaker, it must be supported by the best possible means, and this is accomplished particularly by a solution of the Lapis. Divin. with Laudan. Liquid. Sydenham. Pure incised and small punctured wounds are cured by rest of the eyeball and of the eyelid, generally within forty-eight hours, and even perforation of the cornea with a common fork, often leaves no mark.

If in perforating wounds of the cornea, the iris fall forward between the lips of the wound, let the eyelid be closed and rubbed with the finger, and then allow a very bright light to

fall suddenly into the opened eye. If the iris be not immediately brought back into its position in this way, then, according to Ware, the aqueous humour may be allowed to flow out of the eye, and, according to Gibson, the little bag which the iris forms in the opening of the cornea, may even be opened for this purpose, so that the aqueous humour which is behind the iris, and which presses it towards the cornea, may not prevent the starting back of the iris; on emptying the Aq. humour, both surgeons have often observed the iris recede to its natural position.* If the iris still remain in the wound of the cornea, these two membranes unite, and form a staphyloma iridis, or permanent prolapsus of the iris.

If the iris has been wounded as well as the cornea, the wound, which in these cases is generally hazardous, often suppurates, or leaves

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* *Siehe Dr. Günthers Brief in der Biblioth. für Ophthalmalogie, Kenntniss und Behandlung der Sinne überhaupt in ihrem gesunden und kranken Zustande, von Himly,* 1816. Erst. B. I. St. Seit. 52.

behind it a complete or incomplete obliteration of the pupil. If a portion of the torn iris fall forwards into the wound of the cornea, the projecting part must be immediately cut off with the scissors, after which the iris generally retracts of itself, and its adhesion with the cornea, Synechia anterior, is thus prevented.

A mere concussion of the eye without wound, inflicted by a push with a blunt instrument, often tears the iris from its ciliary connexion, and produces either a double pupil,* or the natural pupil closes, and the newly formed one remains. If both pupils remain open, double vision, Diplopia, is not unfrequently the consequence.

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* Such detachments of the iris from its ciliary connexion, and a permanent pupil arising in consequence, first gave the idea to Scarpa and to Ad. Schmidt, of forming similar pupils artificially, and thus was invented the third known method of forming artificial pupils, viz. the Corodialysis.

In cases of wounds penetrating the sclerotica and the corpus ciliare, effusions of blood into the chambers of the eye very often take place. These must be removed whenever they are considerable, by an incision in the under part of the cornea, and if considerable bruising be also present, spirituous eye-waters are likewise to be carefully used, so as at the same time to promote the absorbing process. Portions of the corpus ciliare hanging out of the wound, must be cut off with the scissors.

If the wound has penetrated into the lens, the prognosis is seldom favourable, for generally a cataract gradually forms. If the lens, in consequence of the wound, has passed forward into the anterior chamber, and if it be hard, (as it generally is in old people,) it must be considered as a foreign body, and extracted by an incision in the cornea, after which the inflammation will quickly subside.

Wounds accompanied with loss of the vitreous humour, are commonly not so unfavourable when they have happened during extraction, as

when they have arisen accidentally, for example, by the goring of a cow's horn, because in the latter case, the power with which the wound has been inflicted is generally very great. Complete evacuation of the vitreous humour often produces loss of sight.

When the retina protrudes through a wound of the sclerotica and choroidea, loss of vision, with dilated pupil, is the consequence. In like manner, an incurable amaurotic blindness comes on if the retina itself be wounded. In these wounds, as also in those of the larger ciliary nerves, a severe vomiting always ensues, which, when not removed, must naturally increase the inflammation of the eye. When saburræ in the intestinal canal keep up the vomiting, it will be cured by evacuants; if the vomiting however be purely nervous, then mild opiates, either internally, or, when they cannot be borne internally, given in glysters of Chamomile Decoction, are useful. Wounds of the ciliary nerves may be discovered externally by a characteristic appearance:

the iris, namely, for the most part (but not always) retracts so much towards the edge of the cornea, that its colours can scarcely be any longer discovered.

So much for mechanical wounds of the eye.*

In regard to chemical wounds of this organ, they require much greater caution as to the

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* The following case may be mentioned from its singularity. The unfortunate patient consulted me three years ago, at which time I caused a drawing to be taken of both his eyes. On attempting to separate two men who were fighting, he received a blow from the fist of one of the combatants, on one of his eyes. The force was so great that the eyeball was burst, and the vision instantly destroyed. On another occasion, he was standing near a man and woman who were quarrelling. The woman, in a violent gust of passion, turned round suddenly, and unintentionally struck the sound eye of this ill-fated man with the point of her elbow. This eye was burst also, and the vision ruined. It is worthy of remark, that both eyes burst a line from the cornea, on the nasal aspect of the eyeball. When I examined him, the pupils were distorted, and drawn towards the rupture, and a capsular cataract existed in both eyes. The retina being insensible, no operation was recommended. *Translator.*

prognosis and cure, than mechanical wounds, because the former always induce more or less loss of substance. So long, however, as they are slight, their prognosis and cure are favourable. Rest of the eye, along with mucilaginous luke-warm fomentations or washes, are all that are here required for the cure. If the cornea itself has received a chemical wound, for example, in consequence of the spattering of hot fluids, a vesicle rises, which becomes gradually whiter, bursts, or disappears without bursting, the cuticle wrinkles, becomes snow-white, throws itself off, and the cornea regains its former transparency. The surgeon must not in this case open the vesicle, or disturb the process of reproduction.

Should the eyes have suffered more extensively by chemical influences, and considerable portions of their conjunctival covering be loosened, the latter must be considered as dead bodies, and cut away. When from similar causes, as for example, burns from concentrated mineral acids, &c. the conjunctiva of the eyelids has

also suffered, the powers of reproduction must be quickly promoted, so that the disorganized parts may be speedily thrown off, and the surfaces of the wounds soon cured; this is effected by gently astringent, drying medicines, as a salve of Cacao butter, or Butter with Tutia or Litharge. In such wounds of their internal membrane, the eyelids must be often moved, so as to prevent an adhesion of either of them with the eyeball or with each other, in consequence of their lying long in contact with each other.

If the chemical injury to the eye has been very great, as from unslaked lime, mineral acids, &c.; if cavities have been produced in the cornea, which may be observed by viewing the eye in profile, a snow-white cicatrix will generally remain in consequence. In such a case, as in less severe injuries of the texture of this organ, above all things, remove the wounding cause, prepare for dropping in, mucilaginous eye-waters, and always prevent the above-mentioned adhesion of the eyelids.

Still worse than the above injuries, are those which have been produced by a flame, striking the eye, or by a coup de soleil, for the quicker and the more numerously blisters form on the conjunctiva, the more the eyeball in general, and the iris in particular, lose all mobility, the more the pupil contracts, the more severe the pain becomes, in the whole eyeball and in the region of the eye, so much the more rapidly does a general inflammation of the eye show itself. In this case the surgeon must do every thing to diminish the inflammation, although often, notwithstanding every effort, he is scarcely able to maintain the form of the eye, much less to restore the lost vision.

A.—OF

THE DISEASES

OF THE TRANSPARENT PARTS OF THE EYEBALL.

a.—OF THE DISEASES OF THE CONJUNCTIVA.

Pure Inflammation of the Conjunctiva of the Sclerotica and of the Cornea. Conjunctivitis.

INFLAMMATION of the conjunctiva of the eyeball commences generally very rapidly in that part of it called Conjunctiva Scleroticæ, by a dark-red network of vessels, (see Tab. I. fig. 7,) which vessels are readily distinguished by their considerable size, from the very fine and deeper-lying vessels of the inflamed sclerotica,*

* To distinguish more readily an inflammation of the Sclerotica, sclerotitis, from a Conjunctivitis, what fol-

and which are easily pushed in all directions by the movements of the eyelid, but hardly change their position from motion of the eye-ball itself. If the inflammation of the conjunctiva scleroticæ now extend to the conjunctiva corneæ, the latter becomes dim, either in part, or over its whole surface, according to the severity of the inflammation; it is raised a very little; has a greyish-white colour, resembling dim, ground glass, and at last assumes a greyish-white redness, which soon ends in distinct, red vessels, running in nearly a straight direction.* This inflammation is attended with little pain.

The CAUSES of the disease are, particularly, small bodies, &c. falling into the eye.

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lows is to be observed. In sclerotitis, the appearances of disease are of greater intensity, but of less extent than in conjunctivitis; the inflamed vessels in the sclerotica form slower than those in the conjunctiva, and differ in their direction from the vessels of the latter. The blood-vessels of the sclerotica, follow all the movements of the eyeball, but take no part in the isolated motions of the conjunctivæ.

* Wardrop.

The CURE is the same as described under Taraxis, in Pure external Inflammation of the Eyeball.

The Thick Film of the Eye. Pannus.

This disease consists in the conjunctiva of the sclerotica and cornea being interwoven with small and large blood-vessels, between which a grey whitish-red dimness is observed, (see Tab. I. fig. 8.) When the Pannus is considerable, the network of blood-vessels appears so thick, that the limits between the sclerotica and cornea can hardly be distinguished, while the iris and pupil are still more indistinctly seen.

The irritation which a trichiasis or entropium produces upon the conjunctiva, is very often the cause of this chronic network of blood-vessels. The seat of the disease, however, often lies in a scrofulous, catarrhal, rheumatic inflammation, &c.

The PROGNOSIS is very favourable when the

disease is early, and properly treated. If the pannus however be very old, and habitual, the cornea often remains somewhat dim, even after the best possible treatment. The pannus which arises from trichiasis and entropium, cures generally spontaneously when these diseases are removed.

The plan of CURE varies; for if the pannus be of short duration and inflammatory, leeches may be applied, and emollient poultices may be made use of. If on the other hand the pannus be of long standing, and if cachectic diseases which have produced the affection have been removed, or never existed, then the introduction, once or twice daily, of Laudan. Liquid. mixed, in obstinate cases, with Balsam Vit. Hoffm. or Æther, is very serviceable. If the disease do not yield, then powders, such as are used for specks of the cornea * and scarifications,

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* For example, ℞. Sachar. Alb. part. vi.
Alum. Crud. part. i. M. ft. Pulv.
Of this a little is to be introduced into the eye, two or three times daily.

or rather the partial excision of the trunks of the largest vessels running towards the cornea, are of the greatest use.* Issues also by caustic, blisters, &c. are often used with effect.

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* In place of cutting out portions of the individual vessels, I generally, in obstinate cases of this disease, cut out a portion of the conjunctiva, from a line to a line and a half in breadth, all around the edge of the cornea. This operation is performed by a small pair of eye scissors, and a fine pair of forceps, and must be done slowly and deliberately. So early as the second day after this operation, nearly two lines of the edge of the cornea will have already become transparent; the clearing goes on progressively from the circumference to the centre. The latter part may not regain its transparency for weeks or months, owing to the greater density of all the tissues at the centre of the cornea. This operation will not effect a cure, if the patient be at the time in a state of scrofulous dyscrasis or fever, it often rather does harm. In such cases, the grand object, is improving the general health, for unless this be effected, the scrofulous pannus may last for years. Many eyes affected with scrofulous pannus are destroyed, by being continually teazed and irritated by local applications, which would have recovered completely, had the Physician or Surgeon not disturbed the eyes, and turned the whole of his attention to the improvement of the general health. *Translator.*

The Winged Film. Pterygium.

Pterygium is a triangular thickened fold of the conjunctiva, unaccompanied by pain, the basis of which, for the most part, takes its origin from the nasal angle of the eye, and is connected with the membrana semilunaris. It may be raised up from the sclerotica without pain, by means of forceps; and its point is always directed towards the cornea.

These pterygia are either very thin, half-transparent, greyish, and furnished with few blood-vessels, and in this state form what is called the Pterygium Tenue, or they are thick, leather or flesh like, * even cartilaginous, furnished with many blood-vessels, and are then called Pterygia Crassa. See Tab. I. fig. 9.

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* Sometimes they are not unlike small muscles, so that they even give the appearance of having sinewy attachments.—See *Schmidt, in der Ophthalm. Bibliotheck.* 2. B. I. St. S. 57.

The above characteristic phenomena do not apply in all cases of Pterygia, for sometimes the basis does not arise from the internal, but from the external canthus, nay, in rare cases, pterygia sometimes arise from the internal and external canthus, from above and below at the same time, their points all tending towards the centre of the cornea, destroy the sight entirely, and exhibit what Scarpa believes to have been the pannus of the ancients. The pterygium is not always connected with the membrana semilunaris, and does not in every case extend over the edge of the cornea.

The CAUSES which may induce a pterygium, are not always easily discovered. For the most part, sand falling into the eye, or particles of lime or stone, give occasion to the disease; on which account, it occurs most frequently in labourers. Old people are more subject to the disease than the young, it is sometimes however met with in children, and Wardrop saw it once in a child

immediately after birth.* The pterygium is not to be considered as a disease consequent upon ophthalmia, though a previous ophthalmia may sometimes leave a disposition to it.

The PROGNOSIS is always favourable. Ware, often brought the CURE of pterygium, when thin, recent, and not yet extended over the cornea, to a favourable issue, by the external use of powdered Sugar and Alum, mentioned under pannus. If at the same time, the pterygium, previously raised with small forceps, be repeatedly cut across, its disappearance will be considerably promoted.

When the pterygium has passed over the

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* I have lately seen a large pterygium in a delicate child of four months of age. It was situated under the upper eyelid below the supra-orbitary foramen. The mother could assign no cause for this disease, and the eye was in other respects healthy.

Within these few days I also removed a large pterygium from the very same situation, in an adult woman. Its base reached as far back as the reflection of the conjunctiva. *Translator.*

cornea, or when it is thick, it is most safely and quickly cured by the knife. To accomplish this little operation, after an assistant has drawn the eyelids as much as possible from each other, and the operator laid hold of the pterygium at its basis, and raised it from the sclerotica by means of the small forceps, fig. 1, it is then to be completely cut across at its base with a sharp scalpel, and carefully removed with David's scissors, so that as little of it as possible remain behind, particularly on the conjunctiva corneæ. When the bleeding has ceased, a dry linen compress is to be hung over the eye operated upon, and according to Scarpa, the eye may be also sometimes washed with decoction of Mallows, and such like. On the fifth or sixth day, the little wound is covered with a puriloid substance, and it is healed between the eighth and twelfth day. If large portions of the pterygium remain upon the eye, suppuration of these parts must be kept up by smearing them with Laudan. Liquid. Syd. until the remnants have thrown themselves off.

Finally, if small points of the pterygium still remain upon the cornea after the suppuration, they will certainly yield to the gradual use of the means recommended for specks of the cornea.

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*The Fatty Film, Pinguecula.**

A small, flat, dirty, yellow swelling, lying immediately under the conjunctiva, mostly observed in the external canthus, seldom exceeding in size the circumference of a small lentil, see Tab. I. fig. 6, and never met with in very young people, is called Pinguecula. It very

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* The mere external fatty appearance of this little swelling has been the occasion of this name being given to it by surgeons; for, a Pinguecula which occurred to me not long since, or rather two of them lying near to each other, which I removed by an operation, and then subjected to a chemical analysis, did not enable me to discover in them the least fat; they rather contained a substance resembling a mixture of Albumen and Jelly.

seldom encroaches upon the cornea, and never goes so far as to interfere with vision.

No cause has yet been found out, except a relaxed constitution of the patient.

The disease may remain during life without increasing, and, but for the deformity it causes, is of no consequence. On this account, the surgeon has in general nothing to do in such a case. If, however, the removal of the Pinguecula be determined upon, it may be attempted in the same way as specks of the cornea are, by means of scarifications of the little swelling. The safest method of CURE is, careful removal with the knife.

Fleshy, Fatty Fungus, and Papula of the Conjunctiva.

Fleshy excrescences of considerable size, have sometimes been observed on the conjunctiva, from birth; such cases however are rare. For the most part they appear in scrofulous or sy-

philitic people, are seated sometimes on the limits between the cornea and sclerotica, and in very rare cases, particularly when the swelling contains fat, they produce hairs of considerable length. *

The careful extirpation with the knife, of such growths, and the subsequent application of astringent or gently escharotic means, or of Laudan. Liquid., gives the most certain hope of CURE, only the cachectic diseases from which the malady originated, must be at the same time attended to. If such swellings or fungi occur in the form of fleshy little warts, carunculæ, epanastemata, their cure may be effected without the knife.

Papula of the conjunctiva, which almost always has its seat between the conjunctiva of the under eyelid and the plicula semilunaris, not far from the lower punctum, is a roundish,

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* *Himly,* 2. B. I. St. S. 199.—*Wardrop's Essays on the Morbid Anatomy,* p. 86. By the latter, and by Demours, such cases are very beautifully painted.

pretty hard, pale red and itchy, little swelling, of the size of a pin-head, which Professor Beer * has only met with in girls whose menses either did not flow at all, or flowed irregularly or scantily. If menstruation be duly promoted, and return, the little swelling disappears. If on the other hand, the patient rubs it often, it becomes larger, acquires the size of a pea in the course of three days, and must then be laid hold of with a hook, and cut out with a scalpel. If the menstruation continue irregular, the disease may recur, yea, even a carcinomatous exophthalmia may take place, when the papula has been treated by escharotics, particularly in cachectic people.

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* *Lehre der Augenkr.* 2. B. S. 679.

b.—OF THE DISEASES OF THE CORNEA.

Pure Inflammation of the Cornea. Corneitis, Keratitis.

At first the cornea is somewhat dim, and has a dull, muddy appearance; by degrees it acquires a reddish glitter, and, when the inflammation becomes still higher, contains visible vessels; at the same time, considerable pains of the eye are commonly present. When the inflammation has commenced from the sclerotica, the vessels in the cornea seldom appear distinctly; they are generally so fine that they can scarcely be seen with the bare eye; but if the inflammation has advanced from the conjunctiva scleroticæ to the conjunctiva corneæ, then the vessels have usually a much greater

size, and run almost straight; this latter kind of inflammation belongs to conjunctivitis, under which it has been already treated of.

The CAUSES of this inflammation are almost always mechanical, and correspond as well as the CURE, with those of Pure inflammation of the Conjunctiva.*

Opacities and Specks of the Cornea. Obscurationes et Maculæ Corneæ.

By Opacity of the Cornea, is understood a dimness, extended over the whole, or almost the

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* Wardrop, who treats of Corneitis very particularly, distinguishes still another variety of it, viz. of the innermost layer of the cornea, Tunica humoris Aquei. This variety is recognized by the uneven, cloudy dimness, the seat of which is not easily determined, and by the feel of over-fulness in the eye, by which the cornea appears to be semewhat prominent. He cures this inflammation very quickly by emptying the aqueous humour.

The English now employ the evacuation of the Aqueous humour, by means of a needle, very commonly, in inflammation of the eye.

whole cornea; by Speck, is understood only partial opacity of this texture.

Of opacities and specks, there are several progressive distinctions depending on different causes, which shall be explained here as shortly, but as distinctly as possible.

1. A smoke-like, greyish speck, with edges that are shaded off, or an opacity, is called Nephelium, Nebula, Nubecula.

2. When the speck appears of a more saturated white, as if cloudy, and the muddiness more accumulated in the cornea, it is called Achlys, Ægis.

3. If the specks appear of a still more saturated white, if the lamellæ of the cornea have lost their natural transparency, and have in consequence of the cause, (generally previous inflammation,) become changed into an enamel-looking state, and if the opaque substance have been organized into a pseudo-membrane, then the morbidly changed part is often chalky-white, or glistening, like mother-of-pearl, more or less raised above the cornea, hard to the

touch, and yet somewhat shaded off at its white edge, and is called Leucoma. Of this class there are three species, according to the degree of the opacity, viz. 1st, mere Leucomatous opacity, Obscuratio Leucomatosa; 2d, Albugo, Paralampsis, or Leucoma Cretaceum; and 3d, The pearly speck, Macula Margaritacea, which forms the highest degree of Leucomatous disorganization.

4. When the cellular substance between the layers of the cornea, has been destroyed by ulcers, &c. and the lamellæ have adhered directly with each other, and become as opaque as a leucoma, the appearance is called by Schmidt and Beer, Cicatrix, (see Tab. II. fig. 1.) which has much resemblance to the leucoma, but appears at its edge as if accurately cut or defined. It is glistening, very white, of various forms, comes on frequently in conjunction with synechia anterior, and may have, along with a defined border, a muddy or even a leucomatous circumference.

5. Specks are often met with, which in fact

are nothing else but dried abscesses of the cornea; these are made manifest by their yellowish colour, which is divided as it were into little islands, by greyish-white interspaces, and also by a projection of the cornea, especially when the dried matter has its seat between the conjunctiva cornea and the lamellæ of the cornea which lie underneath. Not unfrequently a partial anterior synechia accompanies these specks.

6. A mistiness, which has its seat only in the circumference of the cornea, and comes on very slowly, without an appearance of inflammation, has been described under the name of Arcus Senilis, Gerontoxon, Macula Arcuata. This dimness occurs almost exclusively in old people, and appears to be the same process which changes the arteries, cartilages, &c. of old people into a bony matter. Perfect ossification of the cornea has sometimes been found in old people. This, so called Arcus Senilis, however, is not unfrequently met with even in young people (see Tab. I. fig. 7.)

Mohrenheim * saw it in a new-born infant, Sybel † met with it in a man thirty-two years of age, and Wardrop ‡ observed it in several periods of life. However, such opacities are not injurious, at least the best Surgeons have never observed them to injure the eye.

7. Lastly, pieces of bone have sometimes been observed in the cornea, § and may be treated of under specks of the cornea, but under none of the previous species. I shall only remark concerning them, that sometimes (when they include the centre of the cornea, and have their position immediately under the conjunctiva corneæ) the operation of turning them

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* *Dissert. Inaugural. d. quibusd. materiæ et formæ oculi, aberrationibus a statu normali.* Halæ, 1799.—*Auch in Reils Archiv. für die Physiologie,* 5. B. I. Heft.

† *Dessen Beobachtungen,* 1 Thl. S. 9.

‡ *Essays on the Morbid Anat. of the Human Eye,* p. 86.

§ *Wardrop,* p. 72, also *Walter Anatom. Museum,* I. Bd. S. 139, &c.

out* might be used with good effect; this operation was formerly too much recommended by Callisen, &c. in other kinds of specks.

A previous inflammation of the cornea may almost always be traced as the cause of speck, whether it may have proceeded from other structures of the eye, or originated in the cornea (for example, from splinters of iron, &c. in the cornea). If the inflammation do not resolve itself sufficiently, the fine vessels pour out an opaque lymph, to which they have always a disposition in inflammatory affections of the cornea, so that specks and opacities readily result. That a Macula Arcuata may be congenital, has been stated already, and that a leucomatous opacity of the whole cornea, except a square-shaped spot in its middle, which continued transparent, may also not only be congenital, but even hereditary, has been observed by Kieser.†

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* Which Wardrop has performed with success.

† *Himly and Schmidt Ophthalm.* B. 3. B. 3. Stuck. S. 79.

The PROGNOSIS varies, according to the different kinds of specks. It is favourable in young, robust people, in whom the change of matter as yet goes on rapidly, when only a slight opacity or macula is present, and when it exists on the surface of the cornea.* In such a case the disease soon yields by perseverance in the use of means. In old hectic subjects, on the other hand, the disease often continues for a long time. Patience is above all things necessary, for often, after the continued use of medicines for months, no diminution of the speck has been observed, yet at length it will yield to the applications.

The prognosis in a leucoma is more uncertain and unfavourable, for if it be already of long standing, it has penetrated to the deepest lamellæ of the cornea, and if it be also very thick, and

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* Much depends on the more or less superficial seat of the speck, for even a very slight speck, seated in the most interior lamellæ of the cornea, will not yield to even persevering and powerful practice.

the patient old and debilitated, the speck will resist every plan of cure. In a leucoma existing in a young, strong subject, the prognosis is more favourable, for there are many examples of such leucomata being cured, only the cure is very tedious, even of years' duration.

Cicatrices of the cornea cannot be cured, but their circumferences may be removed, when more or less opaque.

Dried abscesses of the cornea, when they do not contain too much dried matter, are easily cured.

If, along with specks, varicosity of the eye be present, the prognosis is very unfavourable, for the eye must not be touched.

The CURE is accomplished commonly by local medicines only, however, cases are not unfrequent in which even internal medicines become necessary. Care must therefore be taken to moderate the cachexiæ, and dispositions to frequent returns of ophthalmia. Sometimes the absorption of matter must be promoted, and for this purpose, Boerhave formerly employed

Calomel. In like manner, Antimonials, Arnica, Extr. Pulsatill. Nig. &c., have been recommended.

The topical treatment, however, is always the most important and the most useful, according to the general experience of medical men.

There is almost no disease for which so many external means have been recommended, as for specks of the cornea. The reason probably, is not only the frequent obstinacy and incurability of the disease, but also the want of perseverance of the Patient and Surgeon in the necessary plan of cure; a person proceeds from one medicine to another, because he has lost confidence in the first, by means of which the disease does not disappear sufficiently rapidly. However, a frequent change of the applications, and their gradual increase of strength, are very favourable, and necessary to the cure.

I shall endeavour to mention the medicines of decided efficacy.

They may be all properly divided into two classes, of which the first contains the

emollients and resolvents, the second the stimulants. This division is important; for as in recent, soft specks, stimulants are indicated from the commencement, and as in hard, old, very opaque opacities and specks, the use of resolvents is first required, and then the application of stimulants, so there is a general division of specks into these two classes, which has great influence in practice.

We may conclude that a speck is of soft consistence when it is dark-grey, dull, not glistening, shaded off at its edge, and furnished with fine blood-vessels running towards it. If these characters be not present, the specks are of harder consistence, and must be first treated with emollient, and afterwards with stimulant medicines.

Dried abscesses and chalk-like specks, which after a change of resolvent medicines, do not alter their appearance and consistence, must be scarified superficially, and then the use of the same means must be resumed.

Among the emollient, resolvent medicines, the following may be enumerated: the Axungia

Viperina, Oleum Ovorum, Medull. Ossium Recens, Oleum. Nuc. Iugland. Liquamen Hepatis Mustellæ Fluviatilis, Decoct. Malvæ, Fel. Tauri, Ext. Cicutæ, Ext. Chelidon. Maj. Ext. Taraxaci, Aloes. Kali Carbonicum,* Natron Carbonicum, Borax, &c.

Among the class of stimulant applications may be enumerated, Rancid Oils, Sal. Volat. Corn. Cervi, Alumen, Zincum Sulphuricum, Baryt. Muriat. Natrum Muriat., Laudan. Liquid. Syd. Mercurius, particularly Merc. Precip. Ruber, mixed into a salve, Butyr. Antimonii, (which, however, in case it should be diluted, can only be mixed with Muriatic Acid, as every other diluent decomposes it,) Potassa Fusa, Lap. Infernal. † Pulvis Sachari, Vitr. Subtiliss. Pulverisat. Limatur. Stanni, &c. &c. &c.

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* ℞. Kali Carbon. gr. ii.
Aq. Distill. ℥i. M. solvendo.
Some drops to be poured into the eye, five or six times daily.

† One or two grains to half an ounce of water; the same proportion of Potassa Fusa is proper.

So far with regard to simple means. From among the most particular and most powerful compounds which have been celebrated by ancient and modern Surgeons, I shall only select the following:

℞. Sal. Volat. C. C. gr. v.
Fell. Taur. Inspiss. ʒi.
Extr. Chelidon. ʒii. M.

To be streaked on the eye by means of a pencil.

℞. Sal. Corn. Cervi. gr. xii.
Fell. Taur. ʒi.
Mell. Despum. ʒiii. M.

The specks to be streaked over with it, several times daily. *Richter.*

℞. Fell. Taur.
Extract. Cicut.
——— Cort. Peruvian, ℈ii. M.

Reil recommends this particularly, in specks after scrofulous ophthalmiæ.

℞. Liq. Ammon. Caust. gtt. x.
Olei Nuc. Iugland. ℥ss. M.

To be streaked on the speck with a pencil, the quantity of the Liq. Amm. to be increased in

proportion to the diminution of the irritability of the eye. *Graefe.*

℞. Aq. Rosar. ℥ii.
Sacchar. Alb.
Boracis Venet. a ʒss.
Ext. Aloes. Aquos.
— Opii, a. gr. vi. M. exact.
Beer.

℞. Merc. Sublim. Corr. gr. i.
Opii Colat. gr. viii. solve in.
Aq. Ros. ℥ii.
Beer.

℞. Liquam. Hep. Must. Fluv. ʒi.
Butyr. Recent. Insuls. ℥ss.
Merc. Prec. Rub. gr. xv.
Vitriol. Alb. gr. vi. M. exact. ft. Ung.
Beer.

℞. Butyr. Vaccini Insuls. ʒii.
Merc. Precip. Rub. gr. xv.
Tutiæ. Præp. gr. vi. M. exact. ft. Ung.

A small quantity to be introduced into the eye once daily, by means of a pencil. *Beer.*

When a speck is nourished by blood-vessels, which in such cases often run in bundles, it will be proper to elevate the vessels gently, and cut out a portion of them; the communication of the blood-vessels with the speck will be thus

intercepted, and the speck, now robbed of its support, will more readily yield to the usual means.

Conical Projection of the Cornea.

This rare disease of the cornea, and which has of late first come into notice, consists in a sugar-loaf-shape projection of this membrane, proceeding very slowly, and occurring without inflammation, Tab. II. fig. 2 and 3. The apex is commonly thickened, sometimes becomes opaque, and always forms the central point of the cornea. In this state it resembles, when viewed laterally, a hard crystal, but when viewed in front, it has a sparkling appearance,* and thereby prevents the proper view of the iris and of the pupil. These changes of the shape of the cornea, produce not only short-sightedness, but also such a morbid refraction of the

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* Wardrop, p. 114.

rays of light, that even near objects appear confused and imperfect,* yea, at last even large objects are not visible to the patient at a distance of from three to four feet. This disease is generally observed in young people, yet even old people are attacked by it. The conical projection of the cornea may however remain stationary, in a slight degree, for many years, without becoming opaque at its apex. The disease comes on sometimes in one eye only, sometimes in both at the same time. †

Although the disease is rare, yet many oculists have seen it often, and both Demours ‡ the father, and son, can enumerate more than one hundred cases which they have observed.

The CAUSES are as yet very little known. In one case by Rowley, the disease commenced in

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* Ware, p. 61.

† *Scarpa, Traité sur les Maladies des Yeux.*
I have seen two brothers affected with this disease in both eyes. *Translator.*

‡ *Demours,* tom. i. p. 316.

a woman, during severe crying in difficult labour.

The plan of CURE is at present very unsatisfactory. The aqueous humour has been emptied, (Ware,) and compression afterwards made use of without effect; the Infus. Herbæ Nicotianæ, poured by drops several times daily into the eye, has been used with more advantage. In order to remove the great short-sightedness attending this affection, the lens has been depressed,* as in the common operation for cataract, and with happy effect; this practice, however, is very uncertain, and in many cases inapplicable. The whole disease, moreover, appears to be nothing else than a dropsy of the aqueous humour in which the cornea, probably from a congenital thinness of its centre, cannot resist the pressure of the accumulating fluid. However, it is worthy of remark, that the

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* *W. Adams, in dem Archiv. für Medicinische Erfahrung, &c. Heraus gegeben von Prof. Horn, Nasse und Henke,* B. 2. S. 191.

observers of this disease have never found medicines directed against dropsy of the aqueous humour, efficacious in removing this affection.

Hernia of the Cornea, Hernia Corneæ. Ceratocele.

When an ulcer of the cornea has penetrated to its innermost lamella, it sometimes happens, that whilst the ulcer still remains open, or after it has healed, this internal lamella becomes projected outwards in the shape of a greyish, half-transparent, watery vesicle, and forms what is called a Hernia of the Cornea. Wounds of the cornea also, and ulcers which have actually gone through it, may (when the most internal or external lamellæ are sooner regenerated than the rest, and pressed outwards) cause Hernia of the Cornea.

The PROGNOSIS is various: when the ceratocele is small, and no opening has as yet appeared in it, a cicatrix of more or less size will

remain, but the prognosis is here, nevertheless, very favourable.

If the hernia, however, has been large, and burst, the iris almost always applies itself in the opening, the pupil becomes thereby distorted and contracted, and the vision greatly weakened.

To CURE this disease, astringent means must be introduced into the eye, for example, a strong solution of the Lapis Divinus, at the same time Laudan. Liquid. alone, or mixed with Bals. Vitæ Hoffm. must be streaked on the hernial tumour. In like manner, escharotics, for example the Lapis Infernalis, have been used with success. The latter is also to be used when the iris comes to lie in the hernial sac, by which practice, however, synechia anterior is not prevented, but rather promoted. *

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* When the prolapsus of the iris has first arisen, we may attempt reducing it to its natural situation, by the methods directed under wounds of the cornea.

C.—OF THE DISEASES OF THE CRYSTALLINE LENS.

Inflammation of the Crystalline Lens, and of its Capsule, Lentitis.

Pure Lentitis, particularly if arising from external causes, is, so far as observation has hitherto gone, always combined with inflammation of the other structures lying in the vicinity of the lens. The iris is hence almost always inflamed in this disease, and the pupil perceptibly or imperceptibly distorted or contracted.

Impure Lentitis, which is the most common kind, arises slowly, runs for the most part a chronic course, and also appears without iritis.

It announces itself for the most part by some aversion to light, and slight cloudy dimness of vision, at the same time, many vessels swelled

with blood, are seen in the pupil, after it has been dilated by means of Extract of Belladona; of these the largest only are visible with the naked eye. With a lens, magnifying about six times, a fine wreath of vessels may be observed in the anterior capsule, running concentric with the round pupil; if this zone be observed more carefully, it will be seen that it consists of several arches of vessels, to which many others from the periphery of the anterior capsule or iris run in a radiated manner. In the lens itself, to which no blood-vessels run in the natural state, a similar zone of vessels is not unfrequently observed, which often receives vessels from behind. Between these blood-vessels of the capsule and of the lens, there is found, as in corneitis, effused coagulated lymph, which still more impedes vision. The pains are slight, and are not observed in the middle of the eye, but rather in the bottom of the orbit, and in the supra-orbitary region.

I have introduced in this place, the Diagnosis of Lentitis, (on which disease the renowned Ph.

Walther first increased our knowledge,) as an introduction to Cataract, which is to be immediately considered, because, I believe with many, that a very great number of cataracts arise from an inflammation of the lens and of its capsule, and hence this disease must merit above all things the observation of medical men.

Cataract. Cataracta, Hypochyma, Suffusio Oculi.

Every dimness of the lens or of its capsule, or of both structures at the same time, by which the rays of light are more or less impeded in their passage to the retina, is called a Cataract.

Sometimes a commencing cataract is confounded with a commencing amaurosis. To prevent this mistake, it is necessary to observe the following symptoms of cataract and of amaurosis.

The characteristic phenomena which usually

attend a gradually forming cataract, are the following: The objects appear to the patient enveloped in a cloud, dirty and dusty. The decrease of sight exists in an exact ratio with the dimness visible behind the pupil. Generally the dimness is first seen in the centre, seldom at the edge of the pupil. When the cataract is more formed, a blackish ring shows itself around the edge of the pupil, which is the shadow of the iris upon the lens, now rendered visible from its opacity. When the cataract commences in the middle of the lens, it obscures the objects placed immediately opposite to the eye, the patient, however, knows objects placed to one side, hence it happens that such patients can see better in the shade, when the pupil is dilated, than in bright day, when it is much contracted. So long as the dimness of the lens is inconsiderable, convex glasses afford the best palliative aid. The patient sees the flame of a candle enveloped in a whitish cloud, and, if the cataract be already far advanced, he no longer sees the flame, but merely the glare

around it. The iris is moveable in commencing cataract.

The characteristic appearances indicating the developement of amaurosis are the following: the opacity lies much deeper in the eye than can possibly be seated in the lens, hence it appears concave, on more minute examination. The colour of the opacity verges more to a greenish or reddish, than grey. The patient is often almost blind, though the dimness be inconsiderable. The pupil is dilated, the iris slightly or not at all moveable, and the edge of the pupil sometimes more, sometimes less angular; the cornea is dull, and the eye has lost its brightness when the amaurosis is of a paralytic nature. The alternate increase and diminution of sight, do not in such a case depend upon the dilatation or contraction of the pupil, but on those causes which invigorate or debilitate the whole frame. The contour of the flame of a candle appears coloured like the rainbow, to those affected with commencing amaurosis. The patient also

distinguishes objects as imperfectly towards the side as those placed exactly before him. *

OF THE SPECIES AND VARIETIES OF CATARACT.

The Lenticular Cataract, Cataracta Lenticularis, commences in the centre of the lens with a yellowish, grey colour, which shades itself off towards the edge. At the same time, the shadow of the edge of the pupil is observed in the form of a blackish ring, the pupil dilating and contracting as usual. This cataract commonly lies considerably distant from the uvea, and cloudy, bright-white specks are never observed in it. Tab. II. fig. 4.

The Capsular Cataract, Cataracta Capsularis v. Membranacea, seldom commences from the middle of the pupil, but rather from its

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* I have seen so many cases of commencing amaurosis, where the patients saw better to one side than in front, that I now put no faith in this symptom as a Diagnostic one of cataract. *Translator.*

edge, in an indefinite form, sometimes in glistening white points or stripes, like those of Spermaceti, sometimes in specks. This cataract is always coloured very bright, but never equally.* It never continues for any time alone, but ends, for the most part, in Capsulo Lenticular Cataract.

There are three varieties of the Capsular Cataract.

a.—The Anterior Capsular Cataract, when the anterior half only of the capsule is rendered opaque, *Cataracta Capsularis Anterior.* Specks and stripes of a bright-grey, chalky-white, or mother-of-pearl appearance, are observed in this case in the anterior capsule, which becomes thickened, sometimes fills up the posterior chamber of the eye, consequently impedes

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* The glistening, white parts like Spermaceti, in the pupil of the 6th fig. of Tab. II., dying away towards the centre, will be immediately recognized as the opaque anterior capsule.

the mobility of the iris, and prevents the appearance of the well-known shadow. The vision at the same time is not only injured, but actually reduced to a limited sense of light, whether the patient may be in well-lighted, or in half-dark places. As a concomitant of anterior capsular cataract, we may consider the *Cataracta Dendritica, arborescens*, or, according to Richter, (*Dessen Chirurg.* 3 Bd. S. 174.) Cataract of the Choroid Coat, *Cataracta Charoidalis.* Brownish, arborescent figures, on the anterior capsule of the lens, which may either have become opaque, or continued transparent, are known by this name. There is still uncertainty in regard to the nature of this cataract. Some ancient oculists considered the brownish branchings, as prolongations of the choroid coat. Others, and among them Beer, consider them as the impression of the tapetum of the uvea upon the capsule of the lens. Others again believe, that these arborescent opacities are in the substance of the capsule itself, or imagine that merely the blood-vessels

of the inflamed capsule of the lens have been described under the name of Cataracta arborescens.

b.—The Posterior Capsular Cataract, Cataracta Capsularis Posterior, when only the posterior half of the capsule of the lens is opaque, may be recognized, on proper examination, by a muddiness, accompanied with specks and stripes, which appear concave, greyish-white, and irregular, but are never of a chalky-white, by the mobility of the iris continuing even after the lens has become opaque, and by the sight being less impaired.

c.—The complete Capsular Cataract, Cataracta Capsularis perfecta, agrees in appearance with the anterior capsular cataract, only that in this case the posterior chamber of the eye, is entirely destroyed by the thickening of the capsule, the pupil is almost immoveable, even the iris sometimes appears arched, on account of the pressure of the cataract.

The Cataract of Morgagni, Cataracta Morgagniana, consists in a muddiness of the humor Morgagni, caused by sudden, particularly chemical influences upon the eye, (for example, by exposure to the vapour of concentrated mineral acids, &c.) and is one of the rarest species. Soon after this, there follows a perfect change of the lens into a milk-like fluid, and not unfrequently, at the same time, a perfect capsular cataract; hence this cataract is seldom found existing alone.* Its colour is milk-white, soft and delicate, the whole pupil appears cloudy, but the clouds change their form every time the eyeball is rubbed with the finger, or is quickly or smartly moved; the posterior chamber is nearly or completely filled up, and the sight more or less limited. See Tab. II. fig. 5.

The Capsulo-lenticular Cataract, Cataracta

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* The lens must always, in this case, soon become cataractous, because it is nourished by the Humor Morgagni.

Capsulo-lenticularis, is by no means the most rare. Its symptoms are the following: the colour of the opacity, where it is close to the iris, is partly chalky-white, partly like mother-of-pearl, and in many parts these two colours are seen stratified upon each other, in such a way that the pearl-coloured lies always above the chalky-white layer. The iris is almost immoveable, but the pupil is round. This bulky cataract presses the iris towards the cornea, for which reason, the patient's perception of light is very imperfect. Tab. II. fig. 6.

The following are the varieties of Capsulo-lenticular Cataracts.

a.—A Capsulo-lenticular Cataract, which is accompanied with the formation of new substance in the anterior capsule. It obtains different names, according to the different forms which the new structure assumes; hence there is a *Cataracta Capsulo-lenticularis Marmoracea, Finestrata, Stellata, Centralis, Punctata, et Demidiata.* In all these slight

varieties, and in most others of capsulo-lenticular cataract yet to be treated of, the substance of the lens, with the exception of its nucleus, becomes gelatinous or milk-like.

b.—The Encysted Cataract, Cataracta Capsulo-lenticularis Cystica, is characterized by its snow-white colour, it lies sometimes near to, sometimes at a greater distance from the iris, according to the situation of the patient's head; when the head, for example, is inclined forwards, the cataract strikes upon the iris, and appears as if it would enter the pupil. This variety of capsulo-lenticular cataract often appears tremulous, *Cataracta Capsulo-lenticularis Tremula,* or swimming, *Cataracta Capsulo-lenticularis Natatilis.* The cause of this appearance depends on the connexions of the capsule of the lens with the neighbouring parts, having been either weakened or entirely destroyed.

c.—The Pyramidal Capsulo-lenticular Cataract, Cataracta Cap.-lent. Pyramidata, is al-

ways the effect of a violent inflammation of the eyeball, and is distinguished from others, particularly by a white, almost glistening, pyramidal-shaped growth, projecting through the pupil, and taking its rise from the centre of the anterior capsule of the lens, and which, on account of its adhesion with the edge of the pupil, renders the iris quite immoveable, and the pupil angular. The sense of light is, as a natural consequence, very weak, or entirely wanting.

d.—The Dry-hulled Capsulo-lenticular Cataract, Cat. Cap.-lent. arida Siliquata, occurs especially in very young children, who have suffered much from convulsions, particularly of the muscles of the eyes, by which the capsule of the lens has been partially loosened from its connexions, and must now, along with its lens, in consequence of deficient nourishment, become shrivelled; this cataract consists, therefore, in a drying of the nucleus of the lens, along with a drying and crumpling of the capsule. It may be known in children, by its

bright, grey-white colour, by its small size, its considerable distance from the iris, by the free motions of the iris, (when it does not adhere to it in some points,) and lastly, by the sight being never entirely destroyed. See Tab. II. fig. 7. The same phenomena are sometimes observed in the adult, the cataract, however, is always of a dazzling white, only here and there of a dirty white, inclining somewhat to yellow; it is also flattened, and the sight commonly reduced to a mere sense of light.

e.—A fifth, and very rare variety of capsulo-lenticular cataract, is that accompanied with a purulent sac, *Cataracta Capsulo-lenticularis, cum bursa ichorem continente.* It is known by having a duskish, orange colour, by very sluggish movements of the iris, by a readily discovered want of the posterior chamber, by the slight arching forward of the iris, by a very indistinct perception of light, and lastly, by an evidently debilitated and cachectic habit of constitution. The bag of matter, which in this

kind of cataract, is almost always found between the lens and the posterior part of the capsule, contains sometimes a very fetid ichor.

f.—The Barred Cataract, Cataracta Cap.-lent. Trabecularis, sive cum Zona, is known by the following marks: A formed, anterior capsulo-lenticular cataract is distinctly seen behind the pupil, which has become contracted and angular, and upon the cataract there is attached a chalk-white, glistening, and often pretty thick bar, which has a more or less perpendicular or horizontal direction, adheres by both ends to the pupillary edge of the uvea, and renders the iris motionless. On this account, the perception of light is indistinct or entirely wanting, and the eyeball itself is not unfrequently atrophic.

So far with regard to the species and varieties of Cataract; we now proceed to those differences, depending upon the consistence of the lens and capsule.

The consistence of Cataract has not only great influence on the prognosis, but also on the choice of the kind of operation; on which account, the following division is very important to the operating Surgeon. A *hard Cataract* has the following appearances: it is of a darkish colour,* and lies at a distance from the pupil; the sight is only limited, not lost, and the patient, when the pupil is dilated, observes large objects pretty distinctly, at the same time the motions of the iris are very lively. These hard cataracts occur for the most part in old people, and only in the lens.—To the class of *firm, tough cataracts*, many of the capsular class belong; for example, the encysted cataract, the

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* Sometimes the cataractous lens is met with of a very dark colour. Jannin, for example, describes, in his *Observations on the Eye*, two black lenticular cataracts, which, when held opposite to the light, appeared reddish; they were very hard, yet very large. The cataracts had existed long, and were met with in aged people. Wenzel, the father, has also observed perfectly black cataracts.

pyramidal capsulo-lenticular cataract, the dry-hulled cap.-lent. cat., the barred cataract, &c.— Sometimes the cataract is *soft, that is, cheesy or gelatinous*, either throughout its substance, or only on its surface; this species has always a bright grey, or greyish-white, or a sea-green colour, unequally distributed, and in this kind the sight is often totally lost, the posterior chamber filled up, and the motions of the iris rendered sluggish. There are also *actually fluid Cataracts*, which, however, on account of opacity of the capsule almost always accompanying them, are very difficult to be discovered. When the capsule is not perfectly, but only in some parts opaque, the following symptoms are observed. The cataract lies upon the uvea, if the patient bends his head forwards, and the lens pushes the iris towards the cornea. The sense of light is distinct. When the patient holds his head quiet for a long time, the cataract clearly shows a thicker sediment below, and a thinner stratum above. There are also *fluid-hard Cataracts*, among which may be

reckoned, the cataracta Morgagniana, and the cataracta cum bursa ichorem continente.

The distinction of Cataract into ripe and unripe, *Cataracta matura et immatura*, is also important in practice. The grey cataract is ripe as soon as it is incapable of farther increase, whether it have entirely destroyed the sight or merely limited it, whether it fill the pupil or not; an unripe, grey cataract, again, is that which admits of increase.*

A still more important classification of this disease, is that into a purely local, and a complicated cataract, *Cataracta topica pura, et Cat.*

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* This division might be still more important, if in the strict sense, that state of the lens were called Cataracta matura, in which previously existing lentitis had now subsided, and left behind no aversion to light. In such cases, so long as an inflammatory state of the lens is present, the cataract, though perfectly opaque, would be perfectly unripe for operation; for who will touch a lens still in a state of inflammation, without dreading such a subsequent inflammation of the parts surrounding it, as may be destructive to the organ of vision?

complicata, of which the first species is rare; the second is subdivided into *locally* complicated, *constitutionally* complicated, and *perfectly* complicated cataracts.

To *locally* complicated cataracts belong, in the first place, the adherent cataract, Cataracta acreta, the diagnosis of which has already been pointed out. The cataract may be still farther locally complicated with contraction of the pupil, without synechia posterior, with atrophy and with hydrophthalmia, with cirsophthalmia, with specks and cicatrices of the cornea, with pterygium, and with different ophthalmiæ. When the cataract is complicated with glaucoma, it has almost always a greenish or sea-green colour, is exceedingly large, so as to project itself from the pupil towards the cornea, the colour of the iris is changed, as it is after iritis, the pupil dilated and angular, the blind eye is troubled with spectra of light, and is more or less varicose and hard. Tab. II. fig. 8. Such a cataract is always attended with chronic headaches. During its formation, should the

cataract appear to be complicated with synchysis, the diagnosis is difficult. It is also uncertain when the dissolution of the vitreous humour is incomplete; for in that case, excepting a suspicious softness of the bulb, and a slight fluctuation of the iris upon brisk motions, nothing can be detected which could confirm our knowledge of the disease. If however the synchysis be fully formed, then the fluctuation of the iris forward and backward, is evident; the cataract shakes, the eye appears atrophic, is at the same time soft to the feel, the sclerotica around the cornea is bluish, as in young children, and the sense of light is doubtful. When the cataract is locally complicated with amaurosis, the diagnosis will be easy if the amaurosis be perfect; for then the pupil will be found unusually large, the iris immoveable, and the patient cannot distinguish night from day. But in slighter degrees of amaurosis, the diagnosis is often very difficult; the history of the origin of the disease, will in such a case afford the best explanation.

THE CAUSES OF CATARACT.—Among the most particular causes of Cataract is, first, advanced age; for at this time of life, the vessels and cartilages become ossified and closed, the organs of the body are ill and imperfectly nourished, and cataract is also very commonly met with. Long misuse of the eyes, unusual, sudden and strong irritation of light, for example, in new-born delicate children; the strong and long-continued effects of the rays of the sun upon the head and eyes, working over strong fires, the local effects of concentrated mineral acids and æthers, the too free use of spirits, wounds of the eye and of the lens, miasmatic and cachectic dyscrasiæ, &c. produce cataract more or less frequently. Inflammations of the capsule of the lens, or of the lens itself, may also frequently induce cataract. I am convinced with Walther, that the greater part of cataracts take their origin from an inflammation of the lens and its capsule. The inflammations of the transparent structures of the eyes almost always produce the exudation of lymph, by which they

lose their transparency; all inflammations of such parts do not indeed terminate in this manner, only, every inflammation which is not speedily resolved, induces opacity of the structure in question. *

Cataract is often hereditary or congenital, of which, among others, Wardrop and Adams in England have pointed out cases. Saunders enumerates very remarkable cases of this nature.

PROGNOSIS OF CATARACT.—A cure of Cataract by internal and external medicines, is in

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* It would appear as if the transparent parts of the eye, when they become opaque, were under the influence of the inanimate laws of chemistry; for the lens and the cornea, when they become opaque, assume almost constantly a greyish-white colour, which always indicates the coagulation of the albumen which exists in these structures. If, on the other hand, the vitreous humour, which, according to my chemical researches, contains no albumen, (although Nicolas, *Anales de Chemie*, tome LIII. S. 312, asserts having found albumen in it,) become opaque, the opacity almost never has the greyish-white colour which so strongly indicates the coagulation of albumen.

the present state of our knowledge, very problematical, or at least happens very seldom. The only remedy almost always is the operation; even this, under the most favourable circumstances, cannot uniformly be successful.

However, the result of the operation for Cataract will be most likely favourable; when the cataract is really a pure local disease; when the organization of the eye is such, that the mode of operating indicated can be performed without difficulty; when the patient allows the operation to be performed quietly, and causes no impediment to the cure after the operation; when the operator is possessed of a light and sure hand, quick sight, and perfect courage; when the instruments are simple and perfectly suitable; lastly, when even the domestic conditions of the patient are such, that nothing disadvantageous to the eye may be expected after the operation.

Short-sighted people see best after the operation, undertaken in the above circumstances (even without spectacles); far-sighted people,

on the other hand, require spectacles to distinguish clearly the most common objects when near, because, by the removal of the lens, they become still more far-sighted.

The result of the operation for cataract is, in all cases, more or less doubtful; when the cataract is complicated; when the eye and its appendages are not of a form suitable to the operation; when the cataract patient is dull, timid, and ill fed, and when the necessary qualities of the operator are wanting; when the domestic requisites of the patient, and the instruments are bad; when the cataract has formed under repeated and long-continued headaches, though they may not have returned for a long time; when the patient has a disposition to catarrhal, rheumatic and erysipelatous affections, or when he has a very sensible cutaneous system; when he has previously suffered much by convulsions or epileptic attacks, or when he is scrofulous, syphilitic, gouty, &c.; when the eye, during youth, was subject to frequent returns of severe ophthalmia, or when the patient has a cachectic

habit; when the person cannot determinately and distinctly declare the shades of light, unless the cause be readily discovered in the eye itself.

The result of the operation is also very doubtful; in all patients subject to hysterical, hypochondriacal, or violent mental affections; when the patient sees the instruments during the operation; when the cataract has originated from a wound; when the patient is in the years of puberty; when one eye had formerly suppurated, or when it had been operated upon by a dexterous person, unsuccessfully.

The result is clearly more or less doubtful; when the patient has a copper-coloured complexion, (Gutta Rosacea,) which has not arisen from the improper use of spirits, but appears as a symptom of an internal cachexia; when the patient is convalescent from any disease; when the cataract is adherent to the uvea in a considerable part of its circumference; when there is inflammation of the eyelids, or ectropium of

the lower eyelid;* when the remains of a pannus, aversion to light, &c. are present.

The operation must entirely fail when amaurosis, synchysis, atrophy, hydrops oculi, glaucoma, varicositas oculi, or a still existing ophthalmia, is combined with the cataract.

The CURE of CATARACT.—A cure of perfectly formed cataract by medicines, is hitherto deemed impossible. Commencing cataracts, however, are supposed to have been cured, both in former and late times, by Mercurials, Antimonials, Digitalis, Belladona and Pulsatilla. Of late, Graefe and Benedict have found the Pulsatilla in the form of extract, or of the leaves powdered, useful. In commencing cataract, formed by a lentitis still existing, the muddiness disappears, according to Benedict, by the use of an eye-water of Henbane, and some drops of Laudanum. The operation, however, remains always

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* The operation must never be performed, till this or entropium, if present, be removed.

the only remedy for the tolerably certain removal of cataract, but the patient is not to be disquieted by a long previous declaration of the intended operation. If congestion of the head be present, let venesection be performed, or if constipation of the bowels, and the evils resulting therefrom, exist, they must be previously removed. Some days before the operation, recommend temperance to the patient, and let him take care to avoid catarrhal affections. Other preparations which were formerly employed, are unnecessary. *

The operation for Cataract is performed in

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* Let the care which was formerly taken before the operation, be now observed after it, so as to prevent the too great increase of inflammation, properly to be dreaded; with this view, the necessary degree of after-treatment must be regulated by the kind of operation performed, and the individual operated upon; an error might sometimes be of great use, of which William Rowley relates a case, where the patient was nearly famished by neglect; the eyes however remained free from pain, and the result of the operation was as perfect as Rowley had ever seen it.

different ways; for either the lens is merely depressed, or it is depressed and reclined at the same time, *(Depressio, Reclinatio,)* or it is removed from the eye entirely, *(Extractio,)* or lastly, it is cut up into little pieces by a needle, introduced through the cornea, *(Keratonyxis)*. Sometimes the one, sometimes the other of these three operations is indicated.

In every operation for cataract, the following general points are to be observed:

The patient must sit upon a chair without a back, and obliquely to the window, so that the light may fall only sideways on both eyes, and no reflection take place from the cornea, as it is troublesome to the operator; also, that nothing may prevent the assistant from approximating himself sufficiently along with the head of the patient, to the operator. The assistant standing behind the patient, takes hold of the patient's head under the chin with his right hand, when the left eye is to be operated upon, presses it to his breast, and approaches, along with the head, more or less as may be required, to

the operator, who sits before the patient, upon a chair somewhat higher. The assistant then lays the left hand flat on the left side of the patient's brow, so that the points of the index and middle finger may come to lie somewhat under the edge of the upper eyelid; and with the fore-finger, first lifts up the edge of the eyelid as much as possible, and immediately follows it with the middle finger, so as to hold the eyelid the more firmly; the points of the two fingers must, however, project over the edge of the eyelid towards the eyeball, so far, as not indeed to touch, far less to press upon the ball, but only that the eye, with the cornea as its highest point, may slightly graze on the point of the finger, provided the eyeball should escape at all upwards from the instrument, whilst it is penetrating it; it will be thus immediately turned back from this position, so troublesome to the operator. The operator sits before the patient, in such a way that the patient's head may be directly opposite to the operator's breast, so that he may observe suf-

ficiently, from above, every thing during the operation, and not be obliged to raise his arms considerably. When the left eye is to be operated upon, he pulls down sufficiently the lower eyelid with the fore-finger of his left hand, but the point of his finger must, like that of the assistant, project beyond the edge of the eyelid towards the eyeball; in like manner, he lays the middle finger upon the caruncular lachrymalis, and takes, in his right hand, the instrument required for the operation, as he would a writing quill, between the thumb, fore and middle fingers. The eyeball will be thus best fixed during the operation, without any instrument for that purpose. The cataract in the left eye must be operated upon with the right hand, and that in the right eye with the left hand. In perfectly formed cataracts, Beer and many others operate on both eyes at the same time. If the one eye be operated upon when the other still enjoys vision, it will be proper to bind up the seeing eye.

So much for the operation of Cataract in

general, and now of the different modes of operating in particular.

Of Depression and Reclination of the Cataract.—Both methods of operating have three stages, the two first of which are perfectly the same in depression and reclination, the third stage is different in each.

First Stage.—The sclerotica is to be pierced with a lancet-shaped cataract needle, Tab. V. fig. 3, at the external canthus, distant a line and a half at most from the edge of the cornea, and about a whole line below the horizontal diameter of the eyeball, in such a manner that one edge of the needle be directed upwards, the other downwards, and its point towards the centre of the eyeball.* The hand with which the ope-

* The sclerotica is to be perforated a line and a half from the edge of the cornea, to prevent wounding either the corpus ciliare or the retina; the needle is introduced with its one side directed upwards, the other downwards, so as to avoid wounding the ciliary vessels, which always run forwards in a horizontal direction; lastly, the sclerotica is to be pierced under the horizontal diameter of the bulb, because exactly in the diameter the largest vessels take their course, and because the needle must be employed as the lever.

rator lays hold of the cataract needle, must be supported on the cheek of the patient, by means of the little finger, so that, when the needle has penetrated the sclerotica with its broadest part, it may not continue to enter too quickly and too deeply into the eye.

Second Stage.—The needle will now be so turned on its axis, that its handle may be pressed back to the temple, and its point directed towards the inner canthus parallel to the uvea, with however the one side of the needle forwards, the other backwards, the one edge upwards, the other downwards; the operator now advances the needle slowly into the posterior chamber, between the lens and the uvea, till its extreme point be somewhat hid behind the internal pupillary edge of the iris, and the posterior side of the needle lie upon the anterior surface of the cataract.

Third Stage for Depression.—After the needle has been so applied on the uppermost part of the cataract, that its point is directed somewhat obliquely backwards, and the side which had formerly rested on the an-

terior surface of the cataract, is now directed towards the uppermost edge of the cataract, he presses it according to the rules of the lever, obliquely downwards and outwards, beneath the pupil, till it is no longer observable; then he raises the needle softly, to see whether the lens really continues depressed, and lastly, he again withdraws it from the eye in the same direction in which it was introduced.

Third Stage for Reclination.—In this mode of operating, the needle lying on the anterior surface of the cataract, is not to be removed from its direction in the second stage,* but its handle only is to be raised like a lever in a diagonal direction forwards, so that the diseased lens may come to lie by the pressure of the needle in the vitreous humour, between the upper and external straight muscles, in such a manner that its anterior surface becomes now its upper one, its posterior surface its under one, its upper edge its posterior one, and its lower edge its anterior one.

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* Yet it is well that the needle should be laid a little more on the upper half of the lens.

Sometimes the following accidents occur during Reclination, which we must take care to render innocent by particular artifices. The capsule of the lens often tears, which may render the pupil opaque, in such a case the capsule must be cut into little pieces in all directions, by the needle, and removed as much as possible from the pupil. If the lens fall into pieces during the operation, the larger portion must be reclined, and the smaller ones, according to Scarpa,* pushed into the anterior chamber, where they are absorbed more speedily than in the posterior chamber. If the surgeon has to do with a cataract partially adherent to the uvea, he must first endeavour to separate the adhering parts with the edge of the needle, as Werner recommended, before he reclines the lens. If a cataract is met with which always mounts again, without the operator unguardedly drawing it up with the needle, an ad-

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* Others, however, fear that inflammation, as iritis, &c. may arise from this manœuvre. Himly is of this opinion, but Scarpa asserts the contrary.

hesion of the posterior capsule of the lens with the cup-like cavity of the hyaloid membrane, is probably the cause; in which case the operator must here, also, first separate the adhesion with the needle. Should, however, the remounting of the cataract be owing to the needle having pierced it, the operator must withdraw the needle, and perform the reclination anew; or when the cataract fixed upon the needle is at the bottom of the eye, the needle is not to be raised or withdrawn till it is turned twice round upon its axis. Without such causes as these, the cataract very seldom rises again after reclination, it more frequently does so after depression, and thus takes away the sight which had been gained immediately before. This rising again is best prevented by holding down the lens in its place, when properly reclined or depressed with the flat side of the needle, which is still resting upon it, and by not withdrawing the needle from the eyeball for a short time.

The treatment after depression and reclination is very simple. Without allowing the patient to

make any trials to see, (which very readily causes the remounting of the cataract,) and after having shut the eyelids by a small strip of English court plaster applied perpendicularly, a linen compress is to be bound upon the brow, so as to cover the eye, and the patient must be enjoined to remain some days in the most perfect quiet of body and mind. The bed-chamber is also to be moderately darkened; the patient may be allowed to sit or to lie; to make use of easily digested food, and must avoid every thing which might induce inflammation of the eye. After three or four days, he may exchange the bandage for a green shade, but must nevertheless, for a long time, avoid every thing which can produce an unpleasant sensation in the operated eye.

Should a swelling from effused blood under the conjunctiva of the eyeball, occur during the puncture of the sclerotica, it will be for the most part absorbed without the aid of art. Tinctura Opii, or Lap. Infernalis, removes fungi which may form around the puncture. Effusions of blood in the chambers of the eye, when inconsid-

erable, are absorbed by the use of spirituous eye-waters; when they are considerable, however, they must be discharged by an opening in the cornea. A symptomatic vomiting, arising from a wound of the ciliary nerves or retina, is calmed by Valerian, Musk, Castor, Opium, or when these cannot be retained, by a Chamomile glyster, with Laudanum, and such like.

If a more or less considerable Amblyopia arise, in consequence of a too powerful and deep depression of the cataract upon the retina, raising the lens again is in general the only mode of relief, which will be effected by powerful motions of the head. An inflammation following the operation, is to be treated in the manner to be considered under Pure Iritis.

According to Beer, depression and reclination are not to be performed when the cataract is very hard, because the lens would not afterwards become absorbed. The great hardness of a lens, however, is not always to be considered as an objection; for hard cataracts have been often reclined with a very happy result. These two methods of operating are particularly indi-

cated, when a considerable synechia anterior, a too flat cornea, or an arcus senilis is present; for in the latter case, the incision of the cornea made in extraction in the course of the arcus, would not heal, and in the former case, on account of the flatness of the cornea, the incision would probably be too small. In like manner, reclination and depression are to be preferred in cases combined with myosis, in very deep-lying eyes, in patients who have narrow opening eyelids, in those who are unruly and young, and in cases of partial adhesion of the uvea with the cataract.

Moreover, small cataracts, for example, the dry-hulled capsulo-lenticular cataract, and the pure lenticular secondary cataract, are best depressed; and on the other hand, hard lenticular or capsulo-lenticular cataracts, or capsular cataracts adhering only at particular points with the uvea, are best reclined.

END OF THE FIRST VOLUME.

Printed by R. Chapman, Glasgow.

A

MANUAL

OF

THE DISEASES OF

THE HUMAN EYE,

INTENDED FOR

SURGEONS COMMENCING PRACTICE,

FROM

The Best National and Foreign Works,

AND, IN PARTICULAR, THOSE OF

PROFESSOR BEER:

With the Observations of the Editor,

DR. CHARLES H. WELLER.

BERLIN, 1819.

Translated from the Original German Work, and Illustrated with Cases and Observations,

BY GEORGE C. MONTEATH, M. D.

MEMBER OF THE ROYAL COLLEGE OF SURGEONS OF LONDON, MEMBER OF THE FACULTY OF PHYSICIANS AND SURGEONS OF GLASGOW, AND ONE OF THE SENIOR SURGEONS OF THE GLASGOW ROYAL INFIRMARY, &c. &c.

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TREATMENT

OF CATARACT

CONTINUED.

Extraction of the Cataract was first discovered in the year 1745, by Daviel, and supplanted in a considerable degree, the old operation of Depression, which was made use of till that time. It may, like the two operations already described, be divided into three stages. The first consists in the section of the cornea, by means of a good cataract-knife;* the second in

* There are many cataract-knives; the best known are that of La Faye, which is curved on the side, that it may not wound the iris; those of Wenzel and Rich-

opening the capsule of the lens; the third and last in extracting the diseased lens.

First Stage.—The operator having taken hold of the cataract-knife of Beer, Tab. V. fig. 4, like a writing quill, and having fixed the little finger of his hand on the zygomatic bone of the patient, the point of the knife being directed obliquely to the iris, and its edge turned downwards, he punctures the cornea at the external canthus, the eighth part of an inch from its edge, and the fourth part of an inch above its transverse diameter. When he knows by the feeling and what he sees, that the point of the knife has perforated the cornea, he approaches the handle of the knife towards the temple of the patient, and pushes the instrument cautiously, neither too quickly nor too slowly, across the anterior chamber, the point of the knife directed somewhat upwards, and

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ter, which are pretty much alike; that of Waidman, with a long point; the cataract needle knife of Liegerest; the cataract-knife of Himly; and lastly, that of Beer.

its blade kept parallel to the iris; he then also perforates the cornea with the point of the knife, on the opposite side, an eighth part of a line from its edge, and completes the perfect semicircular section of the cornea, by merely pushing on the instrument, without touching the iris or raising the cornea. As it is well known that the cornea in young people is thicker and softer than in old people, and that the cataract will be commonly found more voluminous in them than in old people, in whom it is generally small and hard, let not the incision of the cornea be made too small in young people, but rather somewhat larger than in the aged, particularly as the knife, on account of the greater thickness of the cornea, may readily glide along between its lamellæ. A too small incision of the cornea, is in general a great fault in every case of extraction, for the subsequent enlargement of the incision, may often become very hurtful to the eye.

During the finishing of the incision, great care must be taken not to wound the iris; the

handle of the knife must at the same time be pressed more backwards to the temple, and also downwards, the farther the point projects from the anterior chamber, in order to avoid a wound in the internal canthus, when the point of the knife is passing out; and lastly, the section must be finished very slowly, otherwise the lens, and with it a part of the vitreous humour, easily prolapse, because the eye reacts most strongly on the knife at this very moment, and is generally pressed upon by its muscles. At the moment when the operator has finished the section, the assistant permits the upper eyelid to fall down, and the patient is to be allowed to recover for some seconds from his fear.

Second Stage.—The assistant now raises the upper eyelid, without allowing the points of the finger to project beyond its edge; the operator, with his fore-finger, draws down the lower eyelid, but does not draw it out from the eyeball, he rather presses it very softly by means of the interposed eyelid, against the under part of the eye, in order that he may the more

quickly and readily introduce the lancet-shaped cataract-needle, (fig. 3,) or Beer's cataract-lancet, under the flap of the cornea, as far as the pupil, and also that by this gentle pressure, and the consequent advancement of the cataract, the pupil may become perceptibly dilated, which will enable him the better to cut into small pieces the capsule of the cataract. The operator now introduces the needle by one of its cutting edges, its point directed towards the inner canthus, between the opened cornea and iris, so as to raise the flap of the cornea as little as possible, and cuts the capsule into small pieces, by means of incisions crossing each other, and which ought to be neither too deep nor superficial. Lastly, the needle is to be withdrawn from the eye in the same manner it was introduced.

Third Stage.—If the incision of the cornea has been made of sufficient size, and semicircular, the cataract generally passes immediately through the pupil, and out of the eye. If, however, though the operation have been

well performed, the cataract do not immediately pass out, on account of peculiar sluggishness of the eye, the operator must direct that the eyeball be moved quickly upwards several times, after which the cataract sometimes comes forth; during its passage through the cornea, he must aid it and support it by means of Daviel's scoop, Tab. V. fig. 5, at its external and under edge, sometimes within, sometimes external to the cornea, according as it may be necessary, in order that none of the gelatinous surface of the cataract may be rubbed off. If however, after these previously performed motions of the eye, the cataract should not pass out, the operator must softly and gradually increase the pressure on the under part of the eyeball, by means of the finger placed on the under eyelid, until the cataract has entered the pupil by its greatest diameter, from which moment the pressure is not actually to cease, but must be gradually diminished, until the lens has passed out completely. Even here the exit of the cataract is to be assisted by means

of Daviel's scoop. As soon as the cataract has passed out of the eye, and any remnants of the cataract have been removed, the assistant allows the upper eyelid to fall, the operator desires the patient to close both eyes,* and to remain very quiet, and he covers his head and eyes with a white cloth, so that the light may not affect him too severely. After some rest, the patient is to be placed with his back to the window, the cloth is to be lifted off his eyes, the eye is to be slowly opened, and whilst the eye not operated upon is well covered, some objects which are not brilliant † are to be shown

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* The patient must shut his eyes as softly as if going to sleep, because if he presses the eyelids together, or shuts them spasmodically, a part of the vitreous humour may readily prolapse, and be very hurtful to future vision.

† I have often seen this useful rule neglected, and even renowned oculists present a beer glass to their patients, who are to point out with the finger how far the vessel is filled with water; but as the glass is glittering, and the looking at such objects strains, and is even almost always more or less hurtful to the patient, particularly when he has been long blind from cataract, it is better to present

to him. If he see them clearly, the bandage is to be applied.

Extraction cannot always be performed in the manner described above; on which account, the following modifications are to be observed. In full eyes, with narrow opening eyelids, the incision of the cornea must be made obliquely outwards, otherwise the edge of the under eyelid may long prevent the incision of the cornea from healing. According to Beer, the encysted cataract must be extracted along with its capsule, by means of the small cataract hook, Tab. V. fig. 6, with its point turned downwards; Adam Schmidt, however, rather reclines this kind of cataract, because he always observed an iritis which destroyed the sight, follow its extraction. The dry-hulled capsulo-lenticular cataract can be extracted. Even the fluid cataract may be extracted by means of a hook;

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only grey or green, not glittering objects, because objects of the former colours agree best with the newly restored vision.

if, however, the instrument tear its way out, the thickest remaining flakes are to be carefully taken hold of, by means of the forceps, fig. 1, and quickly extracted. In cases of barred cataracts, the band is to be loosened from the uvea by means of the lancet-shaped cataract needle, removed by means of the forceps, and then the cataract extracted like the encysted cataract. Beer extracts cataracts of a middling consistence along with the capsule; he pierces the lens with his cataract lance,* and moving it, separates the vessels and adhesions of the posterior capsule with the cup-like cavity of the hyaloidea, as also its other connexions, and then promotes the exit of the cataract in the usual manner.

When ready to apply the bandage after any operation of extraction, let particular care be taken that the eye be not closed until the flap of the cornea lie correctly, so that neither the edge of the under eyelid, nor its ciliæ, may cause a gap

* *Siehe dessen Leifsf.* 2 Bd. Instrum. Taf. fig. 20.

of the flap, and thus prevent the quick union of the semicircular incision. A small slip of court plaster, which is laid perpendicularly upon the eyelids, and a double linen compress which covers the eye, and is fixed upon the brow only, constitute the whole dressing. After both eyes have been dressed in this manner, the patient is to be put to bed, to lie with his head pretty high, and with his chamber darkened. The union of the incision sometimes takes place in twenty-four hours, when the eye has been well dressed; for the most part, however, it requires from three to four days. So long as the union has not taken place, the aqueous humour continues to run out, which is always made known by slight, uneasy pricking in the eye, accompanied with momentary delusive feelings of light. The eye is not to be opened before this has ceased two or three days, therefore seldom before the fifth or sixth day. The bandage may be removed on the eighth, ninth, or tenth day, and a green shade substituted, and the patient is still to remain

in a dark chamber; soon after, he must be gradually accustomed to a brighter light and fresh air. The diet after the operation is of course to be very spare. The patient is to have only thin soups, weak drinks, but no animal food. Should he have no stool before the fourth day after the operation, a gentle laxative will be very proper.

The accidents which may occur during extraction are many. During the incision of the cornea, the iris often falls before the edge of the knife; in this case, as Wenzel first taught us, the point of the middle finger is to be laid upon the cornea, which causes the iris to recede. Sometimes the eye turns suddenly away from the knife during the puncture of the cornea, and the aqueous humour flows out; in this case, according to Beer, another knife is to be carefully introduced between the cornea and iris, and an attempt made to complete the incision. Other celebrated oculists, however, allow the uncompleted incision to heal, and delay the operation

till a more convenient time. When the incision has been made too small, it must be enlarged with Daviel's scissors, their concavity directed towards the operator, during which the eyeball must not be rudely handled, and the point of the scissors, in the anterior chamber, must not be moved. Should the iris come to lie in the incision of the cornea, it is to be immediately returned, and the distorted pupil brought back to its natural roundness, by rubbing the closed eye, and then suddenly opening it in a bright light. Fragments of the lens remaining behind, are to be removed by rubbing the closed eye with the finger, on which, not unfrequently, little particles of lens, chiefly gelatinous, pass through the pupil and the opening of the cornea, or they are to be removed by introducing Daviel's scoop through the incision of the cornea. Remnants of the capsule obscuring the pupil, are to be extracted in the manner already described. An opaque posterior capsule, or a cataracta hyaloi-

dea,* Beer destroys with his cataract hooked needle,† and extracts a considerable portion of it by means of this instrument. If any of the vitreous humour prolapse, and if it amount to an eighth or fourth part, it is best to do nothing, future vision not being thereby injured. If however a fourth part, or more, of the vitreous humour were to be lost, then loss of vision is to be feared, and even the pupil often closes, or rather falls together, Synizesis, Subsidentia Pupillæ.

It sometimes happens after extraction, that the eyelids become completely glued up, the tears accumulate, and cause severe pains in the eye; in this case, after having softened the glued eyelids by means of a sponge and milk, a large stream of tears flows out from between them, and the pains cease. If the

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* An opacity of the tunica hyaloidea alone, in its cup-like cavity, cataracta hyaloidea, does not exist, or is at least very problematical.

† *Dessen Leiftf.* 2. Bd. Instr. Taf. fig. 25.

patient attempt after the operation to open the eye frequently, or if it be roughly handled, then the iris sometimes passes out between the displaced lips of the wound of the cornea, and adheres to them; when the aqueous humour, already collected, stretches the prolapsed iris, and often forms a very large staphyloma of the iris. If this accident be discovered sufficiently early, by the long-continued flow of the aqueous humour, and by the sensation of a bulky foreign body lying in the eye, the latter must be carefully examined, then closed, and rubbed carefully with the thumb; a bright light is next to be allowed to fall into the eye suddenly, on which the iris often suddenly retracts, and the staphyloma prevented. When the lips of the wounded cornea do not lie accurately together and heal in this position, a hernia of the cornea often occurs, which is to be cut off at its base by Daviel's scissors, and a bandage regularly applied, after which the eye is to remain closed from eight to fourteen days. The patient, in this case, al-

ways retains a visible whitish cicatrice. If a traumatic inflammation take place, which is almost always the consequence of raising the flap of the cornea too much, or of an unskilful handling of the instruments, it is to be treated according to the rules given under Pure Iritis.

The Keratonyxis, or division of the Cataract into small pieces, through a puncture of the cornea.—The aim in this operation, is to remove the cataract from its organic connexions, and thus to present a greater surface to the absorbing vessels, as in the operation of division, that they may the more readily and quickly effect its solution and absorption.

That an actual absorption of the lens does take place, all oculists are convinced; nay, Scarpa and others have even proved anatomically the absorption of whole lenses. There are also many examples, particularly in the cataract arising from concussion of the eye, in which probably the organic adhesions of the capsule were separated, of the lens becoming spon-

taneously absorbed, and restoring the vision. Ware and others enumerated such cases. * The absorption of cataracts which form after blows, punctures, &c. is, according to this author, best promoted by dropping pure or reduced Sulphuric Æther into the eye. In very rare cases, cataracts even arising from internal causes, become absorbed incidentally, without artificial aid. †

For performing this operation, which Buchhorn first practised, ‡ either crooked needles are made use of, as Langenbeck, Walther and others do, or straight ones may be employed. The operation has only two stages.—*First Stage.* The straight lancet-shaped cataract needle in preference, is to be thrust into the cornea, either below or at its temporal side, a line and a half

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* I have seen several such cases. *Translator.*

† *Dergl. erzahlt Albers in der Ophthalm.* B. V. Himly, u. s. 2 B. 3 st. Seit. 167, und m. a.

‡ *De Keratonyxide nova Cataractæ alüsque Ocul. Morbis, Medendi methodo,* &c. 1810.

distant from its edge, and with its point obliquely directed towards the pupil.—*Second Stage.* The needle is now to be conducted through the pupil, and the lens sufficiently cut into pieces, by turning the needle in different directions; in doing which, it is advisable to raise the needle often from the lens, and to enter it anew in different directions. The dressing and after-treatment are the same as in depression and reclination; only here it is not necessary to preserve the eye so strictly from light; a moderate light seems rather to promote the absorption of the lens. Should the pupil, which had been artificially dilated, * contract, after introducing the needle in the cataract, the eye is to be shaded with the hand, and the operator is to wait until it again dilate, because

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* The artificial dilatation by a strong solution of the extract of Hyosciamus or of Belladona, (which is to be streaked into the eye an hour or an hour and a half before the operation,) is not only advantageous in this case, but also in extraction, reclination and depression.

otherwise the iris gets wounded, or the operation is imperfectly performed. *

All the accidents which have already been mentioned under depression and reclination, may occur after this operation, and must be treated in the same manner. Very often an opacity of the capsule remains behind, even though it had not existed previously.

The Keratonyxis is particularly indicated in fluid, soft, gelatinous, and easily divided cataracts. The state of the patient, however, intended for this operation, should be well considered; for if he be very old, if all the functions go on uncommonly sluggishly, if the iris appear faded in colour, then, even a cataract of

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* I have repeatedly extracted after having applied Belladona, but as I have generally observed it to increase the disposition to a prolapse of the iris between the lips of the wound, which I could not in some cases reduce, where it actually occurred, either by frictions or exposing the eye to a bright light, owing to the temporary paralysis of the iris, I never adopt this practice, and can, I think, safely condemn it, as likely to interfere materially with the success of the operation of extraction. *Translator.*

soft consistence will be very seldom absorbed; if, on the other hand, the patient be young and vigorous, if all the functions go on briskly and with energy, then, even tolerably hard cataracts are pretty soon absorbed, and in this case, a very meagre diet, after the operation, powerfully promotes the absorption.

The Secondary Cataract is, as Schmidt* has shown, a cataractous blindness, distinguished from actual or primary cataract, only by the interval after which it appears, hence it also has symptoms indicating its commencement.

If remnants of the lens, rendering the pupil opaque, remain after any of the above methods of operating, they produce what is called a lenticular secondary cataract, the absorption of which is, in the first place, to be waited for, and also promoted by means of bags of aromatic herbs. If absorption, however, do not take place, the smaller particles of the lens are to be depressed, the

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* *Ueber Nachstaar und Iritis.* Wien. 1801. S. 4.

larger reclined, and if a whole cataract remain, it is, according to Beer, to be extracted if possible. Such secondary operations, however, always require perfect recovery of the eye from the first operation; for which purpose, a period of from six to eight months is not unfrequently necessary. Should a lenticular secondary cataract take place after a Keratonyxis, it must be either extracted or reclined through the sclerotica. However, it may be sometimes necessary to repeat the breaking up of the lens several times before the absorption become perfectly complete. When the capsule of the lens clouds the vision, *(Capsular secondary Cataract,)* and the opacity is considerable, the opaque capsule is to be torn in all directions with the cataract needle, and the flakes removed as much as possible from the pupil.*

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* The following case of Bony Cataract may be worthy of being recorded. In September 1819, I was consulted by Gilbert M'Crindle, a shoemaker from Maybole, by the desire of Mr. Train, his medical attendant, from whose

obliging account of his case I extract the following concise history. Sixteen years prior to his consulting me, his right eye received a violent stroke from a golf club. Cataract and blindness ensued. Ten years after this, a Surgeon attempted to couch the cataract, in which he failed. In January 1818, he was attacked with violent pain in the eye and head, which did not yield till after three months of severe medical and surgical treatment. In November 1818, the pain again recurred with great violence in the eye and head. His sufferings became agonizing the moment he raised his head from the pillow, deprived him of all comfort, and rendered him incapable of working for the maintenance of his family. Mr. Train tried every possible remedy for the relief of this poor man, but in vain. He was leeched to a great extent, scarified often, freely bled from the temporal artery, blistered over the head repeatedly, underwent a three months' course of mercury, &c. He came under my care after ten months of dreadful suffering, which had reduced him to a state of great weakness of body and despondency of mind. The eyeball was excessively tender, and considerably inflamed. The pupil was much dilated, and filled with a yellowish, chalk-coloured cataract, which projected so far through the pupil as nearly to fill up the anterior chamber. It was evident that the cataract was firmly embraced by the iris, into the aperture of which delicate and highly nervous membrane, it had by some cause been forced. It was too evident that this was the sole cause of the poor man's suffering, I therefore proposed the extraction of the lens, to which he instantly assented. I immediately performed

the operation. After making the incision of the cornea as large as the state of the anterior chamber would admit of, I attempted to press out the cataract in the usual manner. Finding this impracticable, I extracted it by means of the cataract hook. On removing it, I was surprised to find it a perfect shell of bone, of the size and shape of the lens, complete on all sides, except at the centre of its posterior surface, where the arteria centralis enters the posterior capsule in its natural state. Whether I made this hole with the hook I cannot say. The eye was dressed as usual. The patient felt instantly relieved from all his sufferings, for which his expressions of joy and thanks were unbounded. In a few days the wound of the cornea had adhered, and soon after healed. On examining the eye, when free from all tenderness, I was surprised to find the pupil, which had been for ten months unceasingly distended to the utmost, to have resumed its natural form and size.

It is easy to conceive why this man had no freedom from torture, except when his head and whole body were at rest in his bed, for the moment he got up, the motions of the body shook the ossified lens, which incessantly irritated and dragged the iris, causing pain and inflammation, on the same principle that a calculus does in the urinary bladder. The light of day, also, probably caused the iris to be more pressed upon the cataract during the day.

There can be no doubt that the blow from the club had induced paralysis of the retina, and concussion of the lens, the latter ending in lentitis and cataract, which became gradually ossified. This remained ten years in the eye, without

doing mischief, because it retained its natural position, and probably some living connexions. These, however, were broken by the attempt at depression, and the cataract now became a free and floating body, which twice got entangled in the pupil. The first time it continued so for three months, the second time it remained till I extracted it.

The lens, when dislocated from its living connexions, may remain behind the iris, or, if very small, it may pass through into the anterior chamber, or it may get strangulated as it were in the pupil. Of the two latter positions I have seen several cases, and in the majority of such, the train of symptoms becomes similar to those of M'Crindle, and require the same method of cure. Under the article Hydrophthalmia I shall give a very interesting case, showing the manner in which the dislocated lens may be at one time entangled in the pupil, and at another remain in its natural situation behind it.

I have met with a variety of cases, in which portions of the anterior part of the capsule of the lens were converted into *cartilage*, the third of a line in thickness. *Translator.*

Of Spectacles, as connected with Cataract.

When the eye has completely recovered from an operation for Cataract, and the patient has observed no further improvement of sight for some weeks, and when the eye really requires a glass,* then the patient may use one suitable to the eye. Spectacles for this purpose have always double convex glasses, which form a substitute for the similarly formed lens.

Cataract patients who have only gained an imperfect sight from the operation, generally require two kinds of glasses; namely, such as enable them to see clearly objects at a distance, and others for objects that are near at hand. If the patients have been operated upon in both eyes, they often require a particular glass for each eye.

If the patient live in a large town, where he

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* Those who were formerly short-sighted do not always require spectacles after the operation.

can himself make choice of spectacles that suit him, there is nothing further to be observed, than that the glasses stand equidistant from the eyes, and that their frames be not shining and bright, but rather of a dull colour. But if he live at a distance from the Surgeon and Optician, and the Surgeon be anxious to procure proper spectacles for him, it is necessary that the patient present before the eye operated upon, a large printed title-page, and try at different distances whether he cannot see clearly some letter or other, without the aid of glasses; should he find any such letter, let any person measure the distance of the eye from the letter, and also the size of the letter itself, and send this double measurement to his Surgeon, who can, without any further aid, obtain for him a proper glass from a skilful Optician.

Spectacles must never be used too soon after the operation, (only by degrees, two months after extraction,) because, as a patient does not long find the glass suffice which suited him

at first, he requires continually to have a stronger one, until at last no glasses will fit the eye which has too early made use of them.

b.—OF THE DISEASES OF THE VITREOUS HUMOUR, AND OF THE AQUEOUS HUMOUR.

Glaucoma, Glaucosis, and Cataracta Viridis, sive Glaucomatosa.

A greenish, grey opacity of the vitreous humour, by which the sight is entirely destroyed, or considerably impaired, is called Glaucoma.

It is always the consequence of a more or less evident gouty inflammation of the eyeball, and evinces itself as in Iritis Arthritica, by increasing, piercing, and rending pains, bursting as it were the eyeball, during which, along with muscæ volitantes,* the pupil dilates, and

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* *Benedict, disquisitio Ophthalm. de Morbis humoris vitrei, in oculo humano.* 1809. p. 1.

becomes elongated towards both canthi,* and the sight progressively decreases. Sometimes the inflammatory arthritic affection is so slight, and proceeds in so lingering a manner, that only a very acute observer readily discovers the true disease. After the opacity of the vitreous humour has proceeded to a greater or less length, the lens not unfrequently becomes gradually muddy or cataractous, and assumes a greenish, grey aspect, (Cataracta Viridis, Cataracta Glaucomatosa, which consequently can never be operated upon with success,) increases in circumference, fills the posterior chamber, pushes the iris forwards, seats itself in the already much enlarged pupil, and now even diminishes considerably the anterior chamber, see Tab. II. fig. 8. From this period the size of the eyeball

* This is a very important diagnostic sign, for there are eyes which not only show a greenish turbidity in the back part of the eyeball, but have a tendency to a diminution of sight, in which, however, the change of the form of the pupil is wanting. The greenish appearance must arise from the pigment of the choroid coat being wanting.

decreases, it becomes atrophic, the eyelids fall in, and close for ever.

The PROGNOSIS is very unfavourable. A CURE of fully formed Glaucoma is impossible. When the vitreous humour first commences to be muddy, the further progress of the disease may sometimes be checked.*

Solution of the Vitreous Humour. Synchysis.

Synchysis arises either as a consequence of ophthalmia, particularly of syphilitic iritis, or it arises without this, as a consequence of the over-use of mercury. If it appear as a consequence of inflammation of the eye, it is known by the following symptoms: The vitreous humour loses its transparency, becomes muddy, of a brownish-red colour, and the vision is consequently weak or destroyed. If the patient still retain some vision, he is in the greatest

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* See *Iritis Arthritica.*

degree far-sighted, the pupil is contracted, and sometimes more, sometimes less angular. The iris does not expand and contract, but undulates during violent movements of the eye, &c. from before, backwards, and vice versa. The vitreous humour becomes as thin as the aqueous, its cells are gone, and the hyaloidea tears from the slightest causes. Lastly, the lens becomes cataractous, soft, white and cheesy, (but does not swell out as in Cataracta Glaucomatosa,) the whole eyeball is soft, and the sclerotica allows itself without pain to fall as it were into folds. Last of all, atrophy of the eye is superadded.

The PROGNOSIS, upon the whole, is not so bad as in Glaucoma; for in some cases, when the synchysis has been imperfect, and the patient suffered only from being far-sighted, the disease has disappeared by good diet, exercise, and by the free use of Infusion of Sarsaparilla, &c. Complete Synchysis is incurable.

Dropsy of the Eye. Hydrophthalmia, Hydrophthalmus, the Ox-Eye, Buphthalmos.

This disease may present itself in three different manners; for either the quantity of aqueous humour is too great, or a morbid increase of the vitreous humour exists, or these states occur together.

The symptoms of the first species are the following: the cornea increases in its circumference to four or five times its diameter, without bursting; during this it remains transparent and clear, Tab. II. fig. 9; at a later period only, it appears to become muddy, owing, however, to a morbid state of the aqueous humour. The anterior chamber enlarges considerably, the iris gradually ceases to move, and at the same time becomes always of a darker colour; the pupil is neither contracted nor enlarged; at the same time the patient feels an uneasy weight, and a troublesome tension and oppression of the whole eyeball. In the commence-

ment of this disease there is far-sightedness, at last, however, an amaurotic amblyopia takes place, and the movements of the eyeball are found progressively more difficult. For the breadth of two lines around the cornea, the sclerotica is now observed to be of a bluish cast, as in new-born children.

The CAUSES of this disease cannot often be discovered. I once observed a slightly developed dropsy of the aqueous humour, the effect of an external wound, but it soon again disappeared. In like manner, Cheston and many others have recorded examples of this kind, but they ran an unfortunate course. Eruptions on the skin and head, when quickly cured, are not unfrequently the cause of this disease.

The PROGNOSIS is always doubtful, and when the vision is nearly or entirely destroyed, it is very unfavourable even in regard to the form of the eye. The prognosis, however, in this species of Dropsy of the Eye, is always more favourable than in the others, particularly where

the disease has arisen after healed-up eruptions, &c. and where the patient is not cachectic. In cachectic patients, on the other hand, and when all aid is neglected, the disease proceeds to the second kind of dropsy, and sometimes, under terrible disorganization of the whole eye, terminates in death.

CURE.—Should this affection be merely a symptom of a general disease, the latter is naturally to be first cured. If the Dropsy of the Eye appear to be local, and if it be the effect of a previous ophthalmia, give Digitalis with Calomel, and for drink, a mixture of Cream of Tartar and Borax with water, and apply blisters, issues, &c. If the dropsy has arisen after quickly cured eruptions, let these be reproduced, or form artificial eruptions, and give internally Camphor, Sulph. Aurat Ant., and Sulphur Depurat.

In regard to the local treatment of the dropsical eye, all depends upon the stage of change in the form of the eye; for if it be as yet in the commencement, then, dry, warm bags of aromatic herbs, and alternate frictions on the region

of the eyebrow with Ung. Hydrarg. Ciner. Bals. Vit. Hoffm., or Aq. Caloniens. mixed with Spt. Sal. Ammon. Caust. are sufficient; if, however, the dropsy be far advanced, and provided no varicosity of the eye be present, the cornea must be opened to the extent of two lines, by the perpendicular puncture of a lancet at its under border, and a line and a half from the sclerotica, so as to evacuate the aqueous humour. This evacuation, when it succeeds, is to be continued for days or weeks, by daily opening the wound. The internal medicines often produce powerful effects after the operation, though previously they showed none that were beneficial. The dressing after the operation is to be the same as after extraction.

When the paracenthesis corneæ is performed in a varicose state of the eye, or in a very evidently cachectic individual, the consequence is, destruction of the eye from inflammation and ichorous suppuration, yea, even from gangrene; in which latter case, the patient is put in danger of his life.

In the second species, namely, in Dropsy of the Vitreous Humour, the posterior half of the bulb in a particular manner enlarges, during which the cornea, at the same time, projects forwards in a conical form, without increasing in circumference, or losing its transparency. The motionless iris, which in this case retains its colour unchanged, is constantly arched forwards, by which the anterior chamber is sometimes entirely obliterated. The pupil remains considerably contracted, but dilates when the still existing and untorn vitreous humour presses forward the lens; the sclerotica, from its distended state, becomes bluish, and of a dirty colour around the cornea; the patient at the commencement of the disease becomes short-sighted, soon afterwards weak-sighted, and finally totally blind, without even the sense of light remaining. The motion of the eyeball, (which is always hard to the feel,) and of the eyelids, is impeded much sooner than in the former species, and the pain in the eye and whole half of the affected side of the head,

the want of sleep, and the loss of appetite, which are all present in the commencement of the disease, increase progressively, and often drive the patient almost to despair. In the highest degree of the disease, and from neglect, the cornea bursts, the fluids run out, the eyeball sinks together and becomes atrophic. The event after bursting, is not however always so favourable, for sometimes, and in very cachectic subjects, the eyeball degenerates into a fungous mass, or becomes indurated, and proceeds with severe pains, to form a cancerous ulcer.

The CAUSES of this latter species are in some points as much unknown as those of the former; however, the *Hydrops Corporis Vitrei*, occurs for the most part in gouty, syphilitic, or scrofulous patients, and appears sometimes after inflammations of the eyes; at other times, however, without either inflammatory affections of the eyes having preceded or being present, and then it generally increases very slowly.

The PROGNOSIS upon the whole is very unfavourable, particularly when cachexiæ are pre-

sent. We may often stop the progress of the disease, but its cure is rarely possible. When the vision is entirely gone, all hope is lost of a future good shape of the eye. However, this, as well as the first species of Dropsy of the Eye, may long remain stationary, after arriving at a greater or less* degree of growth.

For the treatment of Hydrophthalmia by medicines, which can only have in view the stopping the further progress of the disease, many means have been proposed, besides the removal of the constitutional diseases which may be present. When the disease commences under inflammatory symptoms, Calomel with Opium, and Terra Foliat. Tartar. (Acet. Po-

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* A slight degree of this disease is sometimes met with in old people with prominent eyes. There is nothing to fear in this case, only, when extraction is performed in such old people, a prolapsus of the vitreous humour can scarcely be avoided; on which account, reclination must be employed in such a case. *Benedict de Morb. Hum. Vit. in Oculo Hum.* p. 27.

tassæ) must be given internally* and externally; the eyebrows are to be rubbed with a salve of Opium, and Ung. Hydr. Cin.; the eyeball is often to be washed with a mucilaginous eye-water, with Laudanum; or dry, warm, aromatic herbs, in bags, are to be suspended over the eye; blisters are to be applied on the mastoid processes, and sinapisms frequently on the arms.

Though the disease by these means should be actually prevented from proceeding, yet the vision seldom returns; the eyeball rather sinks, and becomes atrophic.

When the dropsy has taken place without inflammation, in which case the cure is still more difficult, Pulv. Digitalis is particularly to be exhibited, in progressively increasing dozes, and the medicine is to be continued until the pulse diminishes in number, and giddiness, constant nausea, and sparks before the eyes, make their appearance; even now the Digitalis is to

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* *Benedict.*

be continued a long time, and blisters are to be applied on the mastoid process.

If all these means are of no use, if the bulb be already much distended, and the pains increase more and more, then the paracenthesis of the bulb must be perforated in the following manner: After opening the cornea and the capsule of the lens, as in extraction, and discharging the lens along with the vitreous humour, a small part of the flap of the cornea is to be cut off, to prevent a new accumulation, and the eye is to be dressed as after extraction of the cataract.

In the third species of Dropsy of the Eye, where both the vitreous and the aqueous humour is unnaturally accumulated, and when the symptoms and causes of the two species described above, are found united with it, a very varicose state of the eyeball is always observed. The eyeball, in this case, not unfrequently attains an enormous size, projects from the orbit, and produces that which many oculists have called the Ox's Eye, Buphthalmos.

The PROGNOSIS is very discouraging, the disease generally terminating in death, after the supervention of cancer. This event occurs sooner when the paracenthesis has been employed. In the commencement of the disease, its further progress may be sometimes checked.

In regard to the treatment, in cachectic patients a suitable dietetic practice is always strongly indicated. Local remedies must never be used, the extirpation of the eye only may be tried; and if the disease has not proceeded too far, it affords palliative relief for a longer or shorter period. Professor Beer, however, always observed, even after extirpation, the supervention of a spongy, carcinomatous fungus in the orbit, which gradually killed the patients.*

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* The following case of Hydrophthalmus, combined with Cataract, seems to me worthy of being related. Mr. D. M'Kay, from West Craigs, county of Linlithgow, consulted me in the autumn of 1818, respecting his daughter, aged five years. She had complained for some months of occasional severe attacks of pain in the right eye, accom-

panied with inflammation. The vision of the eye was much impaired, the eyeball a little enlarged, and on examining it, there was the appearance of a *yellow ring* lying in the dilated pupil. On a very minute inspection, I could discover that the lens, which still continued transparent, was not in its natural situation, but had passed through the enormously dilated pupil into the anterior chamber, which it had nearly filled up. There can be no doubt, that even the anterior portion of the vitreous humour was pressed forwards, in some measure, through the pupil into the enlarged anterior chamber, carrying along with it the lens, which still retained its living connexions with the hyaloid membrane, and consequently its transparency; and that the appearance of a yellow ring was caused by the light being reflected from the Petitian canal. It could not however be supposed, that this unnatural position of the transparent lens could long continue, without inducing opacity of this body, and accordingly, in the course of some months it became opaque. Meanwhile, the increase of the whole eyeball continued, with an occasional severe attack of inflammation, pain and fever, and the eyeball progressively attained an enormous size, having enlarged in all directions.

She was brought to me on the 30th November, 1820, in consequence of the dilated cornea of this eye having burst a few days before, during an attack of severe inflammation of the eye, accompanied with excruciating pain, and smart fever. The rupture, however, has healed, and the enlargement will again proceed, unless checked by the operation above-mentioned, which I propose to per-

form as soon as the present fit of irritation leaves the eye.

The circumstances chiefly worthy of remark in the case of this eye, are the delusive appearance of the ring, and the transparent lens lying in the anterior chamber.

The other eye, viz. the left, was also carefully examined, when this patient first came under my care, and it was discovered that even in it the work of destruction had commenced. The cornea seemed larger, and the anterior chamber of greater extent, than is natural, the pupil was of the common size, and the iris was moveable, but it undulated on brisk motions of the eyeball, its texture seemed thinned, and its fibres more distinct than usual, as if they were on the stretch, and separated slightly from each other. The lens appeared sound, and the vision, though impaired, was tolerable. Soon after, however, this lens also became opaque, and was probably set loose from its living connexions, for it vacillated in all directions on the slightest motion of the head or eyeball, sometimes obscuring the whole pupil, at other times descending so far as to leave the upper half of it clear. When the head was kept motionless, and the patient stood erect, the upper third of the pupil was clear, and through this small aperture she enjoyed tolerable vision.

In February 1820, however, I was called to West Craigs to see this little Miss, in consequence of her having become blind in an instant. Before I arrived, she had as unexpectedly recovered her sight. I conjectured that what had happened in M'Crindle's case, related page 20 of this volume, had occurred in the present one, namely, that the

unfettered lens had got entangled in the pupil, and produced blindness, till it fell back into its natural situation. This was what had actually taken place, for the same thing has occurred frequently since, and it generally happens during night, when of course the pupil is in a state of dilatation such as to admit the lens taking its seat in it. The consequence is, that sometimes, on awaking in the morning, she finds herself quite blind, though she had gone to bed with her usual state of vision the night before.

The extreme unruliness of this child, the probable diseased state of the vitreous humour, and the uncertainty whether the Hydrophthalmia be not still advancing, though imperceptibly, render the event of extracting this *Cataracta Capsulo-lenticularis Tremula,* very doubtful, in her present state. Were the lens, however, to drop through into the anterior chamber, extraction would be indispensable, to prevent the supervention of ruinous inflammation. When a lens is detached, as in this case, I have generally found it impossible, by the operations of division, depression, or reclination, to remove the cataract permanently from the axis of vision. For these reasons, I have not yet determined on the method or period of removing this cataract.

The constant action of a powerful issue on the scalp, has probably checked the progress of the dropsy of this eye, and consequently saved this organ from utter destruction. Gentle laxatives and Barks were given internally. Calomel had been used before I saw her. *Translator.*

B.—OF

THE DISEASES

OF THE NON-TRANSPARENT TEXTURES OF THE EYEBALL.

a.—OF THE DISEASES OF THE IRIS.

Of Pure Inflammation of the Iris. Iritis.

Symptoms of the first Stage.—This form of inflammation commences with obtuse, heavy, and deep pain, equable contraction of the pupil, decrease of vision, progressive diminution of all movements of the iris, without the pupil losing its circular form and position, increasing aversion to light, and muddiness of the pupil. At the same time, at first the small circle only of the iris, and afterwards the large one, become more and more of a deep colour, and the iris, when grey or blue, becomes greenish,

when brown or black, becomes reddish; it also swells, and presses forwards towards the cornea. The more the inflammation extends over the anterior capsule and deeper structures, the more does the vision decrease, and pain increase, which at last extends to the crown of the head; and the more readily also is an inflammatory fever superadded. During all these severe symptoms, the external redness of the eyes is very inconsiderable, for the sclerotica only is of a rose-red colour, and even this redness is shaded off towards the circumference of the eye. The cornea, however, has lost its peculiar lustre, Tab. II. fig. 10; a sign that it also is about to be inflamed.

Symptoms of the second Stage.—The pain becomes unsteady, flashes of light are observed, the redness even in the conjunctiva increases, the pupil, which hitherto remained circular, becomes angular; by the help of a lens, a delicate mesh of albumen is discovered in it, through the medium of which, first the small circle, and afterwards the large one, undergoes an adhesion

with the inflamed anterior capsule of the lens The vision becomes now much limited, and if vigorous measures be not soon taken against the lymphatic exudation into the pupil, the sight is destroyed, leaving a mere perception of light. The swelling of the iris increases, and it projects more towards the cornea; the latter grows gradually dimmer, and small, yellowish-red, round elevations in the iris may be indistinctly seen, which soon discover themselves to be abscesses, burst, and thus form a real hypopion, Tab. III. fig. 1. If the inflammation has extended upon the retina, vitreous humour and choroidea, the sight is lost for ever at the termination of the second stage. If the inflammation extend more upon the external tissues of the eye, the iris continues progressively to press forwards, sometimes unites all over with the cornea, and induces a total *staphyloma corneæ.*

The CAUSES which produce a Pure Iritis, are for the most part external wounds of the iris, which commonly happen in opera-

tions for cataract, in forming artificial pupils, &c.

PROGNOSIS IN THE FIRST STAGE.—When Iritis is discovered at the very first, and is properly treated, and when it has not yet extended far, the prognosis is favourable. If the iritis, however, has extended farther upon the anterior or posterior structures of the eyeball, the prognosis must be delayed; for in this case, the inflammation may proceed so far as to produce a general ophthalmitis, in which case it often happens, that not even the form, far less the sight of the eye, can be preserved.

PROGNOSIS IN THE SECOND STAGE.—If no evident effusion of lymph be observed in the posterior chamber, but merely minute greyish filaments, which project a very little from behind the pupillary edge of the iris; if the small circle only of the iris be changed in its colour, and as yet no abscess exist in the iris, and consequently the sight be diminished in only a slight degree, or be somewhat cloudy, then, after proper treatment, not even a remnant of

the disease subsists; only some time after the disease has run its course, the motions of the iris continue more sluggish than in the sound state.

If an evident fine network be discovered with the naked eye behind the pupil; if the large ring of the iris be changed in colour, and consequently the vision more impaired, then by proper treatment the sight can be made fit for reading and writing; only it will always continue weak, and the pupil remain angular and muddy. If an abscess has existed in the iris; if the pupil has been shut completely by means of effused albumen, and the patient still perceive the distinction between light and darkness, then indeed there is no hope of restoring vision at the first, but it may sometimes be regained at a future period by the formation of an artificial pupil. If several abscesses were present in the iris, which have burst and filled the chambers of the eye with matter, the prognosis is very unfavourable. If the iritis had advanced to a pure ophthalmitis interna, the

Surgeon may congratulate himself if he can preserve a tolerable shape of the eye.

CURE IN THE FIRST STAGE.—The treatment corresponds with that of the first stage of pure internal ophthalmitis, only, the degree of antiphlogistic treatment is to be properly modified by the degree of inflammation. When towards the end of the first stage, the vision is completely destroyed, the iris approaches the cornea, and consequently a staphyloma corneæ is to be dreaded; then, according to Beer, in order to prevent this ugly state of the eye, the inflammation is to be increased, by introducing the Tinct. Opii Simp. several times daily into the eye; or when this does not operate with sufficient strength, by applying the Vitriolic Æther, or the Balsam. Vitæ Hoffm., with a view to destroy the sources of the aqueous humour, by means of the purposely increased inflammation, because if these sources be not dried up, the most essential condition for the formation of staphyloma *

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* See *Staphyloma of the Cornea.*

is still afforded. If the anterior half of the eyeball evidently flattens by this treatment, it is the most certain sign that the secretion and absorption of the aqueous humour are actually destroyed for ever.

CURE IN THE SECOND STAGE.—When the inflammation has been moderated by antiphlogistic treatment, it will be proper, at the period of change of the first into the second stage, to make use of the Extract of Hyosciamus, first made accurately known as an ophthalmic medicine by the meritorious Himly, and particularly recommended by Adam Schmidt in the cure of iritis; or, what is still better, to employ the Extract of Belladona in solution, * which acts more powerfully, and is particularly employed by the French and English; to be applied lukewarm upon the eye itself. The radiated fibres of the iris contract to the greatest degree, in consequence of this application, and the pupil di-

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* ℞. Extract. Fol. Belladon. gr. iii.
Aquæ Distill. ʒss. M. solvendo.

lates, if the strength of the remedy overcome the contraction of the circular fibres. The albumen which has been thrown out, will thus much seldomer render the whole of the pupil opaque. I have often employed this practice successfully. Of late * the Belladona has been introduced into the eye with advantage, even in cases where the iris had already been glued to the anterior capsule of the lens, by means of recent shreds of effused lymph. Fresh adhesions of this description, are in general only stretched, and consequently thinned, but are seldom torn by the enlargement of the pupil; whereas, on the other hand, old, single and delicate threads of lymph in the pupil, are not unfrequently torn by the contraction of the radiated fibres, and thereby improve the sight, which was probably somewhat dim. This method of cure has not only been advantageously used in the pure, but also in the cachectic in-

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* *Saunders.*

flammations of the iris, but it must always be aided by means which promote absorption, when coagulated albumen is present in the pupil. On this account, a solution of the Corrosive Sublimate, with Opium, is to be applied externally, or, if the eye will not bear a liquid, let the following salve be introduced between the eyelids: ℞. Merc. Precip. Rubr. gr. vi., Opii Puri, gr. viii., Butyr. Recent. Insuls. ʒii. M. exact. Along with this, an ointment of grease and the Merc. Solub. Hahnem., or the Ung. Hydrarg. Ciner. with Opium, may be rubbed in around the eyes. When the constitution of the patient will bear it, Calomel is to be also given internally.

Anomalies of the Pupil.

The pupil is subject to many changes, which may be properly treated of under the above title.

Sometimes it is too much dilated, and more

or less immoveable, in which case the disease is called

Mydriasis.—This is either *symptomatic*—and when so, is to be met with in patients who have dropsy of the brain; in many cases of dropsy of the eyes; in cases of worms; in amaurosis, and in hysterical or hypochondriacal patients—or it is *idiopathic*, in which case it often shows itself as a real palsy of the iris, which is frequently observed during the use of some narcotics, as Belladona and Hyosciamus. *Congenital* cases of dilated pupil have also been observed; cases also from remaining long in darkness, and from habit. Adhesions of the uvea with the anterior capsule of the lens may likewise cause a mydriasis. The consequences which may result from this affection, when the nervous structures of the eye are as yet sensible, consist in aversion to light, perfect blindness by day, and at length an amaurotic amblyopia supervenes, because the rays of light, penetrating in too great quantity to the bottom of the eyeball, irritate too much the nervous structures.

The manner of treating this disease, and the prognosis to be given, are to be deduced from what has been said before. The principal disease must be cured when possible; or, if palsy of the iris be present, apply blisters over the eyebrows, and make use of antiparalytic remedies, both externally and internally. Shading the eyes, and particularly tubulated spectacles, have been recommended as palliative cures, by which the superfluous and injurious light may be warded off.

The opposite affection of the pupil is, *The unnaturally contracted pupil, Myosis.*—Like Mydriasis, it is sometimes congenital, or a symptom of hypochondriasis or hysteria. It is often also of a paralytic nature. People who are obliged to be much engaged with small, particularly glittering objects, for example, watchmakers, &c. not unfrequently acquire a myosis from habit, which can only be cured by avoiding as much as possible the hurtful causes, by living in a darkish chamber, and making use of a green shade, or tubulated spectacles. A fre-

quently occurring species of myosis, is that which remains after internal ophthalmiæ. In this case the iris is immoveable, the pupil much contracted, but perfectly clear and black, and not angular or displaced; the patient also complains constantly of weakness of sight, which increases much in the evening. The PROGNOSIS is unfavourable; for many remedies which have been employed, have not been adequate to remove the disease. In the dynamic myosis, the introduction of Extract of Belladona into the eye, has been too highly recommended of late.

Lastly, a third affection is, *Obliteration of the pupil, Atresia pupillæ.*—When the extremely fine, and very vascular Membrana Pupillaris, which shuts the pupil for a long period in the fœtus, remains after birth, the atresia pupillæ is congenital: cases of this description, however, are very rare. When this membrane continues after birth, it seldom requires the aid of the oculist, for in general it is spontaneously absorbed in a few weeks. The obliteration, which

most commonly requires to be treated of, is the consequence of a previous inflammation of the eye. Obliterations of the pupil always destroy the sight more or less, according as they may be complete or incomplete; the sense of light, however, is never entirely lost, even in the most complete obliteration of the pupil, provided this be the only disease.

The manner in which obliteration of the pupil originates from ophthalmia, is exceedingly various. It often succeeds an internal ophthalmia which has originated in the retina and choroidea. In this case, however, the atresia pupillæ is not the cause of the blindness, because the vision has been previously destroyed by organic changes of the retina. An imperfect obliteration of the pupil readily and frequently originates from the different species of iritis, at the change of the first into the second stage; this happens particularly often in the Iritis Syphilitica, as will be shown hereafter under that head. If all sense of light be wanting in this species of atresia, the closure of the pupil is not the only

cause of the perfect blindness, but rather organic changes of a more important nature in the interior of the bulb. Obliterations of the pupil also often follow the absorption of collections of matter, or of extravasations of blood in the chambers of the eye, in consequence of remnants of the matter or coagulated blood continuing fixed in the pupil.* Even a partial adhesion of the iris with the cornea, (synechia anterior,) may have caused an obliteration of the pupil. If the pupil, in such a case, be not entirely closed, and the remainder of it be so covered by a cicatrix of the cornea, that the rays of light cannot penetrate, or if the passage of the rays of light through a perfectly natural pupil, be completely prevented by a leucoma, this state, which is perfectly different from obliteration of the pupil, may be very suitably called obstruction of the pupil.

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* The former obliteration of the pupil forms what is called the *Cataracta Spuria Purulenta,* the second the *Cataracta Spuria Grumosa.* If the pupil be only filled with coagulable lymph, it is then called *Cataracta Spuria Lymphatica.*

From the different modes related above of the origin of this disease, it will be evident that the prognosis, in many cases, is very unfavourable, and that in several there can be no idea of the formation of an artificial pupil; yea, this is sometimes not even admissible, when the obliteration of the pupil is the only cause of the existing blindness.

The formation of an artificial pupil will probably have a happy issue, only when the obliteration has no complication in regard to the form and organization of the eye, when the blindness depends merely on the closed pupil, when the patient clearly distinguishes all shades of light; when he has perfectly recovered from the previous ophthalmia, and has not a cachectic disposition to disease. On the other hand, the result of this operation is very doubtful, when the sense of light is not distinctly discovered in all its shades, and when the cornea appears very leucomatous, affected with cicatrices, or is flattened or staphylomatous. The operation will be entirely fruitless, when

no sense of light is present, or when there is an unnatural state of the iris, or of the whole eyeball. Hence the formation of an artificial pupil can be of no avail, in cases where there are defects of the retina, in synchisis, glaucoma, hydrops or atrophia bulbi; in general varicosity of the eyeball, as also, where inflammatory affections of the eyeball still exist. The opacity of the crystalline lens, and of its capsule alone, even when completely adherent to the uvea, forms no contra-indication to the formation of an artificial pupil, it has merely a great influence on the choice of the method of operating.

According to rule, the artificial pupil is to be formed towards the internal canthus, and somewhat downwards, a thing however not always possible; in which case that spot is to be selected which appears most fit, necessary and useful. However, the best part for a pupil is always the centre of the iris.

The operation for forming an artificial pupil is of three different kinds; it either consists

in a mere incision of the iris, *Corotomia*, or in the excision of a part of this membrane, *Corectomia*, or lastly, in tearing the iris from its ciliary connexion, *Corodialysis*.

The most ancient method, now but little used,* viz. the *Corotomia*, was discovered by

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* Of late, however, a Corotomia invented by Maunoir in France, has again, with good reason, come into use, which consists in the operator's introducing into the anterior chamber, through a previously formed incision of the cornea, which need not be too large, an extremely fine, slightly bent, crooked scissors; he then gently opens them, and perforates the centre of the iris with the lower sharp and pointed blade, and pushes it along the posterior surface of this membrane, till the upper blade, which is furnished with a knob, has reached that part of the anterior chamber where the cornea is united to the sclerotica, and then he cuts at once through the iris. A second incision, diverging from the first, is now to be made in the same manner, and in such a way that the two cuts form a V, the point of which is in the centre of the iris. The circular, as well as the radiated fibres of the iris, soon act, and a semilunar or square-shaped pupil restores the vision of the patient. See Maunoir, *Memoires sur l'organization, de l'iris, et l'operation de la pupille artificielle.* Paris, 1812. Adams also has discovered a new method of Corotomia, in which, by

Cheselden, near the middle of the last century, and improved by the celebrated Janin, and many others.

The second method was first performed by Wenzel the father, near the end of the last century. He made an incision of the cornea as for extraction of the cataract, and when his knife had penetrated into the anterior chamber, he made at the same time, and with the same instrument, an incision in the iris, which resembled, on a diminished scale, the form of the incision of the cornea; he then cut off the flap of the iris which was thus produced. This method has been parti-

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means of a little scalpel-shaped knife introduced through the sclerotica into the posterior chamber, he makes from behind a sufficiently large, simple incision of the iris, and then pushes a portion of the lens, previously cut in pieces by the instrument, into the incision, in order to prevent it from closing again, which otherwise would almost infallibly happen. See *Observations on Ectropium, or Eversion of the Eyelids, with the description of a new Operation for the Cure of that disease; on the modes of forming an Artificial Pupil,* &c. London, 1814.

cularly modified and improved by Gibson and Beer. The former makes the ordinary incision of the cornea, next presses the eyeball slightly, so that the iris may prolapse, and then cuts off the projecting part.

Beer gives the following directions for the Corectomia. After having made with the cataract-knife, fig. 4, a flap incision of the cornea a line in length, and as near to the sclerotica as possible, if the iris be no where adherent with the cornea, and be projected, in the shape of a small roll, from between the lips of the wound, by means of the aqueous humour lying in the posterior chamber, he immediately lays hold of the projecting part with the small cataract-hook, fig. 6, and cuts it off quickly with Daviel's scissors, on a level with the lips of the wound: when the iris has retracted, a properly shaped pupil makes its appearance. If the iris, however, be any where adhering with the cornea, and the pupil be only distorted, then, after finishing the incision of the cornea, the small hook is to be so introduced through

the wound, that its point be neither directed towards the iris, nor towards the cornea, and the Surgeon attempts to seize with it the pupillary edge of the iris in an oblong direction, and to draw it forwards between the lips of the cornea, he then quickly cuts away the part which has been drawn forward, by means of Daviel's scissors. Lastly, if the pupillary edge of the iris be glued to the cornea, at the spot where the artificial pupil should be made, the large circle of the iris must be laid hold of by means of a hook, or if this always tear out, it is to be laid hold of with the fine pointed, toothed forceps, fig. 1, and drawn out between the lips of the wound, and some of it cut away within the lips of the wound, that it may not tear when more powerfully dragged. When the operation is finished, the patient is to be treated as after extraction.

When a central leucoma hinders the passage of the rays of light through the perfectly regular pupil, the meritorious Himly * makes an

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* *Dessen. Biblioth. f. Ophth.* I. B. I. St. seite 175.

opening in the cornea a line in length, and near to its periphery, introduces a small hook into the anterior chamber, lays hold of the pupillary edge of the iris, draws it through the opening of the cornea, and leaves it fixed in the wound, where it unites with the cornea, and the now distorted pupil makes its appearance at the side of the leucoma.

When the cornea, along with the iris, is entirely destroyed, Autenrieth proposes to form a pupil in the neighbourhood of it by cutting out a part of the sclerotica, and of the non-transparent tissues lying under it; after which, the wound will become covered over with a pellucid, thin skin, and render vision possible. Whether such an opening in the sclerotica can ever be covered over with a skin which shall remain transparent even for a time, and whether it be possible by such an operation to regain the sight, I leave to individual observation.

The Corectomia is particularly indicated when the lens remains undestroyed, and when the transparency of the cornea is not so much

limited, as to give reason to fear that a sufficient space will not be left for the pupil, should the wound of the cornea leave a visible cicatrix. The obliteration of the pupil, which succeeds extraction, can, as to the result, be operated upon with certainty, only, when no opacity of the remaining capsule of the lens, or coagulated lymph on the small circle of the iris, extending outwards, is apprehended to exist, either of which may be discovered by the patient's having a very indistinct perception of light.

The third method of operating, viz. the Corodialysis, was discovered by Ad. Schmidt and Scarpa* at the same time, and was modified by Reisenger, Langenbeck, Himly, Graefe, and others. It is only indicated, when the coagulable lymph, existing after an inflamma-

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* Asalimi must have performed the Corodialysis earlier than Scarpa, and Buzzi performed it in the year 1788.—*See G. Wagner, Commentatio de Coremorphosi,* &c. Gœtingæ, 1818, p. 35.

tion in the posterior chamber, has extended beyond the small circle of the iris towards the ciliary processes, which is discovered by a considerable change of colour in the large circle of the iris, and by the indistinct perception of light. It is also indicated when a secondary capsular cataract, adhering generally to the uvea, or a capsulo-lenticular cataract, or a purulent or a bloody cataract, is present; provided the patient still has a distinct perception of light. Lastly, the Corodialysis is to be performed when the cornea is incurably opaque, excepting so small a portion, that a sufficiently large opening cannot be made in it with the knife, in order to undertake the Corectomia.

To perform this operation according to Schmidt's method, his lancet-shaped crooked needle, T. V. fig. 7, is to be introduced as in reclination of the lens, through the sclerotica, in such a manner that its concave side be directed towards the uvea; it is to be carried through the posterior chamber as far as the ciliary ligament on that side, where it is

intended to make the artificial pupil; the instrument is then to perforate the iris from behind forwards, about the fourth part of a line from the ciliary ligament, and when laid hold of as firmly as possible, it is to be detached from the ligament; in doing which, the point of the needle must be prevented from slipping from the iris, by taking a deeper catch of it, and at the same time withdrawing the instrument somewhat from the eye. After the point of the needle lets go the separated iris, the latter is to be examined for a moment, and the Surgeon must consider whether the pupil be too small, and whether the iris again retracts towards the ciliary ligament, and diminishes the pupil which has been made. If this be the case, the iris is again to be laid hold of as before with the point of the needle, near to the ciliary ligament at the upper or lower angle of the triangular pupil, and the previous operation of separation repeated.

This species of Corodialysis is applicable,

when, as was already stated, the whole of the cornea, excepting a small spot, is opaque.

Beer and Schmidt modified this operation, as they introduced the needle through the anterior chamber, when disease of the cornea did not prevent it, and separated the iris from the ciliary ligament from before. The result in this way was generally found more favourable than in the first method.

In both methods the lens is removed from its position, and pushed away from the artificial pupil, so that it cannot in future be prejudicial to the sight. It may be already opaque, or, as always happens, it will become so afterwards.

As the modes of performing the Corodialysis hitherto adduced, have many faults, because, for example, the detached iris readily returns towards the ciliary ligament, and closes the new pupil, &c. Reisenger* invented the

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* *Darstellung eines neuen, Verfahrens, die Mastdarmfistel zu unterbinden, und einer leichten und sichern methode, künstliche Pupillen zu bilden.* Augsburg, 1816.

following operation, which has already been many times performed with a happy result. After having made a small opening* in the cornea, his hooked forceps, Tab. V. fig. 8, when closed, are to be introduced through the anterior chamber, as far as the large circle of the iris, and are then to be so turned that the points of both small hooks be directed towards the iris; he then opens the forceps a little, catches and hooks the iris with the instrument, separates it from the ciliary ligament, closes the forceps again, draws the part of the iris which has been laid hold of, a little through the opening of the cornea, and entangles it there, where it adheres, and is secured from retracting towards the ciliary ligament.†

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* By means of the instrument, fig. 2, or with a common cataract knife.

† It sometimes happens after the operation of extraction, that the iris protrudes through the wound of the cornea, forms a permanent adhesion there, and becomes covered with a thin pseudo-cornea. The inflammation attending such cases, is sometimes so severe, as to terminate in an

obliteration of the pupil, which in all these cases is dragged down to the lower third of the cornea. When the inflammation has not run so high as to produce farther mischief, the two upper thirds of the cornea remain transparent, and the corresponding two-thirds of the iris are observed to be put much upon the stretch, its fibres all tending downwards to the obliterated pupil and cicatrix of the cornea. In five such cases I have succeeded in forming an artificial pupil, and restoring the vision, by the following very simple operation of corotomia: A small opening is to be formed with the extracting knife, through the outer and upper part of the edge of the cornea, fit to admit Maunoir's eye scissors, with which the over-stretched fibres of the iris are to be cut across by one simple incision, to the extent of three lines. The cut edges instantly recede, and form an oval pupil of sufficient size. In only one of these cases have I met with any inconvenience from the opaque capsule, which I extracted with a small pair of forceps. *Translator.*

b.—OF THE DISEASES OF THE RETINA AND OF THE OPTIC NERVE.

Pure Inflammation of the Retina. Retinitis.

When a person first experiences unusual aversion to light, with lachrymation, headache, and stinging pains in the deep parts of the eye; when the patient next sees glances and sparks of fire darting before the eyeball; when he suffers, after the removal of these symptoms, a greater or less degree of actual nervous amblyopia; and when the Surgeon, during the course of the disease, has observed nothing upon the eye indicating inflammation, for example, a slightly contracted pupil, then a Retinitis, as uncomplicated as possible, may be conjectured to exist. So pure an inflammation of the retina will however be seldom observed, for in ge-

neral the choroidea, iris and sclerotica, are at the same time affected, and then the same symptoms present, which will be related under Ophthalmitis Interna.

Too much irritation of the retina by bright light, by prolonged examination of small glistening objects, suppressed epistaxes, &c. produce this disease.

The PROGNOSIS is pretty favourable, when the disease has not continued long, when it has been properly treated at the commencement, and when the succeeding amblyopia is inconsiderable. If the disease, however, run its course in a lingering manner, varicosity often remains, and keeps up the amblyopia. If the inflammation has changed the organization of the retina, the amaurotic amblyopia, or amaurosis, is incurable.

The CURE is the same as for Ophthalmitis interna. An amblyopia remaining behind, provided it has not been caused by disorganization of the structures of the eyeball, will be cured by the frictions and vapours of those fluid sti-

muli to be mentioned in the general cure of Amaurosis.

Amaurosis, or Gutta Serena.

By the word Amaurosis is understood a real blindness, seated in those structures which, in their natural state, give the power of vision; and as this power belongs to the nervous structures of the eyeball, the disease must reside in them, and particularly in the retina and optic nerve. If nervous blindness be incomplete, if the patient still see more or less, it is called imperfect blindness, amaurotic weakness of sight, *Amblyopia Amaurotica*, which sometimes never proceeds to perfect blindness, and may even remain unchanged throughout life.

Symptoms of Amaurosis, in general.—The symptoms of Amaurosis are properly divided into such as the patient himself observes, (called *Subjective symptoms,)* and into such as are observed by the Surgeon *(Objective symptoms).*

Subjective Symptoms.—The vision, sometimes in one eye only, occasionally in both at the same time, declines, or is entirely destroyed. This defect is always present, but in some cases several of the following symptoms precede or accompany it.

The patient not unfrequently experiences a troublesome dryness of the eyes, and a feeling as if the bulb were forced out of the socket; often complains of an irritation in the eyeball and its appendages, unaccompanied by pain; has a particular fulness, or an unusual weight of the eyeball; is often seized by a severe giddiness, which commonly ends with a considerable decrease of vision, and sometimes with severe headache; frequently believes that there is fine dust under the eyelids, and is consequently afraid of moving them. The patients often become amaurotic under repeated general headaches or hemicrania. These painful sensations frequently precede for a considerable time amaurotic blindness; sometimes they occur for the first

time, when one or both eyes are already blind, but not unfrequently the pain takes place at the same time the blindness commences; lastly, there are amaurotic patients in whom the most severe pain continues until the amaurosis is complete, and then gradually and for ever disappears. Sometimes the pain becomes so severe, that the patients lose their recollection, and even begin to rave; in such a case, there is always discovered after death important organic lesions of the bones or of the brain, particularly at the basis of the skull. If along with the existing perfect amaurosis the other senses and the memory begin to fail, the case soon terminates in death.

Sometimes only the half of the retina appears to be amaurotic, and then the patient only sees one-half of the objects presented to him, *(Hemiopsia, visus demidiatus,)* or only particular parts of them seem wanting, *(visus interruptus,)* or the vision is unequally distributed in the retina, whence some transparent circular streaks, or serpentine-shaped objects

(Scotomata) are observed, which at first fly around unsteadily before the eyes, but afterwards remain fixed. This is called the seeing of gnats, * *(visus muscorum, Myodesopsia).* If the phantoms resemble network or gauze, the appearance is called *visus reticulatus.* The patient often sees light and glances before the eyes *(visus lucidus, Photopsia, Marmaryge Hippocratis).* Sometimes he has aversion to light, *(Photophobia,)* during which he can often recognise the smallest objects with little light *(Oxyopia).* Not unfrequently the patient sees all objects clouded, or as if covered with coal dust *(visus nebulosus).* The pa-

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* The visus muscorum is not always a symptom of approaching amaurosis, it often arises from congestion of blood in the head, it frequently accompanies hypochondriacal fits, and is not uncommonly observed when the eye alternately looks at dark and bright objects. In such cases the Scotomata are moveable, and disappear at times entirely. Scotomata, which are met with in consequence of overstraining the sight, are often cured by refraining from employments which fatigue the sight, by travelling, and by the use of derivatives.

tients often see double, *(Diplopia,)* or they see colours, *(Crupsia,)* particularly at the periphery of objects; or they squint, *(Strabismus,)* or their eyes stand oblique *(Luseitas)*. Sometimes they are short-sighted, sometimes far-sighted, at other times they see objects altogether misshapen and out of their real situation.

The Objective Symptoms of Amaurosis are seated principally in the pupil, for sometimes, indeed for the most part, it is found too large, occasionally too small, and almost always appears angular and distorted. However, the blackness of the pupil is seldom so pure as in healthy young people, for at one time it is a little smoky and clouded, at another dark-gray or greenish-gray, lastly, it is occasionally reddish or yellowish-white, and then becomes more or less like the opacity of the pupil observed in Cataract; still, in all these cases the muddiness appears distinctly in the posterior part of the eye, and is often visibly concave. Occasionally the iris is entirely im-

moveable by the strongest changes of light, sometimes however it moves a little, at others, though seldom, it evinces great mobility. When one eye only is amaurotic, both pupils sometimes contract and expand so long as both eyes remain open, but if the eye which is still sound be shut, then the iris of the other is immediately fixed, and the pupil enlarged and angular. Amaurotic patients are often affected with real lethargy, or want of sleep, or paralytic symptoms of the muscles of the eyes or of the extremities, also with convulsion fits, which, when they appear for the first time after the blindness is complete, generally prognosticate very unfavourably in regard to life.

Amaurosis may take place suddenly, or, as is more usually the case, slowly; it may be permanent, transient, periodical, and even intermittent; it may lastly occur as a purely local affection, or be combined with Glaucoma, Cirsophthalmia, Cataracta, Blepharoplegia, Atrophia Bulbi, &c. or it may be combined with constitutional diseases, and originate from

them, particularly Gout, Rheumatism, Chlorosis, Typhus, Hydrocephalus, and many others.

THE CAUSES OF AMAUROSIS IN GENERAL.—It commonly confines itself to no age or sex; men with black or brown eyes however have much more disposition to the disease than the blue or gray eyed. Those having dark eyes have in a particular manner, reason to fear a loss of sight at the cessation of menstruation, or on the suppression of the hæmorrhoidal flux. Sometimes amaurosis is hereditary.* That kind

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* In 1817, I was requested by my friend, Dr. Brown, an eminent physician of this city, to inspect the head of a lady who had been affected with amaurosis for many years. The state of the optic nerves was very peculiar, and as her sister and daughter were affected with the same disease, I have thought the leading circumstances of their cases worthy of being inserted here. The following statement has been obligingly sent me by Dr. Brown:—

"Mrs. ——, aged eighty-three, had been completely blind from amaurosis for thirty years before her decease in 1817. She had also been subject to irregular

of cataract which is produced by Idiosyncrasy in regard to particular articles of food and medi-

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gout, which assumed a variety of forms, and some months before her death she was attacked with palsy of one side.

"On opening the head, aqueous effusion was found below the tunica arrachnoidea, and in both ventricles. One part of the cerebrum was observed to be of a pulpy texture, but these appearances were most probably connected with the recent paralytic attack and not at all with the amaurotic.

"All the nerves, with the exception of the optic, had the usual appearance. On examining the membranous sheaths of these nerves, it was ascertained that their medullary matter had been completely removed, and this change had taken place even nearer to the brain than where the nerves cross each other.

"The arteries of the brain were in most parts altered in their structure; their coats were speckled with white spots, and their texture was more rigid and firm than natural. Both the carotids, where these vessels are in contact with the optic nerves at the foramen opticum, were found to be remarkably dilated, suggesting the idea that the absorption of these nerves was connected with the enlarged state of the arteries. The absorption however of the optic nerves nearer the brain could not be accounted for on this notion; so that it is not easy to conjecture

cine, or in regard to this or that state of body, is rare. To such rare cases belong particularly

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whether the enlarged state of the vessel was the cause or the effect of the absorption of the optic nerve.

"A similar tendency to enlargement of the arteries was noticed where the cerebral arteries enter the cranium, and perhaps it might have been traced in other situations if a more minute search had been made.

"It is perhaps worth remarking, that in both of those situations where the arteries were found dilated, these vessels make a sudden turn, and from this cause their coats are exposed to the full stream of blood from the heart. We can readily conceive therefore that amaurosis may occasionally depend on the enlargement of this turn of the carotid artery, producing by its pressure absorption of the medullary matter of tbe optic nerves.

"The twin-sister of this lady died in the eighty-first year of her age, and for eight or ten years before her death she also had been completely amaurotic. Though her general health was more entire than is usual at such an advanced age, she had lost completely not only her sight, but also her senses of taste, of smell, and of hearing. She could not distinguish animal from vegetable food, or one sort of fluid from another. No opportunity was obtained of inspecting the head. The only daughter of Mrs. —— is at present alive, and has been totally blind from amau-

amaurosis occurring at the commencement of pregnancy, and disappearing at its termina-

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rosis for several years,—she is at present in her fifty-sixth year."

I have been consulted by the son and grandson of Mrs. ——, who have both weak eyes. The grandson in particular has a very distressing degree of congenital amblyopia. Any exertion of his eyes induces temporary blindness, and though he can sometimes see a minute object, at others he will walk directly against a chair or a table. *Translator.*

In 1812, I saw a family in Paisley, the three eldest of whom were born amaurotic. I at that time examined their eyes carefully. Two of the blind children are still alive, and I lately had an opportunity of again examining the eldest, an interesting girl of eighteen years of age. Her eyes and their appendages are well-shaped; the iris is of a blue colour; the pupils are of natural size, form, and colour. The size however does not perceptibly vary from the action of different degrees of light, at least I could not discover any motion of the iris. Her eyes have not the inanimate appearance so characteristic of amaurosis, and they have less of the irregular involuntary motions usually observed in blind people.

It seems probable that the retina is entirely wanting in these children, all the other parts of the eye appearing perfect. The father and mother, and their relations, have good eyes. *Translator.*

tion, but which is always accompanied with nausea and unconquerable vomiting. The coffee made of succory or common endive, bitter beer, bitter medicines, especially quassia, also narcotics and lead have often caused an amaurosis. Constipation of the bowels, Hypochondriasis and Hysteria, permanent congestions of blood in the head from intense study, and (according to Schmucker, &c.) forced marches in hot weather, suppression of customary flows of blood, and such like causes, may induce an amaurotic state. Likewise a coup de soleil, pure internal Ophthalmitis, Encephalitis, the improper use of the eyes by examining small glistening objects, particularly through microscopes, looking at the sun or moon, a glance of light entering a dark chamber, travelling during sunshine in a snowy country, are very common causes of an amaurotic amblyopia, or of a perfect amaurosis. The CAUSE of Amaurosis often resides in a general or local debility, such as may arise, for example, from Onanism, from excess in venery, sali-

vations and tedious diarrhæas, from concussions of the eyeball produced by severe sneezing, or blows, either on the eye itself or on the supraorbitary region, &c. Long continued affliction or chagrin, continued weeping, accompanied with a difficulty of procuring the means of subsistence, long faints, watching, severe and sudden fear, immoderate or suppressed rage, too frequently washing and bathing the eyes with cold water, &c. are often causes of the disease. Sometimes temporary amaurosis occurs after Typhus, as has been observed by Reil, Beer, and others. *

Gout is a very common cause, as also the other cachexiæ. Worms, suppressed or repelled perspirations of the feet or face, the quick healing of old ulcers of the feet, re-

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* Since the prevalence of the Typhus Fever in this city, three years ago, I have seen a variety of cases of amaurosis, both complete and incomplete, succeeding Typhus. Those cases seem to be exceedingly difficult of being perfectly cured. *Translator.*

moval of chronic cutaneous eruptions, &c. not unfrequently produce an amaurosis. Swellings in the orbit, Caries, Hydrocephalus, Hydrophthalmos, Cirsophthalmia, Synchisis and Glaucoma, also produce it. An affection hitherto considered by Beer only, for the most part accompanies the amblyopia senilis, and consists, according to him, in a progressively decreasing secretion of the pigmentum nigrum of the choroidea.

PROGNOSIS OF AMAUROSIS IN GENERAL.—Beer supposes that the grounds upon which amaurosis is so seldom actually cured, are its imperfect etiology, the various complications of the disease, and the little trouble taken by Surgeons to investigate its nature, the patient also often wearies of continuing a plan of cure, which has actually commenced with some degree of success.

According to general observation, those amblyopiæ and amauroses which have taken place recently and quickly, are most likely to be cured, because in such cases the disease has not

hitherto assimilated or changed the nervous structures, and on account of the cause being often easily found out.

Amaurotic amblyopia sometimes disappears without the aid of art, from a sudden supervention of some diseased or natural action of the system; cutaneous eruptions, puriform discharges from the ears, severe bleedings from the nose, renewed hemorrhoidal or menstrual discharges, &c. belong to such curative actions. Amauroses which have taken place from the immoderate use of narcotics, often disappear spontaneously. When an amaurosis is fortunately treated, still an amblyopia commonly remains behind. The one eye only is often healed, the other is not, or the amaurosis is cured only at one part of the retina, and hence the patient, when he wishes to see objects distinctly, must place them exactly opposite to the cured part of the retina. The perfect cure of both eyes is rare. When the amaurosis is cured gradually, the vision commonly returns with the same symptoms with which the disease

commenced, for example, with seeing a net-work, or gnats, or flashes of light.

If one eye only were amaurotic at first, the other generally becomes blind also.

From the mere appearance of the diseased eye, one may often prognosticate the incurability of the blindness; particularly when the patient has not once been sensible of a decided sense of light, and when the eye has lost its well-known expression of life.

CURE OF AMAUROSIS IN GENERAL.—When the causes producing the amaurosis have been discovered, and their quantity and quality duly considered, their removal must be attempted by proper means. If however it has been impossible to discover them, or if no marked cause has been detected, then nothing remains for our guidance but well regulated empiricism, in which the sex and age, as also the diseased appearances with which the amaurosis has originated, are in a particular manner to be taken into consideration.

The means which are used empirically for

the cure of amaurosis, and which have obtained well-grounded fame, consist in the following internal and external medicines.

Emetics are employed, either to remove gastric impurities, or to operate a change upon the nerves. Strong purgatives are indicated, particularly where there is congestion of blood in the head, when the stools are rare and costive; however, when the bowels are very obstinately bound up, drastic purgatives are to be carefully avoided, till purgative glysters have been premised. Diaphoretics are to be tried, particularly when, along with a dry skin, there is a suspicion of the presence of a previously disturbed cutaneous action. Means which promote menstruation must be carefully used, when menstruation, either suppressed, or not yet established, or which has ceased too soon, is regarded as the cause of the disease. Worm medicines may also sometimes remove amaurosis. Mercurials are chiefly to be used when syphilis is concerned, or when a loaded state of the bowels is in fault; but they must

be entirely avoided in scorbutic habits, and when synchysis is combined with the amaurosis. The nervous medicines which have obtained celebrity, are only to be used when the disease shows itself to be really nervous. The chief are, Arnica, Valerian, Æther, Camphor, Millipedes, Sulph. Stib. Aurat., Pulsatilla, Hellebor. Nigr., Oleum Animale Æthereum, Phosphorus, Spir. Corn. Cerv., Assafetida, Opium, Hyosciamus, Castor, Musk, Zinc. Oxid. Alb., Calamus Arom. and Bark. The latter of which, however, increases the blindness, when there is slowness of the bowels. If a periodical amaurosis is to be treated, Bark is not to be given at the commencement; a vomit of Tartar Emetic, along with resolvent medicines, is to be premised. Preparations of Iron must be used with much caution, as they readily induce congestions of blood in the head, which may increase the blindness.

The external means are employed either at a distance from the eye, or upon the eye itself. To the former belong evacuations of blood,

Issues, Sinapisms, Setons, Blisters, and friction with Autenrieth's * salve, which two latter should be applied immediately over the eye-brow, when there is suspicion that the amaurosis may have arisen from diseased actions formerly suppressed at this part, for example, after quickly cured eruptions of the face, or of the hairy scalp. In like manner, to this class belong glysters, baths of the whole and of the half of the body, warm and cold baths, shower-baths and pediluviums; baths, however, are for the most part of but little service; lastly, Sternutatories, much recommended by Ware, and several others, which however can be made use of only when there is no congestion of blood in the head. Among the remedies to be applied to the eye itself, may be enumerated leeches, which are to be resorted to in cases of turgescence of the blood-vessels of the eyes, and of general plethora ;—electricity, which Hey † found par-

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* A salve of Tartar Emetic. *Translator.*

† *Medical Observations and Inquiries,* vol. v. p. 26.

ticularly serviceable, when the amaurosis had not been of long standing; galvanism, magnetism, and also electricity, the drop-bath, and daubing or washing the eye with water, are to be employed, particularly in pure palsy of the nervous structures of the eye, but with caution. In plethoric habits, again, when the vessels of the eyes are varicose, or in eyes the transparent parts of which are disposed to disorganization, and lastly, in amaurotic patients who suffer from repeated headaches, all these means are useless or hurtful.

If it be found that the amaurotic patient, without having photopsia, sees worse in the evening and in the shade; that his sight on waking in the morning is weaker than at midday; if the iris be slightly or not at all moveable; if neither general nor local plethora, nor changes of structure exist in the interior of the eye; then the much-praised spirituous and volatile frictions on the eyebrows may be made use of. Among these the following are particularly to be enumerated: Spir. Anthos, Spir. Serpylli,

Spir. Cornu Cervi, Aqua Reg. Hungar., Aq. Caloniensis, Bals. Vit. Hoffman., Ol. Rorismarinæ, Æther, Tinct. Opii, Tinct. Cantharid., and Liq. Ammon. Caust. The vapour also of these remedies, is to be allowed to enter the eye, by rubbing a few drops between both hands, and holding the flat palm before the eyes. Moreover, the Surgeon is to proceed, by degrees and cautiously, from the weakest to the strongest and most volatile of these means.

So much of Amaurosis in general, and now of *the different forms of Amaurosis*.—Whilst I am anxious to avoid every classification not established by experience, I believe I am bestowing a favour on the Practitioner, when I adopt, according to Beer,* the four following genera, namely,

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* Though the classification of Beer has many faults, and often appears arbitrary, yet in regard to diagnosis it merits particular praise. I pass over other, and often judicious classifications, as for example that of Professor Kieser, because they do not suit the practical aim of this work, or are represented too empirically and partially.

1st, A pure *dynamic Amaurosis*, the characteristic symptoms of which are subjective only, and in which there is no injury of the organization and form of the eye. 2d, An amaurosis in which the *organization appears to be morbid.* 3d, Where there is *a faulty form of the eye in general, or of its parts individually,* particularly of its irritable structures. And, 4th, *A mixed Amaurosis, in which the symptoms of the three genera mentioned above are blended together.*

In the first genus, namely, the *Pure Dynamic Amaurosis*, the vitality of the nervous textures of the eye, are alone directly affected, without the structure of the eyeball being so; accordingly, it is characterized by subjective symptoms only. The Surgeon, however, sometimes observes what is called a cast, or particular stare, because the patient, when amaurotic in one eye, can no longer steadily observe any object with it. If in such a case the sound eye be perfectly covered, the previously natural pupil

of the amaurotic eye becomes immediately dilated, and the iris fixed, even though the strongest light be allowed to fall upon it. Besides, the dynamic amaurosis generally attacks both eyes at the same time, and is of rare occurrence.

If the proximate cause consist in the vitality of the nervous structures being too highly excited, then it shows itself in a manner different from what it does when the vitality is too much depressed.

The first Species of the Dynamic Amaurosis, namely, *Amaurosis from over-excited vitality of the nerves*, takes place very suddenly, is most common in robust, plethoric patients, and is known by the following symptoms: At the commencement the patient complains of a peculiar sensation of fulness in the eyeball, accompanied with uninterrupted severe flashes of light, and sensible weakness of sight; soon after a stupifying, increasing pain of the head follows, during which the vision manifestly decreases, without its being possible to dis-

cover any thing unusual in or upon the eye. Afterwards, the pain having become gradually intermittent or irregular, a thick gauze is seen before the eye, which, in a bright light, appears to the patient perfectly black, but in the dark appears fiery and glistening, sometimes reddish, sometimes bluish, and is much stronger and thicker when there is congestion in the head. At length all sense of light disappears under continued headache, and the sensation of the eyeball being increased in magnitude.

The chief CAUSES of this amaurosis are, congestions of blood in the head, idiosyncrasies, over-exertion of sight and mind, the constant observation of very white, glistening objects, and such like.

The PROGNOSIS is various. —When the sight is not yet gone, and the patient submits to every thing necessary for his cure, a favourable prognosis can always be given. When however perfect blindness has already taken place, the prognosis is doubtful. In amaurosis from idiosyncrasy, the prognosis is most favourable. On the other

hand, when originating from over-exertion of the sight and mind, it is very doubtful. Such an amaurosis may even portend mania.

Cure.—If the Surgeon be called at the commencement of the disease, an antiphlogistic practice is indicated. On this account, when there is too great a flow and a congestion of blood in the head, blood-letting is to be performed in the foot; or, if general blood-letting be unnecessary, leeches may be applied upon the eye; order lukewarm pediluviums, with salt and powdered mustard; let sinapisms be applied to the calves of the leg; make use of laxative glysters, purgatives, and cooling drinks, and forbid exposure to too much light. If however the sight do not return perfectly under this treatment, or very slowly, the eyes are to be often bathed with cold water, during which, however, bending the head too much forwards must be avoided.

If the disease has already continued a long while, if it be more confirmed, and indications of antiphlogistic treatment do not exist, or be

already fulfilled, then the etherial * frictions and vapours mentioned under the general cure of Amaurosis are often useful, and must be well assisted by blisters applied upon the eyebrows. If all this plan be of no avail, the cure is to be assisted by a stimulant strengthening diet, and corresponding internal medicines, as also by frequent bodily exercise. The Practitioner, however, often finds himself obliged to have recourse to the strongest means, viz. Electricity, Galvanism, &c.

The second species of the Dynamic Amaurosis, namely, that in which the *vitality of the optic nerve is too much depressed*, occurs generally in weakly people, and always very slowly; as in the former species, the patient sees gauze and clouds, which however are never attended with a dazzling glitter. When the body is excited, the sight improves. This happens, for

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* The Germans include under Etherial medicines, Alcoholic applications, Aromatic herbs, Essential oils, Camphor, &c. *Translator.*

example, after rich meals or the use of strong wine, also after irritations of the mind. The sight diminishes on the other hand, when causes of an opposite nature increase the debility of the body. This amaurosis not unfrequently appears in the form of a hemeralopia. The moon, and the flame of a candle, appear to such weak-sighted people involved in a cloudy veil, surrounded by a broad misty zone, which represents different colours. The patient, however, complains neither of headache nor of pain in the eyes; no sensation of fulness, or even of weight in the eye, accompanies this species of amaurosis.

Causes.—A considerable local, or general actual debility, when it acts upon the powers of the nervous structures, may induce this amaurosis. Here, also, may be classed, mental shocks of the nervous system, considerable and continued evacuations of the fluids, dwelling long in dark habitations, the debility of old age, &c. It is sometimes also produced by typhus.

The PROGNOSIS in this species is in general worse than in the former. In poor people, who have not the means for proper care and nursing, it may be reckoned incurable.

The CURE must be naturally undertaken by external and internal stimulant and tonic medicines, and by proper diet, of which mention was already made under the general treatment of amaurosis.

The second Genus of Amaurosis contains, according to Beer, only one species, namely,

The Amaurotic Cat's Eye.—So long as this amaurosis is incomplete, the iris remains moveable, and the pupil natural. But if the patient be perfectly blind, the iris is sluggish, and the pupil dilated. Very deep in the bottom of the eye, there is observed a concave opacity, of palish grey, or a yellowish-white, or glittering of a reddish colour, which becomes progressively brighter, and more distinct, the more the blindness is confirmed; the iris grows paler in the same proportion, see Tab. III. fig. 2. During

this the sight not only becomes progressively weaker, but in the greatest degree confused. If the vision be perfectly lost, a fine net-work of blood-vessels may be seen upon the opacity situated behind the pupil. Such an eye shines of a yellowish or reddish colour in certain positions, and in a place that is half dark, hence Beer has given it the name of Cat's Eye. However, this amaurosis seldom forms completely. It is observed generally in old meagre people, sometimes also in young people disposed to consumption, or in those already suffering from it, in atrophic children, and after violent wounds of the eye.

A want of the pigmentum nigrum appears to be in part the CAUSE; however, dissections have not been made in proof of this opinion.

The PROGNOSIS is exceedingly unfavourable when the eye is perfectly blind. It is otherwise if it remain stationary as an amblyopia.

Successful treatment of this species of amaurosis is still a desideratum. Beer endeavoured to remove the vegetating process, but observed

during it no amelioration of the disease, except merely that it remained stationary.

The *third Genus* of Amaurosis contains several species, of which the first is

Amaurosis excited by the immoderate use of bitter or narcotic articles of food or medicine, and by the improper use of Lead.—Turgescence of the blood-vessels of the conjunctiva and sclerotica, a feeling of fulness in the eye, a perfectly fixed and dilated pupil, which is particularly black and free from turbidity, trembling of the limbs, and seeing a downy-looking cloud, with which the patient observes all objects veiled or surrounded, are the symptoms met with at the commencement of this amaurosis. By degrees these symptoms become more severe, the sight of the patient is at last destroyed, the pupil assumes the form of that of ruminating animals, and is much dilated; at the same time, the movements of the eye and eyelids are dull, the latter are often swollen and relaxed, and the muscles of the extremities and of the

back are often affected with clonic spasms. At last even the other senses begin to suffer. If Lead were the cause of the disease, colick, ileus, and contractions of the extremities generally take place.

The PROGNOSIS is favourable when the patient has merely amblyopia, and when the disease has been of short standing. According to Beer, the amblyopia caused by Belladona, Stramonium and Lead is the most obstinate. If the patient have been already long blind, but retain a sense of light, the prognosis is very doubtful; if even all sense of light be lost, then the prognosis is very unfavourable; the sight is irrecoverably lost, when the blindness has existed for a long time, and when changes, in the composition of the transparent parts of the eye, are visible.

If the medical man be called at the commencement of the disease, and if only an amaurotic amblyopia be present, he must adopt an antiphlogistic practice, proportioned to the plethora of the patient. Small bleed-

ings, leeching the eye, an antiphlogistic diet, the use of acids, and externally, poultices of the crumb of bread and vinegar, afford the greatest benefit. But if the sight be gone; if the amaurosis have already existed a long time; and if moreover, no indications for an antiphlogistic practice any longer exist; or if the latter have been already accomplished; let Camphor and Æther be given internally, and employ externally frictions and vapours of the volatile stimulant medicines frequently mentioned before. In cases of poisoning from Lead, along with the local treatment, the usual antidotes to this poison must also be called into aid.

The second Species of the third Genus of Amaurosis, is that which occurs as a symptomatic appearance in hypochondriacal, hysterical and epileptic patients, also in those subject to convulsions.—This species puts on a particular appearance in hypochondriacal and hysterical patients, another appearance in epileptics, and again another in those subject to convulsions. For example, in addition to the

symptoms of hypochondriasis and hysteria, we find, when the patients are often affected with tonic spasms, that in the amaurosis which exists in such cases, the pupil is much dilated, the iris stiff and arched forwards, the eyeball immoveable, and there is a peculiar sensation of pressure in it; the eyelids remain either spasmodically shut or open, and the vision is weak, but seldom entirely destroyed. If hypochondriacal and hysterical patients, on the other hand, are particularly subject to clonic spasms, then, along with a small pupil, there is observed an undulation of the iris, between expansion and contraction, (Hippus pupillæ,) there is also observed a twinkling of the eyelids, (nictitatio,) and even an involuntary pendulum-like rolling of the eyeball, (nystagmus). In epileptic patients, again, besides the symptoms of epilepsy and an enlarged pupil, the iris has a very limited motion, and there are oscillatory movements of the eyeball, which continue for life, even after the cure of the amaurosis and epilepsy. The amaurosis or amaurotic amblyopia

of those attacked with convulsions, is chiefly met with in children during dentition. It is distinguished from the others by a convulsive rolling of the eyeball, particularly upwards, by a greatly enlarged pupil, and by immobility of the iris. When general convulsions have preceded, and merely an amaurotic amblyopia remains, the patient squints with both eyes in different directions.

In these three varieties of symptomatic amaurosis, the medical man always finds a moderate obtuse headache, which has its seat particularly in the eyebrows, while the pupil is perfectly clear and black.

The PROGNOSIS is very doubtful though merely an amaurotic amblyopia be present, still more unfavourable when complete amaurosis has set in, and the disease is of the worst and most incurable kind when it is the uniform precursor of hypochondriacal, epileptic, and such like fits, and when it remains a long time after them.

This amaurosis can only be removed by the

cure of the disease of which it is a symptom; if it continue after this, then empirical, anodyne, tonic, and similar medicines, must be used.

A third Species of the third Genus of Amaurosis, is the Symptomatic Amaurosis from a loaded state of the bowels; which is distinguished from the other species by the length of time it takes to form, often from ten to twenty years, by the pale black, dilated, angular pupil, the arched, sluggish iris, the fulness of the blood-vessels of the conjunctiva, and the reddish-yellow, somewhat dirty colour, of the white of the eye. In this amaurosis, during an increase of the weakness of sight, the patient sees all objects in a thick cloud, which, on approaching blindness, at one time appears black, like coal-dust, at another whitish-grey. Combined with these symptoms, there are generally an interrupted vision, (visus interruptus,) violet-coloured lips, a dirty yellowish countenance, obtuse headaches, impeded digestion, and all the other symptoms indicating infarction of the bowels.

Every thing, which produces constipation of the bowels, may become, particularly in those who have long had weak eyes, an exciting cause of this kind of amaurosis.

On account of the impossibility of always completely removing the constipation, an unfavourable PROGNOSIS can, for the most part only, be given. If however it be possible by the usual remedies to remove the constipation, then, the amaurosis also will yield, only beware, in this case, of applying any thing to the eye itself, as this practice is always productive of injury.

A fifth Species of the third Genus, is the Amaurosis vicarious of acute cutaneous eruptions.—This species of complete or of incomplete amaurosis shows itself rapidly after a suppression of scarlatina, of measles, or of small pocks, during their eruption. The pupil is clear and contracted, yet regularly shaped, the iris is immoveable, and the blood-vessels of the conjunctiva and sclerotica are dilated and full.

If the amaurosis have already taken place, and proper aid be immediately given during the course of the acute exanthematous disease, the PROGNOSIS is not unfavourable. But when the eruptive disease has already run its course, and the amaurosis become old, there is little hope of a favourable result from treatment.

In cases of suppressed eruptions, the Surgeon must endeavour to recal them as quickly as possible, by warm baths, Camphor, &c.; this treatment is even to be adopted when the Surgeon is called to the amaurotic patient after the blindness has taken place; next to this, Calomel is to be used in small pocks, antimonials in scarlatina, along with whatever other medicines may be necessary. When the amaurosis has become of some duration, issues, frictions of Tartar emetic ointment, &c. must be used along with the above means, and in weakly habits, internal, stimulant, and tonic medicines must also be ordered.

A sixth Species of the third Genus of Amaurosis is the Rheumatic.—In this species, which

is not uncommon, and which usually remains merely in a state of amblyopia, the perfectly clear pupil is of regular size, and the iris immoveable; the eyes shed tears on the slightest occasion, and are always more or less averse to light. During this disease, the patient is harassed by an irritating wandering pain in the eye, the region of the eye, teeth, or neck. The Surgeon observes an unnatural stare of the eye, and sometimes even luscitas. This amaurosis is almost always accompanied by a considerable atony of the Levator Palpeb. Superioris.

The principal CAUSE is a sudden and continued refrigeration of the head whilst sweating, when a rheumatic disposition is present.

So long as the amaurosis is not yet fully formed, and the amblyopia is not of long duration, so long also as the patient is not gouty, and his outward appearance favourable, the disease is curable. If however the reverse of all these states exist, then the rheumatic amaurosis very readily advances to a gouty one, in

which case, the PROGNOSIS is assuredly very unfavourable.

In order to CURE the disease, give internally, at first, Extract Guaiaci with Camphor, alternated with Dovers powder; afterwards, when the pains in and around the eye have subsided a little, give Extract. Aconit. with Antimonials and purified Sulphur. Externally apply blisters, sometimes behind the ear or on the temple, at others on the eyebrow; so soon however as the rheumatic pain has completely left the region of the eyebrow, and has probably concentrated more in the eye itself, rub into the eyebrow, first Liniment. Volat. mixed with Opium, then with Extract of Hyosciamus. If the pain have nearly ceased, and yet the amaurotic amblyopia remain in a considerable degree, frictions of Æther, with Tinct. Canthar. and Tinct. Opii. Simp. are found very efficacious. Should the pain however have long since disappeared entirely, and yet perfect vision not returned, then the cautious employment of electricity will be very

proper, particularly when atony or palsy of the levator of the upper eyelid is present. The cautery as employed by Schmidt, and explained under Blepharoplegia, may also be made use of.

A seventh Species of the third Genus is the Amaurosis which is vicarious of a suppressed cold in the head, without a sensible collection of mucus in the frontal sinuses; which, along with a dilated, fixed, but clear pupil, always has this peculiarity, that the edge of the pupil forms an angle towards the temple, and in general the pupil stands nearer to the external than to the internal canthus.—A dryness of the nose and of the eyes, as also a feeling of fulness in the eyeball, headaches and weight at the root of the nose are generally present.

This species of amaurosis, which never advances to complete blindness, is perfectly cured, if it be possible to produce early in the disease a considerable flow of mucus from the nose. To accomplish this, emollient vapours are to be applied to the nostrils, afterwards a solution

of Manna, and lastly, a weak sternutatory with Calomel, or Hellebore, or the vapour of Hartshorn.

An eighth Species is the Pure Paralytic Amaurosis.—This amaurosis, which is not uncommon, and which always takes place suddenly, is accompanied with a contracted yet clear pupil, an immoveable iris, and always with palsy of one or more of the muscles of the eyeball. The vision is at the same time often perfectly destroyed, yea not unfrequently all sense of light is lost. If all the muscles of the eyeball be paralysed at the same time, then the eye, which appears as if dead, prolapses from the orbit (Ophthalmoptosis paralytica). *

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* Opthalmoptosis always denotes an actual prolapsus of the eyeball from the orbit, which may be produced, as in this case, either from a palsy or from a laceration of several muscles of the eyeball, without there being necessarily any swelling or wound of the eyeball itself. the Ophthalmoptosis must not be confounded, as is usual, with Exophthalmia, for the latter name is only applied (not-

Concussions of the eyeball and of its appendages, as also of the whole brain and spinal

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withstanding some modern objections) to that prolapsus of the eyeball beyond its common limits, which is caused by some acute or chronic inflammation of the eyeball, or by some other morbid enlargement of it. In like manner, Exophthalmos is to be well distinguished from these two states, for this name is applied to those unnatural positions of the eyeball in which it is pressed out of the orbit by encysted, osseous, sarcomatous, and other swellings and fungi in, and about, the orbit, in which case, it is by no means necessary that the eyeball itself should be directly affected in its structure. A very interesting, and, of its species, almost unique Exophthalmos, which had arisen from a swelling exterior to the orbit, is related in the Journal de medicine, chirurgie, pharmacie, &c. tome xxxiv. 1815, page 393, and is shortly as follows:— In a woman there arose, on the left temporal bone of the head, a swelling, which gradually increased, so that at last it hung down, of a club shape, as far as the knee. By this enormous bulk of swelling, and the unnatural stretching of the skin, the left eye, along with the eyelids, were dragged down five inches out of the orbit; yet, notwithstanding the astonishing stretching of the optic nerve, the patient could distinguish the day from the night, and she even protested, that a short time before, she had been

marrow, may CAUSE this amaurosis. Sometimes it is merely an appearance symptomatic of an apoplectic fit.

The CURE can only be accomplished, when the amaurosis is produced by a concussion of the eye and surrounding parts, without displacement, or laceration of the individual textures.

In apoplectic cases, and in cases of concussion of the brain and of the spinal marrow, death only can be expected.

The gradual employment of the external and internal nervous medicines enumerated under the general cure of amaurosis, is useful in the amaurosis paralytica.

A ninth and last Species of the third Genus of Amaurosis, is the Amaurosis symptomatic of water in the head.—It always attacks both eyes, occurs more frequently in an in-

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able to see very well. The substance of the eyeball moreover was not visibly altered.

ternal hydrocephalus, particularly in hydrops cerebri, and less so in the external hydrocephalus, or in spina bifida. The iris in this case is immoveable, the dilated, clear, black pupil forms here and there a perceptible angle, and the sclerotica around the cornea has a bluish appearance. Along with this, the muscles of the eyeball evince little mobility, or the eyeball oscillates in different directions, only not in that of the straight muscles. At the same time the other symptoms of the principal disease are present. *

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* I have twice seen amaurotic amblyopia developed in a very great degree in women of a middle age affected with dropsy of the chest. The amblyopia evinced itself by objective symptoms, viz. a much dilated, almost fixed, but clear pupil, by sluggishness and a sense of weight of the eyeball, with more or less swelling of the latter, and by a peculiar glassy appearance of the eye, as also by a very dirty brown colour of the iris, which had formerly been of a light-brown. The vision improved when the principal disease declined, although the patients almost constantly believed, they saw every thing covered with a black gauze.

The fourth Genus of Amaurosis contains, according to Beer, the following species.

The Traumotic Amaurosis should be treated of as the *first Species*, but it has been already considered under wounds of the region of the eye.

The second Species is the Gouty Amaurosis.—It generally forms after a course of years, is most frequently observed in women with dark eyes, and is made known by the following symptoms: The patient at the commencement, sees a whitish-grey or black cloud, also colours, and feels a rending, wandering, more or less severe pain in the region of the eye, in the eye itself, or even in the whole head, along with which, there is sometimes combined a feeling as if ants crawled upon the skin around the eye. The pain becomes more severe in wet, cold weather, also by lying upon feather pillows, by the use of indigestible dishes, and after severe mental emotions; it becomes milder however, or entirely disappears for a length of time, when an

opposite set of causes operate upon the patients. Along with these, the iris is entirely, or almost entirely immoveable, and its colour of a dark hue. The pupil is dilated, and so drawn towards the canthi, that it assumes the form of those pupils which we observe in ruminating animals. See Tab. III. fig. 3. Moreover, the pupil is either of a pale, faint-black colour, or of a greenish-grey, and resembles in the latter case a glaucoma, which increases after every attack of pain. Along with these symptoms, a varicose state of the blood-vessels of the eye is always observable. Besides the turbidity of the vitreous humour, the lens also often becomes at last opaque, (Cataracta Glaucomatosa,) after which, an atrophy of the eyeball is usually to be expected.

This amaurosis is easily produced, when, in a gouty habit, the regulation of the body and mind is neglected, and when the eyes have been formerly in a diseased state. Women, after the cessation of the menses, have, in particular, much reason to fear an attack.

Notwithstanding the tedious advancement of the disease, the PROGNOSIS is unfavourable. Even when the Surgeon is called at the commencement, he can seldom stop, far less cure it, because he cannot remove the hurtful causes. However, when one eye only is affected at first, the other sometimes may be saved by powerfully combating the gout, as also by a complete change of the previous inflammation of the eye.

In the treatment of this amaurosis, very much depends on a suitable regimen of the body and mind. Let a serene mind accordingly be maintained, let all subjects of fear and anger be avoided, also exposure to cold, and disorder of the stomach; moreover, avoid impure air, and the use of feather pillows; in place of which, let him substitute pillows of horse-hair, and provide a dry, clean, and wholesome dwelling. At the same time, the pernicious attacks of pain are to be carefully removed, by those means which are given with the same view, in Iritis Arthritica. Antiarthritic remedies, particularly the more powerful ones, are also to be carefully

administered. Producing derivation by means of Blisters, Sinapisms, Setons, and frictions with Antimonial ointment, is not to be overlooked during the cure.

A third species of the fourth Genus, is the Vicarious Amaurosis, which takes place after quickly suppressed and cured eruptions on the head, old ulcers of the feet, and itch, also after cutting off the hair in cases of Plica Polonica. —The symptoms of this amaurosis entirely correspond with those of the gouty, only, the former disease developes itself much quicker than the latter, and in the commencement is never attended by severe pains in the eye and head.

So long as the blindness is imperfect, and has been of short duration, and no fault in the organization of the eyeball is visible, the PROGNOSIS will be favourable. In circumstances of an opposite kind, it is very bad.

In order to CURE this amaurosis, have a care to reproduce the suppressed cutaneous eruption, ulcers, &c. let the itch be reinoculated ; in cases

of Plica Polonica apply blisters to the shaved scalp, and let artificial ulcers and eruptions be made according to circumstances by the Ung. Tart. Stibiat. and other means; let sinapisms be applied on the feet, when dried-up ulcers on the feet have been the cause; let pediluviums with mustard be made use of; form issues, &c. During the use of all these external means, internal ones which increase the action of the skin, for example, a mixture of Sulph. Aurat. Antim., Flor. Sulph. et Camphor, mixed with tonics in weakly habits, along with the use of sulphur baths, are very useful and conducive to the cure.

Beer sets down, as a *fourth Species, an Amaurosis which takes place as an immediate consequence of a very severe and suppressed fit of passion.*—This form of amaurosis, which occurs in choleric men who have dark eyes, is characterized by a dilated pupil, without any manifest angle, by complete immobility of the iris, and by a thick network of blood-vessels in the conjunctiva. At the same time, jaundice often

forms, by which the aqueous humour and the sclerotica are often coloured. The blindness is frequently accompanied with paralytic appearances of the muscles of the face.

The PROGNOSIS is uncertain, particularly when the blindness has already continued several days or weeks.

If the Surgeon be called immediately after the commencement of the disease, Richter, Beer and others, have employed vomits with advantage, which, however, are commonly of no use when the disease has continued a long while; in this case, the long-continued use of Camphor, Arnica, and such like means, along with the use of sulphur baths, have often succeeded in restoring the sight.

A fifth species of the fourth Genus, is the Amaurosis which is vicarious of a suppressed cold in the head, with a collection of mucus and of matter in the frontal sinuses.—The pupil is contracted, and of a pale black, yet remains circular; the patient has a sense of weight, and a circumscribed inflammatory pain in the root of

the nose, and in the region of the frontal sinuses. The iris becomes immoveable, and the sight decreases in one or both eyes. At the same time, one or both eyes, according as one or both are affected, is turned out of the axis of vision, on which account the patient is affected with double vision. Atony of the upper eyelid, dryness of the nose, and the feeling of dust in it, with frequent sneezing, and seeing suddenly frightful luminous objects, occur in this species. The affected organ is at length pushed downwards, and out of the orbit, accompanied with increased loss of sight and disfigured vision, during which the pain fluctuates, though it progressively increases. At length even the anterior wall of the frontal sinuses projects.

The CURE of this very rare form of amaurosis is practicable, when amblyopia only, and not deformed vision, is present; in the contrary state, and when the eyeball is thrust forwards by the bones of the distended frontal sinuses, all efforts are generally fruitless.

If the pains over the nose should be very

severe, apply leeches; when inflammatory fever is present, pursue also a general antiphlogistic treatment, and as soon as the pains have diminished, make use of those local remedies for increasing the secretion of mucus, which were recommended in the seventh species of the third Genus, which at the same time must be aided by blisters on the region of the eyebrows, as also by frictions of volatile stimulant medicines, and by the internal use of Arnica, Camphor, and Guaiac. Should this plan be of no service; if the eyeball become more projected from the orbit, or the anterior wall of the frontal sinuses distended, this part must be trepanned, so as to form an outlet for the mucus or matter from the sinuses, and the opening treated according to the rules of Surgery.

In very rare cases, Amaurosis has been also observed to occur after the sudden suppression of the secretion of milk in lying-in women, which constitutes the sixth Species of the fourth Genus, and has the following symptoms. Suddenly after the suppressed secretion of milk, a

furious pain is felt in the region of the forehead and eyebrows, during which the pupil appears slightly dilated, the iris immoveable, swollen, and changed in its colour. The patient suffers from photopsia and severe photophobia. The transparent media of the eye become somewhat turbid, the blood-vessels of the conjunctiva distended, and the commencing amblyopia terminates suddenly in complete amaurosis. At the same time, the mammæ, which immediately before were distended with milk, now hang purse-like and empty, but perfectly free from pain.

The PROGNOSIS is doubtful, and when the media of the eye have already become muddy, it is highly unfavourable.

All the means known in medicine for the recall of the suppressed secretion of milk, are indicated here. Should these, however, afford no benefit, and the sight still continue lost whether the secretion of milk in the breasts be restored or not, let Arnica with Calomel and Camphor, be tried internally, and make derivations by Issues, Mezereon, Blisters, &c.

Lastly, there is a seventh Species of the fourth Genus of Amaurosis, which takes its rise either from organic lesion of the optic nerve, or of the skull and brain.—The celebrated Beer has discovered symptoms, which enable the Surgeon to distinguish when organic lesions are the causes of amaurosis. He recognises amaurosis produced by organic changes of the optic nerve, by the following appearances. The patient sees a cloud which becomes progressively thicker, in consequence of which, objects appear to him misshapen; he feels a slight obtuse pressure in the bottom of the orbit, which gives the sensation of the eyeball being pushed out of the orbit, of which, however, there is not the least symptom; at the same time the iris is perfectly motionless, the pupil much dilated and angular, so that it sometimes forms an unequal sided figure, with five or six angles. At last, a glaucoma slowly takes place, without any varicosity of the eye, and by degrees a glaucomatous cataract forms, after which the eyeball perceptibly diminishes in size, without becoming perfectly

atrophic. Moreover, this amaurosis forms slowly, and commonly in one eye only, and for the most part attacks meagre people who exhibit marks of scrofula.

The amaurosis which proceeds from organic lesions of the bones of the skull or brain, takes place, according to Beer, in people who have formerly been ricketty, and afterwards affected with syphilis; it appears commonly in both eyes at the same time, also slowly, and accompanied with metamorphopsia; only, in place of seeing a black cloud, the patient in this case sees the objects dimly and confused, and has at the same time giddiness and frightful phantoms of light, which, for the most part, are attended with aversion to light, with lively motions of the iris, with a contracted cat's pupil, convulsive motions of the eyes and eyelids, and with squinting of both eyes. At the same time an evident turgescence of the blood-vessels of the eye is observed, which terminates with the most severe headaches in cirsophthalmia. Lastly, after complete blindness has taken place, the headache,

which has considerable remissions, often increases in severity; the senses of hearing, smelling and taste, are lost, and finally, memory and the other functions of the mind cease. Sometimes the eyeball is pressed out of the orbit, accompanied with fits of frenzy and paralytic symptoms.

The CAUSES of both varieties are, wastings of the optic nerve, indurations and adhesions of this nerve with its sheath, indurations of the corpora striata, hydatids beneath the sheath of the nerve, the want of a plexus choroides, caries and exostosis of the skull, softness of the brain, &c.

The PROGNOSIS is extremely unfavourable. If however a decidedly evident dyscrasis be the cause of the exostosis or other organic disease, then a treatment suitable to the dyscrasis may be attempted, if the patient have still sufficient strength.

Anomalies of Sight.

The Anomalies of Sight, which were already mentioned under the subjective symptoms of Amaurosis, for example, Myopia, Presbyopia, Squinting, &c. do not occur merely as symptoms of amaurosis, or of other diseases, but some of them also as distinct diseases, and require, on that account, to be particularly considered.

Squinting, (strabismus, strabositas,) is that unseemliness of the eyeball, in which one or both eyes deviates from the axis of vision, when looking at objects; in which, however, the squinting eye can be brought, by the will of the patient, into any direction he pleases. In consequence of this, the patient generally sees double at the commencement of the disease, because when he squints with one eye only, which is thereby turned out of the axis of vision, he does not look at the same point of an object with this eye, as he does with the natural eye;

if both eyes deviate so much from the axis of vision, that the one eye looks this way, and the other that way, it is then called Strabismus divergens. If the eyeballs stand in a directly contrary manner; if the little patients turn their eyes as it were to each other; as is the case, for example, on looking at the point of one's nose, (Strabismus convergens,) then they are often at the same time short-sighted, and see distant objects indistinctly and confused. There is also met with, especially in children, a particular kind of strabismus, which is called *seeing over*, and which often arises from the patients, when lying down, looking frequently and for a long time at objects that are interesting to them, and which are situated over and behind them. In a particular manner, if they look at the vibrations of the pendulum of a clock, moving to and fro, and situated behind and above them, they not unfrequently become *over-sighted*, which is attended with an incessant motion of the eyeball from one canthus to the other (Nystagmus bulbi).

The CAUSES of squinting are various. It is often symptomatic, for example, of epilepsy, worms, catalepsy, hydrocephalus, &c. In some parts of Asia, squinting is endemic. Sometimes imitation is the cause of the evil. It often arises from the bad custom nurses have of holding the child's toy too near to its eyes. A strabismus divergens is often caused by the improper practice of a child being accustomed to behold, at the same time, two objects of which it is fond, but which are distant from one another. A child can do this without much difficulty, in consequence of the great mobility of its eyes. This great mobility, and the uncertainty with which infants fix their eyes on objects, produces a kind of squint formerly observed by Petit, and which is met with sometimes in a greater, sometimes in a less degree, in all new-born children.

The PROGNOSIS is naturally very various, for sometimes the disease is curable, sometimes not.

The CURE is regulated by the causes. When, therefore, the squint is merely symptomatic, the original disease must be removed. If the above-

mentioned customs have been the causes of the mischief, the Surgeon must endeavour to remove them. Hence, when the child has acquired a squint by looking at objects standing off at a side, he must be accustomed, by degrees, to observe objects standing directly before the eyes, only they must not be applied too near to the child.* If both eyes squint upwards and outwards, consequently towards the temporal canthi, it has been recommended to glue a piece of black plaster on the point of the nose, so as to determine a fixed point to be very frequently looked at. Experience, however, has taught me, that looking at the tip of the nose is almost always neglected by children, and hence no improvement of the squint is discovered, even after the plaster has been made use of for half a year, or longer. In two such cases, I quickly found the following method very beneficial. I caused to be made of pasteboard, a very short kind of funnel, the base of which is

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* *S. Fischers Theorie des Schielens.*

oval, and includes both eyes; at that part which lies over the point of the nose, there is an opening almost an inch in breadth. Through this instrument, fixed perfectly straight and firm, the patients must look, and by degrees read. In this way, the children are obliged, provided they wish to see or read any thing, to fix their eyes more inwards, and even downwards. The looking at objects with one eye, to which children have occasionally a disposition, must be at the same time prevented. In strabismus convergens, the child must wear a large green shade. If young females squint, their vanity must be called into our aid, and their mirror shown to them as soon as they commit this fault. If one eye only squint, in which case it is commonly also weak in the sight, because it is not used by the patient, the sound eye should frequently be bound up with a cloth, and afterwards constantly for a long time, so as to practise the diseased eye in seeing, and that it may thus gradually reacquire strength and a straight

direction. A squint which has become already fixed, is in general incurable.

Oblique Position, or Oblique Vision of the Eye, Luscitas, Visus obliquus.—This is a deformed position of the bulb of the eye, in which the patient is not able to bring the eyeball into a direction completely opposite to the faulty one. From this it may be already conjectured, that Luscitas frequently proceeds from a squint; because, for example, when a central speck of the cornea causes at first merely a squint; the position assumed becomes at last so habitual, that the eyeball is no longer capable of bringing itself into the opposite direction, on account of its muscles having lost their power, through want of use.

Besides central specks of the cornea, tumours in the orbit, wounds, atony of a muscle of the eyeball, amaurotic spots in the centre of the retina, &c. may give the eyeball an oblique position.

The plan of CURE, which however is not al-

ways successful, depends upon what has been said before. Let specks of the cornea, therefore, be removed, and let atony of a muscle of the eyeball be remedied by friction with volatile, stimulant medicines on the eyebrows, Galvanism, Electricity, &c.

Short-sightedness, Myopia.—The distance of from fifteen to twenty inches, is the point of vision at which a sound eye can clearly see even small objects. An eye which must approach a small object still nearer, in order to see it perfectly, is called short-sighted, *Myops*.

The proximate CAUSE of Short-sightedness, is the too early refraction and convergence of the rays of light into a focus, by which they fall scattered upon the retina, because the focus is formed in front of the retina, and thus the rays make a more or less indistinct image. Too great convexity of the cornea, or of the anterior half of the crystalline lens, and too great a quantity of the vitreous humour, are often the cause of this affection ; in the latter

case, the eye at the first appearance seems too large, and on this account is called a Staring eye. Sometimes the too early refraction and convergence of the rays of light into a focus, is caused by an unusual *Turgor Vitalis*, and a peculiar thickness of the cornea, of the lens, or of the whole eyeball, which is particularly the case in very young, healthy children. Further, the cause of short-sightedness is often owing to an acquired, faulty length of the eyeball, which forms in the earliest youth, when children's toys are frequently held too near to their eyes. The same affection occurs in adults when they are much occupied with the observation of small objects; as for example, in literati, engravers, &c. The myopia is, in very rare cases, the natural consequence of habitual mydriasis. Sometimes the short-sightedness is caused by a congenital faulty structure of the eyeball.

As the eye always becomes more and more flattened in advanced age, it follows, that the short-sighted eye, when it has not been ruined by the improper use of spectacles, and of strong

concave glasses, is gradually restored to a natural state, and thus the short-sightedness at last disappears; this is to be looked for with the more certainty, when only a bad habit has caused the myopia.

If the *Turgor Vitalis* in the eye be excited by congestion of blood, and the myopia be produced by this cause, it must be removed according to well-known rules. If the cause of the short-sightedness consist in a confirmed bad habit, in a mydriasis of long standing, or in a faulty structure of the eye, a hope of cure need not be entertained. In such cases, the proper refraction and convergence of the rays of light into a focus, on the retina itself, must be accomplished as much as possible, by the aid of concave glasses; but, as well in the choice as in the use of these glasses, it must be observed, that they are not to be too weak, because in this case the eye always undergoes a great waste of vision, in order to distinguish sufficiently the objects which lie beyond the focal point of the short-sighted patient, in conse-

quence of which he must necessarily soon induce a considerable weakness of sight. If, on the other hand, the patient make use of a too powerful concave glass, then the myopia increases manifestly, and he at last no longer sees, without spectacles, the very objects he saw perfectly well before, with the naked eye, and thus not only finds himself obliged never to remove his glass from his nose, but must even provide himself with a stronger one from time to time, until at length he can find no one sufficiently strong, and becomes little better than blind. A concave glass, with which the patient is able to read easily the smallest print at a distance of fifteen to twenty inches from the eye, without its becoming thereby immediately fatigued, is the most proper. Moreover, it remains to be observed, that the short-sighted person ought not to wear glasses constantly, if he retain a hope of seeing well at a distance without glasses, when he arrives at the age of thirty or forty years.

Far-sightedness. Visus senilis, Presbyopia. —An eye, which can see objects clearly, only when they are at a much greater distance than from fifteen to twenty inches, is called Far-sighted, Presbyops. In this state, the rays of light are refracted much too slowly, they consequently fall upon the retina before being collected into a focus, are therefore scattered, and contract into a focus *behind* the retina; hence no clear image of near objects can be formed. Far-sightedness seldom occurs before the fortieth year, and comes on always from too great flatness of the cornea.

The chief CAUSE of the origin of Presbyopia, is approaching old age; for at this period the cornea and lens become flattened, and the *Turgor Vitalis* of the eye is lost; however, every old man is by no means far-sighted. A habitual contraction of the pupil can produce far-sightedness, just as its too great dilatation can induce myopia. The habit also of constantly observing distant objects, gives occasion even in young people to Presbyopia.

A radical cure of this affection is never possible; as a palliative measure, however, convex glasses are serviceable.

The use of these glasses must never be postponed too long, for when a person can no longer read middle-sized print, at the usual distance from the eye, and as the person always desires more light for this purpose, it is time at first to make use of weak convex glasses, which must be afterwards exchanged for stronger ones when the person becomes older.

Double Vision. Visus Duplicatus, Diplopia.—It is of two different kinds, for the patient either sees an object double, when he has both eyes open, and single on closing one of them; or he sees the object double even with one eye. In the first case a squint, or oblique position of the eye, is commonly the cause; in the second case, the double vision is occasioned by cicatrices, specks, or irregularities in the centre of the cornea, or of the anterior capsule of the lens, or by pressure, on the

eyeball, or lastly by a double pupil. Sometimes the affection seems to arise from a defect of the retina, and even often from general diseases; for example, it is met with in hypochondriasis and hysteria, after inflammatory fevers with and without local inflammatory affections, &c. I once met with double vision after the eruption of scarlatina had come out completely, and also a cure of disfigured vision during the eruption. The doubled objects are not commonly equally distinct, one image appearing particularly clear, and as the true object, the other less so, representing as it were only the shadow of the former, and standing generally to one side of the true object.

The CURE is regulated by the causes. The squinting, the specks of the cornea, &c. are therefore to be removed. If the cause of the Diplopia exist in the retina and in general diseases, it generally disappears without the aid of art.

Day Blindness. Cæcitas Diurna, Nyctalopia.

In this affection the patients either do not see at all in the daytime, or they see indistinctly; they can see however in the evening, or in candle or moon light. This affection is sometimes met with when mydriasis is present, because, in consequence of the great quantity of the rays of light penetrating to the bottom of the eye, the retina is too much irritated during the day. The iris is often so irritable, that the pupil appears almost closed during the day; which consequently interrupts the vision. A central cataract, or a central speck of the cornea, not unfrequently prevents the entrance of light through the pupil, which is contracted during the day. In rare cases, the Nyctalopia is a pure nervous symptom from the state of the retina, and shows itself as a periodical amblyopia or amaurosis.

It may be seen from the ætiology of this affection, that it is, for the most part, a symptom

of another disease, and is consequently to be generally cured by proper treatment of the latter. When the iris is too irritable, make use of a weak, watery solution of the Extract of Hyosciamus to the eye, along with which, when the retina participates in this unnatural irritability, adopt a general plan of treatment suitable to the constitution of the patient and the state of the eye in particular. If the nyctalopia be discovered to be a periodical amaurosis, it is to be cured, according to the best oculists, at first by resolvent purgative medicines, and the subsequent use of Bark; at the same time, revulsive irritation of the skin is not to be overlooked.

Night Blindness. Cœcitas Nocturna, Hemeralopia.

This defect of vision is the reverse of Nyctalopia. The patients see perfectly well in the day, but they cannot distinguish objects in the

twilight, in the evening, or in candle or moon light. The pupil is constantly dilated in darkness and in light, it is also more or less immoveable, but bright and clear.

An amaurotic amblyopia may induce the night blindness, and must be cured according to the species of Amaurosis. This affection may be often regarded with propriety as a periodical amaurotic amblyopia, and must be treated according to the manner mentioned under day blindness. In such periodical amblyopiæ, Scarpa and others have successfully employed, in the commencement, an emetic of Tartarized Antimony, and afterwards given this medicine in small dozes. Bark and Valerian form necessarily the close of the cure. Sometimes venæsection is found necessary before the employment of a vomit. The night-blindness has been observed to be epidemic in many countries; for example, in China, the Brazils, and the Molucca Islands, and even sometimes among ourselves. The vapour of the boiled liver of oxes, (by means of which, in the year 1787, a great number of sol-

diers at Strasburgh was safely and quickly cured of their night-blindness,) appears to be particularly serviceable in this disease. Also the vapour of Amber, of strong Coffee, of Storax, and the chewing the root of Angelica and Pyrethrum, have been employed empirically.

Fungus Hæmatodes Retinæ.

This frightful disease of the Retina, which has only been lately discovered, occurs especially in children under twelve years, which distinguishes it from cancer of the eye, which is met with chiefly in old people, and with which, probably, Fungus Hæmatodes had always in former times been confounded.* It thus be-

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* This disease might have been considered under the head of *Carcinoma Bulbi*, and with equal propriety, perhaps, under the last species of the fourth genus of Amaurosis; but as it differs from both these affections, even as a modification of them, I deemed it advisable to consider it as a particular disease of the retina. Whether the name

comes intelligible, why a third part of the patients operated upon for cancer of the eye, in the Hotel Dieu of Paris, were children who had not attained their twelfth year.

This affection, which consists in a fungous degeneration of the retina, observes the following course. An amaurotic amblyopia, with complete dilatation and immobility of the pupil, accompanied with aversion to light, takes place, and soon proceeds to perfect amaurosis. At the same time the Surgeon observes, in the back part of the eye, in the region of the retina, something which has a resemblance to a concave silver plate, or a piece of polished steel. This metallic appearance afterwards changes into a yellowish or greenish irregular speck, resembling a small collection of coagulable lymph, which seems to have effused itself in the bottom of the eye. Those who are unacquainted with

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Fungus Hæmatodes, first introduced into Surgical language by William Hey, *(Medical Observations and Inquiries,* Vol. III.) be properly applied, I cannot venture to determine.

the disease, think that they have discovered a partial opacity of the vitreous humour. The blood-vessels of the conjunctiva are loaded during this stage, and there is constant pain in the eye. The little greenish or yellowish mass, which is furnished with blood-vessels from the arteria centralis, increases by degrees, extends towards the Iris, and may be now distinctly recognised as a yellowish, spongy substance; at last the pains which are particularly seated in the brow and nape of the neck, becoming aggravated, particularly at night, this mass enters the anterior chamber, which now, and even sometime previous to this, appears to be rendered turbid by a yellowish fluid. At the same time, the eyeball begins to be nodulated, and the sclerotica changes into a dark-blue or livid colour. Occasionally about this period, the eyeball becomes dropsical. At last the growth from the bottom of the eye, has advanced as far as the cornea, which is rendered turbid and thinner from its pressure; it also begins to suppurate, and thus allows the irregular fun-

gus to project externally, attended with the most severe pains. The fungus which has now appeared on the exterior of the eye, assumes a reddish colour, mingled with yellow or black spots, but always retains a soft, very spongy, brain-like consistence, peculiar to it from the commencement; and on the slightest touch throws out a quantity of blood, along with an offensive ichor, resembling the washings of flesh. When the fungus has fairly formed, symptoms of the absorption of ichor also make their appearance; the lymphatic glands, in the region of the parotid, under the lower-jaw and in the neck, become swollen, * and thus the patient, removed beyond all the resources of art, meets with death.

This terrible disease always commences (as the dissections of eyes newly affected with it prove) in the retina, and particularly from those parts of it where the optic nerve enters the eyeball, Tab. III. fig. 5. The *choroid* has been

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* See Tab. III. fig. 4.

found inconsiderably, and the *sclerotica* still less changed in its structure. When the disease is farther advanced, the optic nerve has been destroyed, and even the base of the brain and the meninges have evinced morbid degenerations.* The disease often appears after a fall on the eye, and for the most part it attacks one eye only.

The extirpation of the eyeball, by which

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* A boy from whom I extirpated one eye affected with this disease, after the fungus had entered the anterior chamber, and caused an absorption of every particle of the iris, recovered well from the operation, and no reappearance of fungus happened in the orbit. In a few weeks after the operation however, he became affected with severe headaches, frequent vomiting, palsy of the limbs, and died under symptoms of hydrocephalus. On opening the head, I found the meninges and brain, in the neighbourhood of the foramen opticum, disorganized by an extension of the spongoid disease, along the course of the optic nerve, which indeed I had discovered to be thickened immediately after I had performed the operation. The ventricles contained more serum than I had ever seen in any case of hydrocephalus acutus, and was no doubt the more immediate cause of death. *Translator.*

Surgeons have endeavoured to remove this disease, has had an unfortunate issue even when performed at the time when the yellow speck had first appeared in the bottom of the eye; the operation rather accelerates the fate of the patient, for soon (in a few months) after it, the soft, fungous, malignant excrescence reappears, the strength of the patient declines, and a lingering fever having supervened, the patient dies from convulsions and loss of sensibility. However, Wardrop * supposes that the operation may be beneficial when the disease has been discovered at the commencement, and when the retina alone has been affected. We hitherto know no good that internal medicine can effect in this disease.

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* Observations on Fungus Hæmatodes.

C.—OF

THE DISEASES

WHICH ATTACK THE TRANSPARENT AND NON-TRANSPARENT STRUCTURES OF THE EYE AT THE SAME TIME.

Of Pure External Inflammation of the Eyeball. Ophthalmitis Externa.

It occurs frequently, and is called by authors according to its degree and seat, sometimes, *Ophthalmia Levis, Ophthalmia Angularis, Taraxis,* at other times, *Chemosis, Ophthalmia Sicca,* &c.

Symptoms of the first Stage.—A diffused redness shows itself in the sclerotica and conjunctiva, which however is at the commencement, greater in the former than in the latter tunic. The motion of the eye, and of the eyelid, is painful, and the cornea loses much of its clearness, though it is not yet to be called muddy. The pain always extends by degrees even

into the head, the dryness increases, the conjunctiva, which is of a scarlet red colour, covers the sclerotica like a piece of cloth, and forms a reddish swelling round the cornea, which is now becoming more and more turbid, and of a reddish hue. See Tab. III. fig. 6. The iris and pupil can no longer be seen on account of this turbidity, and the sight is for the same reason very weak, the eyeball immoveable, and an inflammatory fever presents. The inflammation however seldom attains this severe degree.

Symptoms of the second Stage.—The swelling of the conjunctiva now increases progressively, and becomes of a dark red, the cornea changes to a white, then yellowish colour, and at last forms a true core of matter. After the suppuration has run its course, there remains behind an immoveable, whitish, crumpled-together, and indented eyeball, produced by what is called *Phthisis*, or *Consumptio Purulenta Bulbi*, and is to be carefully distinguished from Atrophy of the Eye. If the inflammation has been very slight in the first stage,

Taraxis, then at most a very limited superficial suppuration takes place at the part where the disease took effect.

Ætiology.—Bodies which enter the eye and the eyelid, and superficial wounds of the eye, are generally the causes of this inflammation. A very severe degree of disease takes place when the conjunctiva of the eye has been wounded by the sting of a wasp or of a bee, and when the sting has not been extracted; in such a case the severe inflammation, *Chemosis*, sometimes proceeds to form a very dangerous *General Ophthalmitis*.

The PROGNOSIS is very favourable in the first stage, and in slight degrees of this disease, for, in such a case, the inflammation can be resolved without any bad consequences. This is also possible even when a Chemosis is present, provided the case be otherwise favourable. If however the patient be a child, or very irritable, and the Surgeon be called too late, then the disease proceeds irrevocably to the second stage, when of course the prognosis must be very doubtful.

The PROGNOSIS is more unfavourable in the second stage; for though the degree of inflammation were slight, yet if the suppuration which results from it be improperly treated, a white, opaque, cicatrix of the cornea readily remains, or even a perforation which induces a *Fistula Corneæ*, a Prolapsus of the Iris, a *Synechia Anterior*, or an Obliteration of the Pupil. If a chemosis has existed in the first stage, the prognosis is very doubtful; for when a kernel of pus has already formed in the cornea, the sight, and in part even the form of the eye, are for ever lost. If at the same time points of pus be observed around the cornea, the Surgeon is rarely able to save even such a form of the eyeball as is necessary for the happy adaptation of an artificial eye. The Surgeon seldom succeeds in preserving completely the sight and the form of the eye, if the chemosis have already passed on to the second stage.

CURE IN THE FIRST STAGE.—In a mere taraxis, an antiphlogistic practice, along with the removal of all irritation from the eye, &c. for

the most part is successful. In a chemosis, on the other hand, the whole antiphlogistic plan of cure must be employed; deep scarifications of the swollen conjunctiva, in a particular manner afford much benefit, after general and local bloodletting has been premised.

THE CURE IN THE SECOND STAGE, in a case of suppuration originating from taraxis, is purely topical; if however chemois has previously existed, the suppuration must be treated both locally and generally. In the first case, dry warmth, and a solution of the Lapis Divinus, are most favourable. In the second case, let this solution be mixed with Extract of Lead, and the suppurating points streaked over with Laud. Liq. Syd., mixed in urgent cases, with the Bals. Vitæ Hoffm. Let Bark, with Æther, be given internally, or similar tonic and volatile remedies, and a strengthening diet be observed. The suppurating points which are observed around the cornea, must be opened with the lancet, so as to prevent farther extension of the suppuration.

OF PURE INTERNAL INFLAMMATION OF THE EYEBALL, COMMENCING FROM THE RETINA.

*Ophthalmitis Interna.**

Symptoms of the first Stage.—The first symptoms of this very dangerous inflammation are, an oppressive, tensive, obtuse pain of the whole eye, becoming more and more acute every moment, and rapidly extending over the eyebrows, as far as the crown of the head; also, flashes of fire before the eyes, decrease of vision, and an equable contraction of the pupil, which is muddy. After the vision is completely destroyed, the pupil closes entirely. See Tab. III. fig. 7.

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* Inflammation confined to the retina alone, has already been treated of under Retinitis.

The iris, when previously grey or blue, becomes changed into a greenish colour, and, when brown or black, into a reddish colour; it also swells, pressing towards the iris, thus considerably reducing the size of the anterior chamber; these changes are accompanied with the continual troublesome appearance of flashes of light. The sclerotica and conjunctiva also become red, in the same ratio with the swelling of the iris, attended with most severe headaches; the cornea loses its brilliancy, and an inflammatory fever is established.

Symptoms of the second Stage.—The conjunctiva of the eyeball becomes more and more red, accompanied with pain which is variable and pulsating, and also with a sensation of weight and coldness, during the feeling of constant chills, pus suddenly shows itself at the bottom of the anterior chamber, (hypopium,) which changes its position during the motions of the head. If this matter go on to increase, and the patient be neglected, the cornea bulges, becomes conical, and bursts at last under insufferable

pains, which cease gradually after the eyeball has sunk. If the pupil has not closed completely at the end of the first stage, particles of lymph are now thrown out into it, which are observed, by the assistance of a glass, in the shape of a net, in the meshes of which the unobserved particles of matter afterwards remain fixed, and close the pupil as if with a cork, producing that which was mentioned under the head of Obliteration of the pupil, by the name of *Cataracta Spuria Purulenta.*

The CAUSES of this disease are few; on which account it is of rare occurrence. One of the most powerful, is continued straining of the eye, by the observation of very small, particularly glistening objects.

The PROGNOSIS, in the first stage, continues favourable, so long as the pupil is not fully contracted, and the vision not much injured; on the contrary, it is very unfavourable when the vision appears to be gone. If the pupil has closed entirely, the patient remains for ever blind. If the disease in this stage be mistaken

for another, and neglected, or improperly treated, it ends in a very dangerous general ophthalmitis.

The PROGNOSIS, in the second stage, is always very unfavourable in regard to vision, which cannot be restored; the form only of the eye can generally be preserved. If however the inflammation have already terminated in a *General Ophthalmitis*, not even the form can be preserved, for a frightful disorganization of the eyeball will, for the most part, be the result.

The TREATMENT in the first stage, corresponds entirely with that of the same stage of General Ophthalmitis, to be considered hereafter, only scarifications of the conjunctiva are not to be employed in this case.

Even in the second stage, the TREATMENT resembles that of the same stage in General Ophthalmitis; there are however some particulars to be observed in this case. Warm poultices can only be employed when used with very great care. When pus shows itself in the anterior chamber, it is best removed by

absorption; on this account, all poultices must now be avoided, and dry warmth resorted to; blisters are to be applied behind the ear, sometimes on the temple; the Laudan. Liquid. Syd. is to be streaked three or four times daily, into the eye, by means of a miniature pencil, and the cornea is to be opened with a lancet only when it threatens to burst. If opened earlier, the Surgeon has himself to blame if a sufficiency of the eye be not saved for the proper adaptation of an artificial one. If the opening with a lancet has been necessary, the warm decoction of Mallows, recommended by Janin, dropped into the eye, favours very much the discharge of the thick matter.

Staphyloma Corneæ.

When the cornea loses its transparency after an inflammation; when it swells internally and externally; when the iris also is swollen and projected forwards by the inflammation; when

both these inflamed membranes adhere to each other; and when, finally, the inflammation has not destroyed the secretion of the aqueous humour, (which is carried on especially in the posterior chamber,) then the disease of which we are going to treat takes place. * When the adhesion of the iris with the cornea is general, a Total Staphyloma is formed; if, however, the adhesion of both tunics be limited to a portion of the projecting cornea, it is called a Partial Staphyloma. The Total Staphylomata, again, differ in regard to their form; for if the inflammation have only destroyed the anterior chamber, and the adhesion of the anterior surface of the iris with the internal surface of the cornea have been general, then a total staphyloma of the cornea will take place, and assume a spherical shape, *Staphyloma Corneæ totale sphæricum*, because the aqueous humour, which is still secreted as formerly, distends the staphy-

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* *Siehe J. Beer's Ansicht der Staphylomatosen Metamorphosen, u. s. w. Auch dessen Leitfaden.*

lomatous cornea *equably*. Tab. III. fig. 8. At the same time, as the absorption of this fluid, which goes on chiefly in the anterior chamber, is much limited, by the anterior chamber no longer existing in this case, it sometimes happens that the spherical staphyloma increases more and more, and finally even bursts, *Rhexis Oculi;* after which the staphylomatous growth disappears for some days, but soon rises again to its former size. If this accident happen repeatedly, the staphyloma is apt to become malignant, and speedily requires the operation. If, however, not only the iris has adhered completely with the cornea, but also the *uvea* with the capsule of the lens; if also, not only the anterior chamber be destroyed by the violent inflammation, but also the posterior one, then a conical-shaped, total staphyloma, *Staphyloma Corneæ totale conicum*, takes place, which can never attain so considerable a size as the spherical variety, because the secretion of the aqueous humour in the posterior chamber is more or less destroyed. The staphylomatous cor-

nea is softer and thicker when it has taken place shortly before, and in children; on the contrary, it is harder and thinner when the disease is of long standing, and has taken its origin in old people. The colour of a staphyloma is sometimes white, whitish-grey, bluish-grey, or reddish. Partial staphylomata occur commonly at the under part of the cornea. Tab. III. fig. 9.*

The CAUSES of this disease are particularly variolous, and morbillous ophthalmiæ, scrofulous ophthalmoblennorrhœa, ophthalmia neonatorum, wounds of the eye, &c.

The PROGNOSIS varies; for if, in a case of par-

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* If merely a distention and thinning of a tunic of the eye, is understood by the name Staphyloma, as has been customary, then even staphylomata of the sclerotica are to be met with, as in cases of varicosity of the choroidea, which causes projection of the sclerotica. Scarpa never met with these staphylomata on the anterior half of the eyeball, but in two rare cases on its posterior half, near to the external side of the spot where the optic nerve passes through the sclerotica into the eyeball.

tial staphyloma of the cornea, the vision still exist, the staphyloma may indeed be cured, and the sight which exists may be preserved, but it cannot be augmented. If the partial staphyloma has entirely destroyed the vision, the projecting growth may be removed, (provided no varicosity be observable in the eye,) but the vision never more returns. If however the eye be varicose in a considerable degree, the application of the escharotics which were formerly in use, would completely destroy it. In cases of total staphyloma, the smallest degree of sight can not only be never restored, but often, when considerable cirsophthalmia is combined with it, even the life of the patient is in danger, because, under such circumstances slight contusions not unfrequently give rise to hideous exophthalmiæ; for which reason, every large total staphyloma must be removed as speedily as possible by the operation. The prognosis is in general more favourable than in conical-shaped staphyloma. Staphyloma may occur in one eye only, or in both

at the same time.* The progress also of staphyloma varies; sometimes they grow to a certain size, and then remain stationary, sometimes they gradually grow till they burst, and often they change into a sarcomatous mass, which progressively increases in bulk, and requires the extirpation of the whole eye.

To remove a partial staphyloma of the cornea, Astringents applied locally, were formerly in use; Nitrous Acid, Sulphuric Acid, and Lapis Infernalis, were also recommended, and the Butyrum Antimonii was regarded as a specific. Even Beer has, and with justice, spoken favourably of the latter medicine. When therefore the deformed eye is not too irritable, and there is no varicosity of the eye, the apex of the partial staphyloma may be touched with a fine hair-pencil, slightly dipped in Butyrum Antimonii, but let the eyelid be kept open until

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* Wardrop observed a very singular sympathy between the eyes; for in a case where one eye was wounded by a prick, and become staphylomatous, the other uninjured eye shared also in the same metamorphosis.

a white, dead crust form, which is then to be washed over by means of a larger pencil dipped in water or milk, so that none of the corrosive applications may adhere and produce bad symptoms. A renewal of this caustic cannot be had recourse to, until the inflammation excited by the first application has completely disappeared, and the mortified crust fallen off. Strong eye-salves, and in general, medicines which extend over the eye, must be entirely avoided.

Newly formed staphylomata, whilst they are as yet soft, can sometimes be removed or diminished by bathing the diseased eye with ice-cold water.

A total staphyloma of the cornea can be removed only by an operation; and here again, the method of Beer deserves the preference, for he has witnessed from it the finest results—viz. removal of the deformity, pain, and all other unpleasant symptoms, and the parts rendered fit for the adaptation of an artificial eye. To perform this operation, one of Beer's cataract-knives, but broader than usual, is to be thrust

into the base of the staphyloma, at the external canthus, as in the operation of extraction, and is to be brought out again in the inner canthus, at the part exactly opposite, and the flap is to be completed, merely by pushing on the knife in a horizontal direction, as has been taught in extraction. The assistant who holds up the superior eyelid during these steps with the fore and middle finger only, or when the staphyloma is very small, and the patient very unruly, with Richter's silver-wire hook, must not allow the eyelid to fall down after the completion of the first cut, for the operator is without delay to take hold of the flap of the staphyloma with a strong pair of forceps, and is to cut it completely away by means of Daviel's scissors, without however pressing upon the eye, so as to avoid giving occasion to the loss of the lens and vitreous humour. The assistant is now to allow the upper eyelid to fall, and the eye is not to be opened again till the cure be accomplished. In the operation for conical staphyloma, the lens and vitreous humour can never be

preserved, because in this case the incision is made behind the lens; the staphyloma must also, in this case, be laid hold of with a hook at the commencement of the operation, which is then to be continued as described above.

The dressing, after the removal of the staphyloma, is simple, and consists, as after the operation for cataract, in a strip of court-plaster, over which is to be applied a compress, but it is not to be bound firm upon the eye. All pressure, as also every thing likely to induce spasm of the eyelid, must be avoided, as otherwise the lens and vitreous humour may readily be pressed out of the eye, for which reason a horizontal posture is to be recommended to the patient for some time after the operation.

When the cure is completed, an artificial eye may be introduced, which can be particularly well accomplished when the lens and vitreous humour have been retained. If the eye be very varicose, particularly in cases of conical staphyloma, frightful hemorrhage and effusions of blood often take place from two to six hours

after the operation, by which the choroid and retina are pressed forward; after, however, both these membranes are cut off, the bleeding speedily ceases, but the subsequent form of the eye will not be the best adapted for an artificial eye.

Prolapsus of the Iris. Prolapsus, Ptosis Iridis, Staphyloma Iridis.

When the iris lies, or is entangled, in an opening in the cornea, and is outwardly visible, the commencement of the disease to be here treated of, takes place. This strangulation of the iris causes at first the painful sensation of a thorn pricking the eye, which gradually changes into a feeling of weight, and at last affects the whole eyeball. After a flow of hot tears, and an aversion to light have supervened, an inflammatory state of the eye begins, if it has not taken place previously.

The diagnosis is very easy, even at the very

commencement of the prolapsus; for not only a painful spot is observed on the cornea, which has the colour of the iris, but also the pupil is contracted, and dragged from the centre towards the protruded part of the iris. Afterwards, however, when the protruded iris has become insensible, firmly adherent to the cornea, and been covered over with a newly formed conjunctival layer of the cornea, and appears thereby changed in its colour, the diagnosis is more difficult. However, even at this period, a nodulated elevation on the cornea, surrounded by a broad white border, and a more or less distorted and diminished pupil, lead to a correct knowledge of the case.

These projections of the iris have different names, according to their bulk; for if the size and shape of a fly's head, it is called *Myocephalon;* if flattened, slightly elevated above the cornea, and resembling the head of a nail, it is called *Hylon, Clavus.* Tab. IV. fig. 1. If there were several openings in the cornea, through all of which the iris has projected, that form

of disease takes place, to which the name *Staphyloma Racemosum* has been applied.

The chief CAUSES of this disease are, ulcers perforating the cornea, after inflammations and incised wounds of this membrane, for example, the section of the cornea for extraction, or the opening of a hypopion, &c.

In regard to the treatment necessary for the removal of a prolapsus of the iris when it has first taken place, something has already been said under Wounds of the Eyeball, and under Extraction of the Cataract.

If the prolapsus be already of old standing, the iris firmly adhering to the cornea, and no considerable varicosity present, the unseemly protrusion may be removed by touching it frequently with the Lapis Infernalis. Should the projecting iris have become insensible by the long duration of the disease, and be covered by the reproduced conjunctival layer of the cornea, the Butter of Antimony is to be made use of, in the same manner as has been mentioned under the treatment of Partial

Staphyloma of the Cornea. Should it be quite insensible and callous, or have a pedicle,* and be of long standing, the removal of it with a knife is to be preferred to escharotics; and if the eye be in a varicose state, the knife only can be made use of. Even after the most successful cure of a staphyloma iridis, the patient must always retain an adhesion of the iris with the cornea, and a more or less distorted and contracted pupil, along with a cicatrix of the cornea, of more or less size, as necessary consequences.

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* Scarpa and others mention such staphylomata of the iris.

Adhesion of the anterior surface of the Iris with the Cornea, Synechia Anterior,—and of the posterior surface of the Iris with the Capsule of the Lens, Synechia Posterior.

These diseases are always observed as consequences of previous inflammation; during which, in the Synechia Posterior, the capsule of the lens has come in contact with the iris, and in the Synechia Anterior, the iris has come in contact with the cornea.

From the manner in which the disease takes its rise, it may be already supposed that the inflammation which excites it may not unfrequently leave behind it other defects of the eye, and this is actually the case; for in the synechia posterior, a lenticular, capsular cataract is often observed, and in the synechia anterior, there are always considerable cicatrices and specks of the cornea, which render the discovery of some anterior synechiæ very difficult. In both species of synechia, the pupil is some-

times closed or contracted, at others however dilated. Amaurosis, &c. is also frequently an attendant.

Synechiæ may be either total or partial. Total anterior synechiæ are often observed in cases of total staphyloma of the cornea. Partial anterior synechiæ are met with in partial staphylomata of the cornea and iris. There are also partial anterior synechiæ, which do not occur in connexion either with the one or other of these diseases. They are in general very limited, and shall be first considered.

They arise almost always in consequence of ulcers or wounds perforating the cornea, because the iris can only come in contact with the cornea, and adhere to it in a greater or less extent, when the aqueous humour has escaped, from a perforation of the cornea. This holds good on an average with all small anterior synechiæ. Sometimes, however, partial adhesions of the iris with the cornea take their origin, even without a perforation of the latter, which I observed, for example, after a slight inflamma-

tory affection of the iris and cornea, in which case, however, the synechia existed only at the ciliary edge of the iris; after the inflammation was removed, the functions of the eye were not at all disturbed, and the disease was recognized by the sluggishness of the iris, which was distorted in a scarcely perceptible manner, by a slight inclination of the pupil towards the point of adhesion. Adhesion of the iris with a wounded part of the cornea, may commonly be easily discovered by the same symptoms; for the pupil is distorted more or less towards the cicatrized part of the cornea, and if the eye be observed laterally, the inclination forwards of the iris will not unfrequently be recognized. In many cases, the diagnosis of the disease is very difficult, particularly when the specks of the cornea, which exist in almost every anterior synechia, are of considerable size, and cover the disturbed part of the pupil.

In order to remove Anterior Synechiæ, it has been proposed to perforate the cornea with a cataract-knife, or lancet-shaped cataract-needle,

and then dexterously separate the adhesion from below upwards, endeavouring during these attempts to prevent the too early escape of the aqueous humour. This practice, however, is only to be adopted when a considerable improvement of the impaired vision is expected to result from it, by changing the state of the pupil. It is best to leave untouched the anterior synechiæ, which do not impede the vision considerably. Synechiæ of considerable extent, and of long duration, are incurable.

Synechia Posterior.—This disease, as has been already stated, may be total or partial; in the first case it is always incurable, and combined with cataract—in the second, however, it may sometimes be removed by external and internal medicines. An adhesion of the iris to the opaque capsule of the lens, by means only of a very fine lymphatic vegetation, resembling a spider's web, may occur and be curable.

These delicate adhesions are not always

easily recognized; in such cases, along with a permanent weakness of sight, the Surgeon finds the iris angular, and not so moveable as it is naturally; also, for the most part, the pupil is contracted, and becomes still more angular, after Belladona or Extract of Hyosciamus, has been streaked into the eye, because it dilates chiefly at those parts where the posterior surface of the iris is not bound to the capsule of the lens. If the pupil, when artificially dilated, be examined with a glass, a vegetation of lymph resembling threads, of a greyish or greyish-red colour, is discovered, which binds irregularly the iris with the capsule of the lens, and in which blood-vessels are sometimes perceived.

Syphilitic and arthritic ophthalmiæ are in a particular manner to be mentioned as causes of these thread-like lymphatic exudations in the posterior chamber; however, even pure ophthalmiæ, &c. may terminate in posterior synechiæ.

In patients whose constitutions will permit the internal and external use of mercury, the

PROGNOSIS is favourable; it is still more so when blood-vessels are discovered in this thread-like texture, by means of a glass, because, in this case, it continues in organic connexion with the whole body, and consequently, its absorption is to be the more certainly and rapidly looked for. The prognosis is unfavourable when mercury cannot be used, as is especially the case in arthritic patients.

The treatment of this affection proceeds, in general, on what has been already said. A salve made of Lard, Red Precipitate, and some Extract of Hyosciamus, is to be applied externally to the eye; the latter ingredient dilates the pupil, and sometimes tears asunder the weakest threads of lymph, after which the pupil becomes freer, and the vision improved. In like manner, the Ung. Hyd. Cin., rubbed on the eyebrows only, is sometimes found useful. If the eye do not bear fatty substances well, a solution of Corrosive Sublimate of Mercury, with Tinct. Thebaic, will be found serviceable. Mercury is to be given internally with freedom, only

when there is a particular disposition to secondary formations, or when symptoms indicating syphilis are observed. However, even when these conditions have been wanting, I have in some cases evidently accelerated the cure by the internal use of Calomel.

The removal of a posterior synechia, combined with cataract, was treated of under Extraction of Cataract.

D.—OF

THE DISEASES

WHICH ATTACK THE WHOLE EYEBALL.

Pure Inflammation of the whole Eyeball.
Ophthalmitis Universalis.

Symptoms of the first Stage.—Severe, pressing, tensive pain of the eye and of its appendages, with redness of the sclerotica and conjunctiva, are the first symptoms of this frightful inflammation. The redness increases more and more, the conjunctiva of the eyeball swells, and forms an equable, very irritable and hard wall, around the cornea, which soon swells so high, that at last the centre of the cornea can hardly be discovered. At the same time, the pupil is contracted, the iris is immoveable, and the vision in a great measure, or entirely lost; along with

these symptoms, photopsia assists in augmenting the pain, which is always becoming more and more violent. The previously blue or grey iris now becomes greenish, and the brown or black, reddish. The eyeball swells, and loses its power of motion. The cornea grows muddy, and by degrees, opaque. The eyelids inflame progressively, and the under one is at last everted, in consequence of the great swelling of the eyeball. The secretion of tears and mucus is entirely suspended. To all these is added an inflammatory fever, during which people of weakly habits are not unfrequently delirious.

Symptoms of the second Stage.—The swelling of the conjunctiva of the eyeball now increases strikingly, and becomes of a dark red, but is softer. The pain begins to be irregular, pulsating, and pricking, when the eye is touched. The upper eyelid is stretched by the eyeball increasing in bulk, and acquires a bluish-red colour. The part of the cornea which remains visible, becomes snow-white, and at last yellow-

ish,* at the same time, a feeling of weight and coldness takes place in the orbit, and in the eye itself, and the tensive pain still increases. If no proper aid be now procured, the eyeball bursts under furious pains, and with an audible report, *Rhexis, Rhegma oculi,* and matter and blood, with the remains of the lens and vitreous humour, flow out.

If, however, unfortunately, the disease has been regarded in the first stage as an asthenic inflammation, and been increased by many means, or if the patient, during this period, has not denied himself the use of spirituous drinks, of strong articles of nourishment, and of snuff, frightful gangrene generally commences, under the usual appearances, and by continued neglect terminates in sphacelus and death.

The CAUSES of this inflammation are manifold; it particularly originates, however, from a

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* Fig. 2d of Plate IV. painted and copied from Beer, represents this stage.

coup de soleil, from the explosion of gunpowder immediately before the eyes, from a flame of fire striking the eye, and such like. *

So long as the vision is not lost *in the first stage* of this inflammation, and the eyeball is not yet swollen, resolution of the inflammation may be reasonably looked for; however, an amblyopia often remains behind, which sometimes continues for a longer, sometimes for a shorter time. As soon however as the vision is entirely lost, the pupil nearly closed, and the eyeball visibly swelled, a good shape only of the eye can at most be preserved; the vision never returns, and often even a complete obliteration of the pupil remains.

In the second Stage of the disease, the vision

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* The most common causes in this city, are chips of cast iron striking the eyes of founders employed in chipping or smoothing machinery, &c.; fragments of stone striking the eyes of those engaged in breaking stones for the roads; and I see many of a most formidable nature, from unexpected explosions happening to those employed in the blowing of rocks. *Translator.*

not only cannot be restored, but when the eyeball is considerably swollen, there can no longer be any hope entertained of preserving even a good form of that organ. If the eyeball should burst, not even so much of it will remain behind as will render it possible to adapt to it an artificial eye. If gangrene have already taken place, every means must be employed to prevent it from terminating in sphacelus and death.

In order to effect a CURE as well as possible, in the first stage, a strict antiphlogistic practice is to be pursued, and the disease is by no means to be considered as merely a local affection. Hence venæsections must be performed, leeches must be applied around the eye, and the swollen conjunctiva is afterwards to be scarified in a radiated manner. If the inflammatory state of the eye extend to the parts which lie within the cranium, it will be necessary to open the jugular vein.

As the restoration of sight is not attainable in the second stage, the suppuration is to be

promoted by emollient poultices, which however, must not be permitted to grow cold upon the eye. At the same time, let medicines be given to support the suppuration and strength, for example, Bark, Calamus Aromaticus, Valerian, &c. with Æther, and such like. If a considerable point of matter now shows itself any where, let it be opened with a lancet, so as to allow it to flow out. In this manner, such a portion of the eyeball is generally preserved, that after some months an artificial moveable eye may be introduced. If the eyeball were ready to burst, and if even now a free incision were boldly made into it, and the suppuration treated as in the former case, an immoveable artificial eye could at least be afterwards introduced. If the eye has already burst, its form can no longer be retained, but care must be taken to put a stop to the unfavourable ichorous suppuration which is probably present, by the general and local means already often mentioned. When gangrene of the eye has already taken place, its termination in sphacelus

will be best prevented by the application of poultices formed of a warm concentrated decoction of Bark, Treacle, Peruvian Balsam, and the Thebaic Tincture, and by giving internally a strong decoction of Bark, with Æther, and similar medicines already mentioned.

Wasting and Sinking of the Eyeball. Atrophia, Aridura Bulbi.

The eyeball may sink or become smaller in different ways. It may diminish after a loss of the vitreous or aqueous humour, in consequence of which a puckering of the cornea, *Corrugatio Corneæ,* always ensues, but disappears when the opening has healed through which these humours had escaped, and the aqueous humour has been renewed. In like manner, an inflammation and subsequent suppuration of the eyeball, may cause its diminution, and such a wasting is called *Phthisis Bulbi.* If merely the cornea be diminished, and de-

stroyed by the suppurating process, it is called *Phthisis Corneæ.* These suppurations have already been mentioned under the respective inflammations which induce them, for example, under Pure Inflammation of the Eyeball, &c. All these species, however, of diminution of bulk of the eyeball, are not to be called atrophia. By this name is understood, rather, a peculiar state of the eyeball in which the absorption is too powerful, without a vestige of suppuration being present, During this disproportionate absorption, not only the whole eyeball diminishes in size, but even its particular tissues; it retracts more and more to the bottom of the orbit, and finally appears as a small whitish, or rather a dirty, yellowish-white knob, which remains stationary; however, distinct remnants of the former structure of the eyeball may be always recognized, and hence even the iris with the closed pupil, and other parts of the eye may still be distinguished.*

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* In the 3d figure of the 4th Table, an atrophic eyeball may be seen, which however will afterwards continue to diminish.

Atrophy of the eyeball takes place very often as a consequence of an arthritic ophthalmitis, rarely after general scrofulous inflammation of the eyeball. If the wasting attack merely the cornea, as may readily happen in cases of penetrating ulcers of this tunic, connected with chronic discharge of the aqueous humour, as also in cases of *Coloboma*, *Lagophthalmos*, *Entropium*, &c., its conjunctival layer dies, and the cornea becomes dry and dirty coloured, loses its transparency and arched shape, diminishes in bulk, and exhibits that diseased state which is called shrivelling of the cornea, Atrophia Corneæ, Rutidosis, Rhytidosis, and must be well distinguished from the *Corrugatio Corneæ* mentioned above.

The PROGNOSIS of *Phthisis* and *Atrophia Bulbi et Corneæ* is very unfavourable, the disease being actually incurable. However, an atrophia of the eyeball which is not completely confirmed, and which has been preceded by an arthritic ophthalmitis, may sometimes be pre-

vented from going on, by a very suitable treatment of the Gout.

The adaptation of an artificial eye, *Hypoblepharon, Oculus Artificialis,* by means of which the deformed and destroyed eyeball is covered, is a palliative cure. However, in an actual atrophy of the eye, even this treatment is not applicable, because the artificial eye cannot be borne by the patient, and the eyeball, which is already much diminished, becomes still more wasted by the constant irritation which the artificial eye excites.

Artificial eyes can be introduced with decided benefit, only in cases where the remnant of the eyeball is not too small, when no pains, no inflammation, and no humouring of the eye any longer exist, but rather when all these symptoms have long since disappeared. After the extirpation of an eye, the introduction of an artificial one is of little utility; it is also of little use, when the lens and the vitreous humour are lost; likewise, in all those cases in which only a small immoveable stump of the eyeball

is left behind. In such cases, the new eye will be at least quite immoveable, and thus the illusion which is intended by it cannot be obtained. On the contrary, the less of the eyeball is lost, the better does the artificial eye fit, and perform all the movements in concord with the sound eye; its appearance is also the more delusive.

The artificial eyes at present used have the form of convex plates, the convex surface of which stands outwards. They are either made of glass,* in which case they may be procured in store, and cheap; but they are easily broken, do not generally fit properly, and are not painted so as to cause a perfect deception; or they are made of gold, enameled and painted, so as completely to resemble the representation of the sound eye. This kind is now prepared, particularly in Paris, by Desjardins the son.

If an artificial eye of this description be wished for, not only must a proper painting of

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* I saw this kind particularly beautiful in Venice, where they are manufactured in quantity.

the sound eye be sent, but also the dimensions under the eyelids must be properly taken, so that the eye may not be too large, nor too small, nor fit ill in any way. The cornea in the artificial eye must, as it is in nature, be so placed, that the distance of its outer edge from the temporal canthus may be the greatest, that the cornea may be in the axis of vision; in like manner, the space between the upper edge of the cornea and the edge of the artificial eye, must be much greater than it is below.

To introduce an artificial eye, its upper broad edge, previously moistened, (after drawing downwards the lower eyelid,) is to be pushed under the upper eyelid as high as possible, and then the under one let loose. If it excite pain in more or less time, if the eyelid become red, it must be taken out, and the stump of the eyeball, and its appendages, strengthened as if it were for bearing a new irritation; this is accomplished by the diligent use of cold water, which is to be employed locally, either pure, or mixed with some Alum,

rectified Spirits of Wine, and such remedies. If the introduced eye produce pain from any of its parts being uneven, or not fitting properly, they must be filed of. An artificial eye will rarely be borne easily at first. If the remaining part of the eyeball be very small, and, on that account, the artificial eye do not fit properly, its concavity may, according as occasion requires, be more or less filled up with white wax. Taking out the eye is accomplished most easily, by thrusting the head of a pin under its lower edge, by means of which it is to be drawn gradually downwards, when it immediately falls out from between the eyelids. Moreover, the patient must take it out in this manner every evening, so that the mucus which accumulates under the eyelids, and often becomes acrid in hot weather, may be washed out, and the artificial eye not be injured during night.

General Varicosity of the Eye. Varicositas Oculi Universalis, Cirsophthalmia.

The eye is rendered entirely blind by General Varicosity; even the sense of light fails, although flashes of different colours are observed; the eyeball presents a peculiar appearance, evident to every one, it is very hard, of a conical shape, and evidently increased in bulk, so that in many cases the eyelids can no longer cover it; the white of the eye is of a dirty blue, almost lead coloured, and the conjunctiva, along with the sclerotica, appears full of varicose vessels carrying black blood; in consequence of which the latter tunic, in its thinnest parts, not unfrequently presents bluish swellings, which solely arise from the largest varices of the choroidea, situated immediately under the sclerotica. The cornea, at the same time, is rendered opaque or staphylomatous, or it may be transparent, but dull. All the motions of the eyeball are performed slowly; the pupil, when it has not be-

come in some degree obliterated, is much dilated, and angular, whilst there is a distinct muddiness behind it. At the same time, the iris gives no symptom of mobility.

An arthritic inflammation of the eyeball, when neglected, or when it returns frequently, especially in relaxed habits, in a particular manner induces this disease, to which glaucoma and glaucomatous cataract afterwards succeed.

When an eye suffering under this disease is left untouched, it may exist a long time without an increase of the symptoms, for although it begin to be atrophic, changes of a worse nature do not so readily take place; if, however, it be treated with strong or corrosive applications, or generally with medicines which irritate the eye much, its state gets rapidly worse. The largest varicose vessels burst, in consequence of which, extranasations of blood often take place in the chambers of the eye; nay, even the eyeball itself may burst, and cause considerable loss of blood. A carcinomatous change of structure may even succeed,

when death sooner or later puts an end to the disease. These aggravated conditions of the eye are more rapidly and readily induced, when the diseased eye has suffered a wound or bruise.

Of Scirrhus and Cancer of the Eyeball. Scirrhus et Carcinoma Bulbi.

In the same manner as proper Cancer always forms from a previous Scirrhus, so also a malignant hardness always precedes an actual cancer of the eyeball.

These malignant indurations, or schirrhi of the eyeball, which render it very unseemly, show themselves by a nodulated, irregular, very hard swelling of the whole eyeball, by a feeling of uneasiness in it, by its having a whitish red colour, and by the absence of pain and fever; at the same time, varicose blood-vessels of a dark, violet colour, are observed on the eyeball; by degrees, and when the scirrhus passes on to cancer, the tunics of the eyeball become

thickened and flesh-like, and the eye gets painful; the pains are stinging, irritating, itching, burning, they extend far over the head, and are seldom alleviated by opium. The eyeball at length changes into a mass which cannot be recognized, every trace of its former structure is lost, so that it not unfrequently resembles a piece of hard flesh The circumference of the eye now enlarges more and more, hectic fever commences, and at last the eyeball breaks into one or more cancerous ulcers, accompanied with terrible pains; severe hæmorrhages not unfrequently take place from the varicose vessels, which indeed alleviate the pains, but are more commonly the forerunners of death. At the same time the ulcers, which have an unequal wart-like base, with everted hard, and lead-like edges, throw out an ichorous matter, which has a loathsome smell, whilst not unfrequently even the eyelids, particularly the upper, are red and painful, and their vessels varicose.

In general, cancer occurs in one eye only,

however, the other also is sometimes affected from neglect.

Many inflammations of the eyes, particularly such as have been treated by too irritating, astringent medicines, and which have a scrofulous or other character, may produce a scirrhus, and at last a cancer of the eyeball.

So long as the scirrhous state consists merely as a pure local affection, the PROGNOSIS does not appear to be dubious, but if scirrhous tumours, appearing on other parts of the body, indicate a generally diffused cancerous disposition, and if stinging pains take place in the eyeball, the prognosis is very unfavourable, or, at least, very doubtful; for, under such circumstances, by the slightest cause, an occult cancer takes place, which sooner or later proceeds to open ulcers, and deprives the patient of life, under the most dreadful sufferings. Scirrhus of the eyeball is seldom met with as a local disease, generally cachectic diseases lay its foundation; on which account, even the extirpation of the eyeball, as the only method of cure,

often disappoints, and the prognosis is thus rendered very doubtful.

Beer is convinced, that the extirpation of a scirrhous eye is indicated only when it does not appear to be complicated with dyscrasious and cachectic diseases; when the eyeball still moves pretty freely in the orbit, and when, in consequence of an external cause only, for example, a thrust or any other wound, the eye becomes internally painful, and when the symptoms supervene which have been adduced above, as announcing an approaching occult or open cancer. Whenever, however, dyscrasious and cachectic old people labour under a scirrhus of the eye, and when an occult or open cancer is forming under the above mentioned symptoms; when the eyeball has already become immoveable, and the induration has attacked other parts in the orbit besides the eyeball, the operation will generally be unsuccessful.

If carcinoma of the eyeball be already present, a very unfavourable prognosis can be given; and it must be in the highest degree unfa-

vourable, if disorganizations of the bones of the orbit exist, or if the lymphatic glands in the neck be already swollen. If the cancer has already produced hectic fever, with colliquative sweats and diarrhœa, and if hæmorrhages from the varicose vessels frequently succeed, then the operation is entirely useless, for the patient dies either during, or soon after it. Internal and external medicines, according to the observations of the best Surgeons, are of no avail, as well in cancer as in mere scirrhus.

From what has been stated above, true cancers of the eyes are distinguished from those ulcers which take their rise from fungous excrescences of the conjunctiva of the eyeball, particularly in the prognosis of the latter being more favourable. Fungous excrescences make their appearance not unfrequently on the conjunctiva scleroticæ, or in general, on the anterior part of the eyeball. They bleed readily, are divided into lobes, are not accompanied with fever, consist, in indolent individuals, of soft, pale-red swellings, which gradually hide

the cornea, but seldom extend over it; sometimes, however, they cause an appearance of the state called pannus of the cornea. These fungi, when neglected, increase more and more, can no longer be covered by the eyelids, and, as they become more exposed to external agents, they are covered with a brownish, hard, wrinkled scab; if this be loosened and removed with lukewarm water, and the spongy lobes pressed back a little from the cornea, the latter will in general appear uninjured. During this removal of the scab, severe bleedings readily take place, in consequence of which, the excrescences diminish considerably in size, but soon increase again.

These sarcomatous growths are at first generally benign; but, in consequence of neglect, improper treatment, and when caused by a scrofulous, syphilitic, arthritic, or other diathesis, they are sometimes very obstinate and malignant, recur after being cut away or destroyed by escharotics, and give rise to ulcers, which often merit the name of being cancer-like, *(Ul-*

cus carcinodes; in which latter case, the formerly benign, fungous, soft excrescences, have become rigid, hard, wart-like, and in every respect scirrhous.

Benign fungi of this description readily take place after blennorrhœal and such like ophthalmiæ, which have been improperly treated by the too long continued and frequent use of warm emollient, farinaceous poultices, particularly in relaxed habits. These are often removed at their commencement by a powder of Alum. Ust., Zinc. Sulphuric. et Sacchar. Alb., (see Encanthis,) or by the guarded use of dry caustic; in callous fungi, however, by the Butyr. Antimonii. If however the fungous growths be already large; if they spread over the cornea, and can no longer be covered by the eyelids; or if they be too callous to yield to escharotics, they must be laid hold of with a hook or forceps, and removed at their base with a common scalpel; during the operation, Beer caused cold water to be constantly thrown upon the eye by a syringe, so that he might not be

impeded by the copious flow of blood. Remnants of the fungi are to be removed by the above mentioned escharotics, and the slightest reappearance of them is also to be prevented by the same means.

If a dyscrasious or cachectic state, accompany these fungi in people of weak constitutions; if they become indurated, and cannot be cured, even when measures have been taken against the scrofulous or syphilitic diseases which may be present; if they rather assume a cancerous appearance, according to the symptoms enumerated above, they soon disorganize the eyeball, and recourse must be had in time to their extirpation, which, according to many observations of medical men, has in general a far more happy issue than when cancer has taken its origin from a previously true scirrhus.

Sometimes ulcers of a cancerous appearance arise from single, wart-like, very painful, and dark-red little knobs of the *Conjunctiva Corneæ et Scleroticæ (Caruncule malignæ, rebelles).*

If these cancerous-like ulcers be left to themselves, or improperly treated, the eye by degrees is lost, and the whole orbit is sometimes covered with fungi of a greater or less size. It is evident that in this case, also, the extirpation of the eye must be undertaken in time, in which case, the result will, for the most part, be fortunate, particularly when the affection has been known to be a purely local one. The mere excision of the ulcer, without extirpating the whole eyeball, which some Surgeons advise, and have even performed successfully, is always unsafe.

If, agreeably to the above conditions, there be a hope of still preserving the patient by the extirpation of his eyeball, this very painful operation is to be performed, according to Beer, in the following manner: After having taken a firm hold of the eyeball with a hook, it is to be turned upwards, the lower eyelid is then to be drawn down by an assistant, and separated from the eyeball by an incision * with a com-

* When the eyeball is enormously large and swollen,

mon scalpel; the Surgeon now penetrates, by means of Ludwig's scissors, quickly and carefully along and behind the eye. The operator now endeavours, by free,* but careful cuts, to separate the eye from its appendages, and in a particular manner, quickly from the optic nerve; he now draws it more out, which was previously to be avoided, and finally removes it entirely. It is proper during the operation, that two assistants constantly inject cold water upon the eye with a syringe, so that the bleeding may not impede the operator. When the eyeball is removed, the little finger, smeared with Almond Oil, is to be introduced into the orbit, which is to be carefully examined, particularly in the region of the lachrymal gland, and the thickened parts cut out.

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and when the eyelid, which is sometimes also swollen, lies expanded so much over the eyeball that there is not enough of room for the operation, it then becomes necessary, previously and sufficiently, to divide the external commissure of the eyelids with a knife.

* From six to eight cuts with the scissors, are generally sufficient to extirpate the whole eyeball.

After the operation is finished, the eyelids are to be closed with a piece of court plaster, about three lines in breadth; a linen compress of four folds, and fastened to the brow, is to be laid over it, and the patient is to be put to bed. The treatment of the succeeding suppuration and granulation is the same as in other parts of the body, and is already sufficiently known in Surgery.

An artificial eye cannot be well applied after extirpation; for, even when made conical behind, so as to fit the orbit, which is seldom completely filled by fleshy substance, it nevertheless remains always immoveable, and more or less covered with the relaxed, wrinkled, upper eyelid, which accordingly causes a greater deformity than when the eye is always kept tied up.

Ossifications of the Eyeball.

It appears as if all those changes of structure which sometimes appear in other parts of the human body, might occur in the eye. We accordingly meet with even ossifications, or what are called petrifactions in the eye. There are, for example, ossifications in the sclerotica and in the choroid, which have been observed without complication, or connected with similar changes of other structures of the eye. The iris, the retina, the optic nerve, and even the vitreous humour, have been found changed into an indurated, earthy, bony state: yea, even the whole eyeball has been found converted into a bony matter.

Such remarkable occurrences have been related by Haller *(Observat. Patholog. Oper. Min.)*; Morgagni *(De Sedibus et Causis Morborum)*; Pellier *(Recueil de Memoires, et d'Observations sur l'œil, &c.)*; Morand *(Memoires de l'Academie R. de Sciences,* 1730); and by Scarpa,

who has added a drawing of such a disorganization. *

Congenital Deficiency and Superfluity of the Eyes.

Cases have been observed, where sometimes one, but generally both eyes, were wanting in new born children. † The orbit being sometimes present, sometimes wanting. In some cases even two, three or four eyeballs, have been seen in one orbit. Even the situation of the eye has not always been the same; for sometimes the eyes have been situated naturally, but some times on perfectly different parts; as, for example, on the back of the head, on the shoulders, on the breast: yea, Sheuk relates, *(in Seinen. Observat.*, lib. i.) that they have even been situated on the thighs. ‡

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* At page 20 of this volume I have given a case of ossification of the whole capsule of the lens. *Translator.*

† *Act. Erudit.* Lips. 1726, *Meus. Mart.*

‡ *Sybel in sciner Dissertat. inaugural. de quibusdam ma-*

Of the lately known cases of deficient eyes, Ad. Schmidt * relates one of a child, who lived six weeks. On dissection, he found in the orbit only the lachrymal gland, the third pair of nerves, the first branch of the fifth pair, and the arteria ophthalmica; the optic nerve, however, was entirely wanting, and the foramen opticum obliterated. In the third part of the same volume of this work, a case is given which was observed by Malacarne. The child was two months old, and nothing was discovered but the lachrymal gland, the caruncula lachrymalis, the eyelids, and the lachrymal passages. †

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teriæ et formæ oculi aberrationibus, a statu normali, Halæ, 1799. *Auch in Reil's Archiv. für die Physiologie, 5. Band. 1. Heft, hat über diesen Gegenstand, vieles gesammelt und denselben ansführlicher abgehandelt.*

* *Ophthalm. Biblioth. von Himly und Schmidt,* 3 Bd. 1. H. p. 170.

† I have twice visited the family of W. L., a respectable grocer in the neighbourhood of this city. The first, second, and fourth of his children (eight in number) were born without any vestige of eyeballs. The two eldest of these

children were otherwise perfectly formed and healthy, but the second died in her sixth year from chincough ; the third was born a delicate child, and died when eight months old. Their eyelids and the lachrymal passages were perfectly natural. These children have been repeatedly attacked with inflammation of the eyelids and cavity of the orbit. The edges of the tarsi of the eldest, now a boy of fourteen years of age, have, in consequence of these inflammations, adhered to a considerable extent, (Anchyloblepharon imperfectum,) so that the opening into the sockets is now very small. *Translator.*

OF SPECIFIC INFLAMMATIONS OF THE EYES.

Of Catarrhal Inflammation of the Eyes. Ophthalmia Catarrhalis.

Symptoms of the disease.—The eyelids become a little reddened, accompanied by a sensation of burning, the eyes shun the light, and appear to swim in tears. The secretion of tears is consequently not only unnaturally increased, but they have also acquired an acrid quality; in consequence of which, they redden the parts they touch, and even cause them to swell. At the same time, most patients complain of an oppressive sensation of sand, which they suppose to lie between the eyeball and lids, for which reason they often attempt to wash it out. By degrees all these symptoms decrease,

and the Meibomian glands begin to throw out a consistent, white, mild matter. In general, the catarrhal affection confines itself to the eyelids; however, even the conjunctiva of the eyeball often takes a part in it, or the inflammation, even from the commencement, sets out in the conjunctiva bulbi, which becomes slightly red, the aversion to light increases, and even spasmodic shutting of the eyelids is superadded. Sometimes the inflammation is even propagated to the lachrymal sac. The symptoms of catarrh, with, or without, fever, may, or may not, be associated with this inflammation of the eyes. The catarrhal ophthalmia is increased towards evening, and is thus distinguished from scrofulous inflammation of the eyes, which generally has a remission at that time.

When the exciting causes are capable of producing rheumatism, along with the catarrhal affection, the latter disease is complicated with the former, the conjunctiva bulbi reddens considerably, the aversion to light increases, the eye

discharges tears on every change of temperature and of light, a bursting pain takes place in the eye and in its neighbourhood, which is much increased by lying on feather beds. Such are the symptoms which characterize a *catarrhal-rheumatic* inflammation of the eye.

The CAUSES are such as produce a common catarrh.

Wet cold weather, particularly in harvest and spring, produces the disease when there is a previous disposition to it. On this account, it is commonly met with as an endemic in districts where wet cold weather constantly prevails. However, the catarrhal ophthalmia not only occurs in bad, but sometimes also in warm dry weather, even as an epidemic, in which case a peculiar composition or decomposition of the atmospherical air, unknown to us, or what is equivalent, a peculiar ingredient in the air, capable of producing the disease, may be the cause. When, along with these causes, a rheumatic disposition is present, or when catching cold locally or generally has preceded, the

catarrhal-rheumatic complication very readily takes place.

The PROGNOSIS is favourable; however, in consequence of complication with rheumatism, by neglect, or in relaxed and weak old people, it often runs a very tedious course; may last for years, and produce an Ectropium in Cachectic people after the commissures of the eyelids have been corroded; this occurs most frequently in aged people, and is then called Ectropium Senile. Accordingly, even the inflammation is often referred to under the name Ophthalmia Senilis.

CURE.—At the commencement of the inflammation, poultices of cold water are very useful. If it become very severe, which however is seldom the case, let leeches be applied on the internal canthus. * At the same time,

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* One bleeding from the arm always produces the most sensible and real benefit in this kind of Ophthalmia whenever it becomes severe, or of the catarrhal-rheumatic kind. If, therefore, the disease do not appear to yield in three

the internal treatment is the same as in catarrh and rheumatism. If the inflammation have already lasted for some time, if the Meibomian glands secrete a viscid mucus, let gentle diaphoretics be given with and without Camphor; and, at the same time, let a general warm treatment be observed. Light bags of Aromatic herbs, with Camphor, are to be applied externally, for example:

℞. Flor. Sambuci.
—— Chamomel. a. ʒvi.
Camphor. Trit. gr. v.—ʒss. M.

If excoriations of the edges of the eyelids, with a bad suppuration be present, which is often the case in old people, and when there is a rheumatic complication, let styptics be used, for example, Lap. Divin. in solution with Opium, or

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days in an adult of a sound robust habit, taking a pound of blood from the arm will immediately produce a more favourable change than could be effected by any other mode of treatment. *Translator.*

℞. Hydrarg. Mur. Cor. gr. i.
Muc. Sem. Cyd. ʒi.
Tinct. Opii. Croc. ℈ss.
Aq. Rosar. ℥iv. M.

or if this cannot be borne, make use of astringent salves, as Ung. Janin., which must be suited in its strength to the more or less relaxed state of the eyelid. In weak, torpid people, the following salve answers excellently:

℞. Tutiæ. Prep. gr. xv.
Vitriol. Alb. gr. iss.
Merc. Precip. Rub. gr. vi.
Butyr. Recent. Insuls. ʒii. M.

At the same time, a mild nourishing diet is necessary.

Sometimes in children, and in females, after catarrhal-rheumatic ophthalmiæ, a very great sensibility of the eyes and eyelids remains; every exertion of the eye or change of atmosphere reddens the eyelids, particularly in the canthi, produces slight aversion to light, and often causes itching and tremor of the one or other eyelid. These symptoms, when neglect-

ed, often continue for years. Bags of dry Aromatic herbs, with or without Camphor, astringent salves with Opium, &c. or Tinct. Opii, are either of no use, or cannot be borne. In such cases, I have always hitherto found benefit from the external use of the Aq. Opii Pur.; or, if fluids cannot be borne, from a salve of one part of Pulv. Opii Pur., and three parts of the yolk of an egg, with which I caused the eyelid or the supra-orbitary region to be daily rubbed, from one to three times daily.

Of Rheumatic Inflammation of the Eyes.
Ophthalmia Rheumatica.

Symptoms in the first Stage.—The conjunctiva bulbi, and also the sclerotica, become red, attended with a stinging, tearing pain of the eye, and of its whole neighbourhood, manifestly increasing when exposed to heat, and in warm feather beds; also a severe flow of acrid tears, *Epiphora*, which occurs during every change of

temperature, and accompanied, also, with a strong aversion to light. The sclerotica, being of a rose-red colour, shines through the very vascular conjunctiva, which moves during the motions of the eyelids, and its vessels appear bundled together in many parts.

The rheumatic inflammation attacks almost always the external tunics alone of the eyeball, and appears therefore as an ophthalmitis externa; sometimes however it attacks the iris. The glands of the eyelids generally continue free from inflammation, though complications may be present. The redness of the eye is often very slight, and the pain exceedingly severe.

Symptoms of the second Stage.—The redness of the eye increases more and more, and the bundles of vessels on the conjunctiva become more evident. The pains extend more, even to the head and jaw, the flow of tears becomes more copious, although the aversion to light diminishes considerably, and is now felt only from a sudden increase of light. Small watery vesicles, *Phlyctenulæ*, appear on the cornea or

white of the eye, and the former becomes somewhat dull and muddy. The vesicles finally burst, and, during severe pains, change into small ulcers, which throw out a thin, corrosive fluid. These ulcerations give the appearance of a small piece being torn out of the surface of the cornea. They seldom leave cicatrices behind, but generally little pits or irregularities only, which soon fill up in healthy people.

The CAUSES correspond with those which may excite rheumatism in general; for example, changes of weather, catching cold when the head is sweating, a cold current of air directly striking the eye, &c. When there is a rheumatic disposition present, every pure inflammation of the conjunctiva and sclerotica changes into a rheumatic ophthalmia; according to Beer, however, the inflammations of an erysipelatous character, are in a particular manner liable to this change.

The PROGNOSIS, in the first stage, is favourable, provided gout be not complicated with the inflammation. In the second stage, the

PROGNOSIS is more unfavourable, because the little pits which the ichorous ulcers form in the cornea, may remain and impair the sight, may excite double vision, or even leave specks and cicatrices of the cornea, which sometimes prevent vision. In robust young men, however, these irregularities generally soon vanish.

CURE.—*In the first Stage*, and when the inflammation is very severe, and the pain violent, a leech may be applied on the internal canthus, and also a cold poultice, with a small proportion of vinegar in water; at the same time, a gentle diaphoretic treatment is not to be neglected.

In the second Stage, when stronger means are required, Extract of Guaiac, with Camphor, is to be particularly recommended, also Arnica, Antimonials, &c.; the latter particularly, when a complication of scrofula in the eye is indicated. At the same time, blisters are to be applied to the neck, or behind the ears, and if the rheumatic pains in the eye and its neighbourhood be severe and lasting, the powder of pure

Opium, mixed with saliva, is to be rubbed in over the eyebrows. Bags of Aromatic herbs, with Camphor, which must be light and well quilted, are very useful as an external application. If ichorous ulcerations already exist on the conjunctiva, the sclerotica or cornea, an eye-water, with Lapis Divinus and a considerable addition of Laudan. Liquid., must be used. If the ulcers be of considerable size, and several of them seated on the cornea, pure Laud. Liquid. Sydenh. must be streaked on the ulcerated spots, by means of a fine hair-pencil, at least once in the day; and after every time the eye has been washed with a solution of the Lapis Divinus, bags of warm, dry, Aromatic herbs, rubbed over with Camphor, are to be diligently applied, without, however, completely preventing the admission of pure, dry, and warm air.

Of Gouty Inflammation of the Eyes.
Ophthalmia Arthritica.

It shows itself, according to Professor Beer, either as an erysipelatous inflammation of the eyelids and eyeball—which he has always seen originate from gout of the foot, suddenly repressed by cold and wet, of which it was *vicarious*, and may quickly proceed to a destructive blepharo- and ophthalmoblennorrhœa—or if it be the pure production of gout, it may appear as an iritis, a sclerotitis, or generally as an inflammatory affection of the deeper lying structures of the eye.

The ERYSIPELATOUS INFLAMMATION is recognized by a pale-red swelling, resembling a vesicle, commencing from the edges of the eyelids with burning pain, which comes on a short time after the suppressed gout, and soon extends over both eyelids. The swelling now rises in the form of a bladder caused by a blister, containing a yellow acrid lymph, and soon extends

over the conjunctiva of the eyeball, accompanied with a constant burning pain. This inflammation is even propagated to the lachrymal sac. A flow of acrid tears, which now appears for a very short time, is quickly changed into a discharge of acrimonious, thin mucus, and this, again, soon into a blepharoblennorrhœa and ophthalmoblennorrhœa, which proceed rapidly, and without remission, to destroy the eye by colliquation.

The PROGNOSIS is always very uncertain; but is most favourable, when, from the commencement, the suppressed gout has been reestablished. In young and robust men, the inflammation runs its course quickest and most severely. If ophthalmoblennorrhœa have taken place, the eye is lost, even though the gout should be reestablished.

In regard to the TREATMENT,—above all things let the suppressed gout be recalled by foot-baths with mustard, and large poultices of mustard applied round the feet. If the affection appear as an erysipelatous inflammation of

the eyelids and eyeball, let dry air, and warmth with Camphor, be applied to the eye, and let a diaphoresis be promoted. If however blepharoblennorrhœa and ophthalmoblennorrhœa have already commenced, let the Laudan. Liquid. Sydenh., mixed with mucilaginous eye-waters or pure, be employed; and if at the same time the pains be very severe, employ frictions on the eyebrows, of the Pulv. Opii, mixed with saliva, &c. and support the strength by internal, tonic medicines—as Bark, Calamus Aromaticus, &c.

Antiarthritic medicines are of as little benefit in this state, as Mercurials are in an ophthalmia making its appearance after a suppressed clap.

Sclerotitis et iritis arthritica.—If inflammation of the eye appear as a pure product of gout, it is recognized by the following symptoms: a peculiar prickling in the region of the orbit, and a sensation of the crawling of insects, precede the attack. By degrees this latter sensation is changed into a tearing, variable pain, darting to the temples, and often

following the course of the branches of the facial nerve, aggravated during wet weather and in feather beds, and becoming milder in dry, warm air. It extends over only one-half of the head, when the inflammation has attacked but one eye. At the same time, during the frequent opening and closing of the eyelids, their edges form a fine white froth, which is easily distinguished from the Meibomian mucus.

A flow of acrid tears also takes place. The sclerotica becomes of a rose-red around the cornea, the colour grows less vivid towards the circumference of the eyeball, and does not extend to the cornea itself, but leaves immediately around it a small bluish-white ring, which remains as a pathognomonic symptom. The rose-red colour soon shows itself also in the conjunctiva bulbi, in consequence of which, the bluish-white ring around the cornea appears still more distinctly. The conjunctiva becomes varicose, and the bright redness of the sclerotica is changed into a dirty, grey, violet colour.

If the iris now partake of the affection, an

iritis arthritica manifests itself in the following manner, in people who are meagre and very irritable. The iris becomes immoveable, and changes, when it was previously blue or grey, into a greenish colour, and when it was brown, into a reddish colour. The pupil acquires an angular shape, contracts, and remains, as in a pure iritis, in its proper position behind the cornea, see Tab. IV. fig. 4. The pains increase, and after every attack of pain and fever, the pupil contracts more and more, and at the same time a web-like vegetation of lymph forms in it, which at length totally destroys vision. When the iritis is completely formed, varicose blood-vessels may be observed in the iris, often with the naked eye, but better with a glass.

If the disease has been hitherto left to itself, the eyeball becomes atrophic, and retracts into the orbit, when the gouty pains terminate; but soon afterwards they attack, in the same manner, the other eye, which had hitherto probably escaped.

If flabby, callous, arthritic patients, of a re-

laxed fibre, be attacked by iritis, it shows itself as in meagre, irritable patients, but with the following modifications.

In place of the pupil contracting, it always expands, and assumes nearly an oval form, as in ruminating animals, because the radiated fibres of the iris contract towards the canthi, particularly towards the internal one. See Tab. IV. fig. 5. At the same time the pupillary edge of the iris is so turned towards the lens, that the small circle of the iris entirely disappears. The pains now increase, become more severe, tearing and piercing as if the eyeball would burst; a symptom that the vitreous membrane is also affected with inflammation, which is soon sufficiently indicated by it and the vitreous humour becoming opaque. This opacity, which gives the appearance of a greyish-green colour in the bottom of the eye, announces the approach of Glaucoma. If the lens also take a share in the disease, it grows opaque, acquires a sea-green colour, and forms a Cataracta Viridis, better named by Beer, Cataracta

Glaucomatosa, and appears to swell out, either alone, or with the vitreous humour, and press towards the iris. In the mean time, the pains progressively augment, the varicosity of the eyeball increases, the sclerotica and choroid often form partial adhesions, terminating in nodulated swellings; the cornea acquires a dull, and as it were a cadaverous appearance, after which the vision is entirely destroyed, though the patient believes he still has occasional sensations of light, which however are only formed by the retina itself, independently of external impressions of light on the eye.

The Arthritic Ophthalmia, which is a pure product of Gout, sometimes runs a longer, sometimes a shorter course, is milder in dry weather and in summer, worse on the other hand in wet weather and in winter; it is sometimes pure, sometimes complicated with Syphilis, Rheumatism, &c., and appears generally in evidently gouty individuals; not unfrequently, however, it also occurs in people who

never suffered from gout, of which Morgagni* and Barthez†, among many others, adduce examples. A Gouty Ophthalmia is often also formed from a Rheumatic one, when an arthritic disposition is present.

The PROGNOSIS is in general very doubtful, for often, when the Surgeon believes that he has overcome the disease, a relapse occurs, because probably the general gout has not been, or cannot be removed; a relapse runs a more obstinate course than the original inflammation. If the arthritic iritis have attained its highest pitch, there is no hope of sight being restored. The prognosis is more unfavourable among the poor, than among people who can have proper attention paid to them. If the tunica vitrea be inflamed, Glaucoma takes place and the sight is lost. The prognosis is rendered unfavourable by complications with other

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* *Ephem. Natur. Curiosor.*

† *Abhandlung über die Gichtkrankheiten, übersetz. von Bischoff.*

diseases, but if the ophthalmia has commenced from a Rheumatic Inflammation of the eye, it is more favourable. In meagre, irritable individuals, in whom glaucoma and a diseased state of the retina do not form so readily, the prognosis is more favourable than in corpulent, dull, gouty people, in whom a disorganization of the vitreous humour advances very rapidly.

As the pupil contracts and the formation of Glaucoma is promoted by frequent recurrences of pains in and around the eyes, the treatment must above all things be directed against them; on this account let Opium with Saliva, or Tinct. Opii Croc. c. Linimento Volat. be rubbed upon the eyebrows; avoid at the same time all, even the least cold; apply externally dry, warmed bags of Aromatic Herbs, with and without Camphor, according to the irritability of the eye, and make derivations by issues, setons, and particularly by a salve of Tartarized Antimony, which is to be rubbed in, over the vertebral column, and in cases of greater danger, behind the ears. Very tedious gouty oph-

thalmiæ in people in whom arthritic affections never before existed, and the inflammation has no great disposition to destroy the precious textures of the eye, are often cured by inducing even a very slight attack of gout, by means of foot-baths with mustard, &c. which thus, as it were, give so much employment to the feeble diseased action in the foot, that it cannot divide its powers upon other parts.

Moreover, let the gout be treated according to rule, and endeavour to remove it entirely, as otherwise, relapses will be apt to take place occasionally, which are more dangerous to the eye than the original inflammation.

Of Variolous Inflammation of the Eyes.
Ophthalmia Variolosa.

It shows itself in three ways: either as an inflammation of the eyelids; as an external inflammation of the eyeball, or as a glandular inflammation of the eyelids.

The variolous inflammation of the eyelids, Blepharophthalmia Variolosa, is characterized by the following symptoms:

The eyelids swell at the time the eruption of small-pox appears, they also close and are covered with pustules of small-pox. As the inflammation always follows the same course as the principal disease, the eyes remain closed often till the ninth day, and open for the first time when the pustules dry. If the patients be endowed with a vulnerable cutaneous system, the inflammation is easily reflected on the conjunctiva of the eyeball, which is announced if the eyes be shut, by photophobia, a sensation of sand, or of larger bodies, in the eye, and by its dryness; on the other hand, so long as an increased flow of tears and no remarkable aversion to light are present, the inflammation continues limited to the eyelids.

The PROGNOSIS continues very favourable so long as the inflammation has its seat merely in the eyelids; care must be taken how-

ever, that no deformities of the eyelids remain, to which the careless management of the Surgeon may sometimes give occasion.

If the pocks be treated according to rule, and at the same time no irritation allowed to approach the eye; if rather, derivations from the inflamed parts be made by blisters, or the Cort. Meserii, enough has been done, so long as the pustules have not come to suppuration.

When the pustules however fill with matter, employ dry warmth over the eyelids by means of linen compresses, which, in weak people, are to be rubbed over with camphor. Further, the pustules on the eyelids are to be opened with a cataract needle, and the pus allowed to flow out, the parts are then to be softly cleaned with lukewarm milk, or with a mucilaginous eye-water, with Laudan. Liquid.; and afterwards well dried, so that no œdematous swelling may follow; lastly, restore to the eyes their wonted stimuli—dry, warm air, and moderate light.

If the blepharophthalmia variolosa extend and spread to the eyeball, then

The variolous external inflammation of the eyeball, Ophthalmia Variolosa externa, occurs, which presents itself *in the first Stage* with the following *Symptoms:* At first, redness of the conjunctiva only is observed, but soon of the sclerotica also, along with great aversion to light, stinging pains, and a flow of tears. At the end of this stage, turbid points in the cornea are observed, also fever, and even an affection of the iris.

In the second Stage, the redness and aversion to light decrease, the cornea becomes non-transparent at the turbid parts, the pain in the eye and the swelling of the conjunctiva increase, and at last pustules form on the opaque parts of the cornea, and fill with real matter; they seldom appear on the white of the eye.

The PROGNOSIS in the first, and even in the second stage is pretty favourable, so long as the pustules have not completely filled with matter, and iritis has not taken place.

Should however the pustules be filled, and break spontaneously, they frequently open externally and internally at the same time, and leave either cicatrices prejudicial to vision or staphylomata of the iris, which may produce an obliteration of the pupil. In like manner total staphylomata of the cornea, Hydrophthalmiæ, and staphylomata of the iris, sometimes remain, as consequences of the inflammation.

On account of this disease frequently terminating so fatally, it has not been deemed sufficient merely to cure it, it must be prevented when possible. To the prophylactic remedies celebrated for this purpose, belong particularly compresses, smeared with Camphor, and hung over the eyes, also a solution of eight grains of Sugar of Lead, in two ounces of Rose-water, with which the eyes are to be often moistened by means of compresses, and lastly, Lard, which is to be applied over each eye. The employment of these means however will be very seldom necessary

in the variolous disease, now progressively diminishing in the frequency of its occurrence.

In the first Stage, let the inflammation be treated with poultices of cold water, and apply a blister or cautery behind the ears, in order if possible to cause a derivation of the diseased action.

In the second Stage, open the pustules upon the cornea before they fill, and then use an eye-water suited to the state of the sensibility, for example, Solut. Lap. Divin. c. Laudan. Liquid. Sydenh., or streak the ulcers with Laudanum merely, and cover the eye with dry, warm, Aromatic compresses; lastly, use externally a weak, Red Precipitate salve, mixed with Opium. Baths also often prove beneficial. Should the disease however not entirely yield after the small-pox have run their course, but rather become obstinate, then, without delay, give Calomel, with Sulphur. Aur. et Herba Cicutæ, * which medicines have been found

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* ℞. Calomel.
Sulph. Aur. Ant. a gr. i.
Herb. Cicutæ, gr. ii.—iv. M. ft. Pulvis. This is

very useful by the most eminent Surgeons, of whom I shall only adduce Beer, Reil, and Scarpa. The Herba Digital., the Stipit. Dulcamar, the Herba Aconit. &c. have also been recommended. During the use of all these however, do not forget to aid the powers of restoration when necessary, by means of Calamus Aromat., Æther, Bark and Opium.

Variolous Inflammation of the Glands of the Eyelids. Blepharophthalmia Variolosa Glandulosa.

As the inflammatory stage is here very short, and generally passes over unobserved by the Surgeon, the first symptom of the disease is sometimes a more, at others a less severe blepharoblennorrhœa, with swelling of the edges of the eyelids. It commonly appears in weak-

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the doze for a child of ten years, and is to be given morning and evening.

ly, scrofulous children, either during the course of the eruption, or later, even sometimes two or three weeks after the pustules have run their course, and in that case occurs as a metastasis of the small-pox. Not unfrequently the blepharoblennorrhœa terminates in an ophthalmoblennorrhœa, in consequence of which, the cornea becomes of a white colour, and is converted into a mass of matter; the disease also propagates itself to the lachrymal sac, and often a blennorrhœa sacci lachrymalis remains for a long time.

The PROGNOSIS is very various, for sometimes the blepharoblennorrhœa continues for a long time, and does not extend to the eyeball, in which case it often leaves behind it red spots on the edges of the eyelids, and loss of the ciliæ; at other times it ends in ophthalmoblennorrhœa, and then causes staphyloma, or complete colliquation of the eyes.

The TREATMENT corresponds entirely with that of the pure blepharo- and ophthalmoblennorrhœa, only the internal medicines recommen-

ded under the head of ophthalmia variolosa externa are not to be forgotten; derivations from the eyes are also to be employed.

Of Morbillous and Scarlatinous Inflammation of the Eyes. Ophthalmia Morbillosa et Scarlatinosa.

Both these inflammations have this peculiarity, that when they are not otherwise complicated, they always make their appearance in the same manner as what are called, moist, serous, transient external inflammations of the eyeball, and generally occur before the eruption breaks out, in which case they keep pace with its stages. They often make their first appearance at the termination of the eruption, but only in weak scrofulous children.

On account of their great correspondence and resemblance to each other they are similarly treated.

First Stage.—The conjunctiva at the very commencement, and soon after the sclerotica, are observed to become somewhat reddened, combined with photophobia, a flow of acrid tears, which increases on every change of temperature or light, stinging pain in the internal parts of the eye, glittering spots on the cornea, and a secretion of acrid mucus from the nose, with a continual tickling, producing sneezing.

In the *second Stage*, the redness of the eye increases, the edges of the eyelids become very red and irritable, towards the canthi, the aversion to light augments, the tears lose their acrid quality, and from the formerly glistening, now muddy spots of the cornea, conical watery vesicles, *Phlyctenulæ*, arise, which burst and form ulcers, *Epicaumata*, which pour out a thin irritating discharge. If the matter of these ulcers sink between the lamellæ of the cornea, a disease of the eye takes place, called *nagel* of the cornea, and must not be confounded with a hypopium. *

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* By nagel of the cornea, onyx, unguis, ungula cor-

In this stage, a more manifest distinction is observed between the scarlatinous and the mor-

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neæ, is understood a collection of matter between the lamellæ of the cornea, and always has inflammation for its cause. These deposits of matter sometimes disappear after the inflammation has run its course, and if they have been inconsiderable, by the use of Laudanum, or irritating astringent eye-waters and salves, with or without the internal use of Calomel. If however they have been considerable, they must be opened with a cataract needle, so that they may not spontaneously burst inwards. The discharge from the opened corneal abscess is to be promoted by dropping decoction of mallows into the eye, with which may be mixed, some drops of Spt. of Camphor. Solutions of Lapis Divinus, or of the Sulphat of Zinc, with Laudanum Liquid., are at last sufficient to effect a cure. These abscesses of the cornea not unfrequently become old and dry when neglected, and must in that case be treated as directed under Specks of the Cornea.

That onyx may not be confounded with hypopyon, and specks of the cornea, the following distinguishing symptoms are to be observed: in hypopyon the matter lies at the bottom of the anterior chamber, and has a half-moon shape. Onyx, which is at first whitish, and gradually becomes yellowish, is very differently shaped. In hypopyon the matter changes its position according to its greater or less degree of consistence, by the motions of the head. These changes of position of the matter

billous inflammation of the eyes; for in the former the flow of acrid tears, and the aversion to light continue longer, the sclerotica becomes of a somewhat violet colour, shows a tendency to varicosity, and at the same time the ulcers which may exist extend more readily, and even attack the conjunctiva of the sclerotica. The iris also often partakes of the inflammation in the first stage.

Pure inflammation, *in the first Stage*, admits of a very favourable PROGNOSIS, but when it

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are observed very distinctly, if the patient lie during the night on one side, to which the matter then inclines. The onyx, on the other hand, is immoveable. If the matter be seated between the conjunctiva corneæ and the subsequent layers of the cornea, and the cornea be viewed laterally, it will be observed to be elevated at the diseased spots, and at the same time fluctuation may be felt, by examination, with the point of a probe; these circumstances are less observed when the matter has its seat among the innermost layers of the cornea. A leucomatous cornea is distinguished from onyx, particularly by its perfectly white colour, which in the latter is always of a more or less yellowish hue. The commencement also of both these diseases of the cornea affords hints of their nature.

occurs in a scrofulous patient, a scrofulous ophthalmia not unfrequently shows itself, against which a tedious struggle will often be required.

In the second Stage, and when ulcers already exist, the PROGNOSIS is more unfavourable. Irregularities and dimples are apt, in such cases, to remain upon the cornea. If much ichorous matter has been deposited between the lamellæ of the cornea, and absorption go on but slowly, an incurable crumpling of the cornea, *Phthis Corneæ*, *Rhytidosis*, may be the consequence. A previous iritis readily leaves behind it a contraction of the pupil, and a partial immobility of the iris.*

* In a very remarkable case of a girl of five years of age, suffering from a scarlatinous ophthalmia, and in whom a pretty severe iritis had taken place, I observed a slight cavity on the inferior half of the edge of the pupil, which, after full examination with the aid of a glass, I regarded as an ulcer. The cavity increased visibly in size, the iris suffered loss of substance at the diseased part, and became as it were so corroded, that after the diseased process had terminated, the under half of the edge of the pupil appeared indented. During the continuance of the disease, the aqueous humour was not perceptibly turbid.

In the first Stage, the CURE requires withdrawing the usual stimuli of the eye; hence the light of the chamber must be diminished, and bad, corrupted, and heated air, avoided; care also must be taken, by means of blisters behind the ear, or Mezereon in the arms, to avert the formation of the ulcers which usually occur in the second stage.

In the *second Stage*, apply dry, warm air, dry warmth by means of compresses, and, if the watery vesicles have burst, smear them with the Solutio Lapid. Divin., mixed with a large proportion of Laud. Liquid. Syd.; at the same time, warm baths are indicated, which however must of course be omitted, when in scarlatina there is a tendency to anasarca. Lastly, if the disease continue longer, and the rash have long since terminated, let Antimonials be given, particularly Sulph. Aur. Ant., also Camphor, and Sulphur Depurat; apply externally dry Aromatics with Camphor, the Solut. Lapid. Divin., mixed with Acet. Plumb. and Laud. Liquid. Sydenh., or

℞. Hydrarg. Mur. Corr. gr. i.
Muc. G. Mimos. ʒii.
Aq. Distil. s. Ros. ℥iv. M. solvendo.

and sometimes a weak Janin's ointment may be very carefully used, which, however, must be merely streaked upon the eyelids.

If no ulcers exist on the eye, but an increased sensibility, with a flow of tears, and redness of the conjunctiva continue for a long time, make use also of astringents, particularly of the solution of sublimate recommended above, with the addition of Extract of Hyosciamus, or of Laudanum.

Of Syphilitic Inflammation of the Eyes. Ophthalmia Syphilitica.

It is sometimes the product of a confirmed Lues, at others an irregular symptom of Gonorrhœa. In the first case it appears either as an iritis syphilitica, or ophthalmoblennorrhœa syphilitico-scorbutica; but in the second, it

always shows itself as a blennorrhœa of the eyelids and of the eyeball, and is called Ophthalmia Gonorrhoica.

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*Gonorrhœal Inflammation of the Eyelids and Eyeball. Blepharophthalmia et ophthalmia Gonorrhoica. Iritis Medorrhoica.**

It occurs either vicarious of a venereal clap, Ophthalm. Gonorrh. Vera., or from the eye being infected with gonorrhœal matter; in which case, the flow of matter from the urethra is not disturbed. †

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* Wendt calls it by this name (*die Lustseuche in allen, ihren Richtungen, und in allen ihren Gestalten, zum Behufe academischer Vorlesungen Breslau*, 1816, S. 79). Whether with propriety, will immediately become evident from the course of this form of disease.

† There are examples, however, where the morbid power of an inflammation of the eye, arising from infection, predominated so much over the urethral discharge, that the latter ceased spontaneously, after the ophthalmia had be-

The true gonorrhœal ophthalmia appears particularly in young robust subjects, and is very rare. Many experienced Oculists and Surgeons, (for example, Ware, Schwediaur, &c.) have never seen, nor treated it.

It appears in the following manner:

Some hours, days, and even a longer time after the clap in the male or female, has been quickly suppressed by taking cold, by astringent injections, by excess in spirituous drinks, by taking Balsamic medicines in the inflammatory stage, or other means, a swelling forms on the edges of both eyelids, which is of a bright red colour, hard, very painful, and quickly extends over the whole eyelid: it also quickly propagates itself over the conjunctiva of the sclerotica, and, in the same manner as in Pure Chemosis, throws up a wall around the cornea, which is of a more or less tile-red co-

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come established.—*See the observations of the Translator of Benjamin Bell's Treatise on Virulent Gonorrhœa.* I. Bd. S. 43.

lour; it is not, however, so hard, or of so deep a red, as in Pure Chemosis. At the same time, there is great aversion to light, and the pain increases so much in the eye, its neighbourhood, and the whole head, that the patient becomes feverish, and nearly furious.

The conjunctiva of the eyelids and ball, sometimes very early in the disease, begins to pour out, in great quantity, first a whitish, then a yellowish, or a greenish-yellow mucus, which, in appearance, corresponds very much with the matter of clap; at the same time the swelling of the upper eyelid increases in a frightful manner, becomes livid, and hangs down like a lump of flesh, covering the whole eyeball. At last matter forms in the eye, *Hypopyon*, the lamellæ of the cornea give way, and open up like the leaves of a much-read book, the cornea bursts, and a complete colliquation of the eye follows, unless aid be quickly afforded.

The course of this ophthalmia is generally completed in four days; however, there are cases where the inflammation has arisen weeks

or even months, after the suppression of the clap, or where the clap has not yet entirely disappeared; in such the disease always runs its course more mildly, and continues for a longer time. *

When the Surgeon is called early, and the copious secretion of puriform mucus has not taken place, the PROGNOSIS becomes pretty favourable as soon as he succeeds in restoring the gonorrhœa. When, however, suppuration has taken place in a high degree, in the internal and external parts of the eye, the organ is soon lost.

It is also to be remarked, in regard to the prognosis, that generally the disease attacks one eye only, † but that often both eyes are affected with this dangerous complaint; in which case, when the eye first attacked is in the greatest

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* *Reil, Memorab. Clin.* Vol. I. Fasc. 1. pag. 67. *Richter, a. a. O. Seite 63, u. a. m. Nennen sie dann Ophthalmia Gonorrhoica Chronica.*

† *Ph. Fr. Walther, Abhandlungen aus dem Gebiete der practischen Medicin. u. s. w.* 1810, I. Bd. S. 457.

extremity of danger, the symptoms of inflammation are but beginning in the other.

If the Surgeon be called at the very commencement of the inflammation, and the disease has begun a short time after the suppression of the clap, let a general and local * antiphlogistic treatment be immediately adopted, and endeavour above all things, according to Beer, to reestablish the gonorrhœa. † For this

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* This is best done by endeavouring, according to the advice of Spangenberg (*Horns Archiv. von.* 1812, *seite* 272) and Wendt, to render the diseased organ secreting the mucus—namely, the swollen and projecting conjunctiva—incapable of doing so, by cutting out a portion of it with the scissors, and allowing it to bleed freely.

† Many creditable Surgeons have scarcely considered it necessary to assist the cure by the reestablishment of the clap, because they found examples (Bell) of the inflammation running its course fortunately without this; much more frequently, however, in severe degrees of inflammation, the eye is lost if the clap cannot be restored. In the same manner that a Paraplegia arising from a repelled itch, and a Hepotitis, Metritis, Enteritis, or other such diseases originating from suppressed menstruation, are most quickly and best removed when the suppressed actions can be again restored, so also the ophthalmia gonorrhoica will disappear best if the gonorrhœa be reestablished.

purpose, apply poultices of white bread, milk, and saffron, or leaves of Hyosciamus, upon the penis, and renew them every two hours; the penis is frequently to be bathed with warm, but not too hot water; lukewarm oil is to be often injected into the urethra, apply also dry cupping-glasses upon the perineum, and introduce bougies into the urethra, either dry or smeared over with Precipitate salve, or gonorrhœal matter. Let no trouble be spared, for every minute that is lost may destroy the sight of the patient.

Should the blennorrhœa of the conjunctiva be great, injecting the Aq. Ophthalm. Conradi into the eye every hour, and at the same time causing a derivation in the neighbourhood of the eye (best upon the eyebrows,) are of great utility. The remainder of the treatment corresponds, in general, entirely with that given under blepharo- and ophthalmoblennorrhœa.

The Gonorrhœal Ophthalmia arising from touching the eyelids externally with gonorrhœal

matter, runs a very favourable course, almost never terminates in ophthalmoblennorrhœa, and soon yields to the ordinary means.

Syphilitic Inflammation of the Iris.
Iritis Syphilitica.

It appears either in people who suffer from a confirmed lues, or in those in whom former symptoms of lues have long since ceased.—This species of iritis extends less to the deeper lying layers of the eye, than to the external parts.

Symptoms of the disease.—A pale redness of the sclerotica, which forms a pretty broad zone around the cornea, more evident near to its edge, less so towards the periphery of the eye; dimness of the cornea, immobility of the iris, contraction of the pupil, which at the same time inclines towards the internal canthus, and upwards in the direction of the root of the nose, and consequently becomes also angular. A swollen state of the iris, which is also reverted

towards the internal chamber of the eye; from being swollen, it is likewise projected towards the cornea; also, aversion to light, and lachrymation, are the first symptoms of this disease. Lastly, *dolores osteocopi* also take place, which commence at the root of the nose, and extend along the course of the supraorbitary arch, to the external canthus. They come on in the evening after sunset, about five, six, or seven o'clock, attain their severest pitch about midnight, so that the patients cry and mourn from their sufferings, and relax about four or five o'clock in the morning.

After every such night of pain, the pupil is found more contracted, and turned upwards and inwards, the colour of the iris is changed, and shreds of coagulable lymph appear behind the pupil, and lessen the vision progressively. Should no aid be yet given, small elevated swellings, of a reddish or greyish-yellow colour, called cock's combs, Candylomata, Tab. IV. fig. 6, present themselves, as well upon the ciliary, as the pupillary edge of the iris. They often

fill up the whole anterior chamber, and may push forwards the cornea. At the same time, fatty ulcers sometimes form upon the cornea, and white of the eye, also *Gummata and Tophi*, which soon ulcerate, occur in the neighbourhood.

PROGNOSIS.—When the disease is at its commencement, if the Surgeon can give Mercury in sufficient quantity, and the exudation of coagulable lymph in the pupil be inconsiderable, the prognosis is favourable. But when the vision is entirely lost by a thick lymphatic network in the posterior chamber and in the pupil, a perfect restoration of sight cannot be hoped for. If condylomata, ulcers of the cornea, and nodes in the region of the orbit, be present, there is no hope of restoring vision; and if a disorganization of the vitreous humour, Synchysis, be added to these, which even the immoderate use of Mercury may induce, the patient, when cured of the iritis, does not retain the slightest sense of light. Should syphilitic eruptions and ulcers on the brow and

edges of the eyelids, exist at the same time with the syphilis, the roots of the ciliæ and eyebrows may be readily destroyed, and cause an incurable loss of the hairs, Alopecia, Madarosis. However, the hairs sometimes fall out in general syphilis, without any other evident local affection.

CURE.—It is necessary, above all things, to remove speedily the nocturnal pains of the bones; because, after every attack of them, the pupil becomes smaller, and in consequence of the deposition of lymph, grows progressively dimmer. To accomplish this indication, let the size of a pea of Mercurial ointment, mixed with Opium, * be rubbed into the region of the eyebrows every evening, and let the eye be covered with a well-warmed linen compress. If the nocturnal pains, however, become severe, the

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* ℞. Ung. Hydrarg. Cin. ʒii.
Tinct. Opii Croc. gtt. xv—xx. M.
The Pulv. Opii may be taken in place of the Tinct. Opii, only in that case the salve must be rubbed for a long time.

rubbing is to be repeated in the night time. At the same time, the general syphilis is to be treated; Sublimate or Calomel, with Opium, is to be given internally; when there is any apprehension for the lungs of the patient, avoid purging and salivation; in other respects, treat the syphilis according to the generally known rules. When the inflammatory state of the eye has been removed, let a weak solution of Sublimate, with Mucilage and Opium, be used locally as an eye-water, along with dry warmth. At last the application of a weak, Red Precipitate salve, is of advantage. Ichorous ulcers are to be washed with a lukewarm solution of the Lapis Divinus, after each application of which the eye is to be carefully dried. The use of the red salve is not to be begun till after the cure of these ulcers.

Syphilitic iritis is not unfrequently complicated with arthritis. In this case the symptoms, as might be expected, are a mixture of those of syphilitic and gouty iritis; only remark, that should the gout in the eye predominate con-

siderably over the syphilis, the bluish-white border peculiar to iritis arthritica, will be almost as distinctly expressed as in the pure gouty inflammation of the iris. See Tab. IV. fig. 7.

Syphilitico-scorbutic Ophthalmoblennorrhœa.

It occurs, according to Beer, in syphilitic patients who have not only neglected their disease, but who also, by other species of debauch ery and filthiness, have become so enfeebled, that they show marks of a scorbutic cachexia. In people of this description, a slight cause, for example, a catarrhal ophthalmia may produce the disease under consideration.

Symptoms.—An immense bluish-red, slightly irritable, inflammatory swelling, rapidly forms at the edges of the eyelids, without previous or suppressed gonorrhœa. A troublesome itching and burning of the eyelid merely are felt, and the stimulus of light can be borne. At the

same time, the conjunctiva of the eyeball becomes of a perfectly violet colour, and swells like a vesicle into several larger and smaller prominences around the cornea, and to such a degree that the immoveable eyelids can no longer cover it, and the lower eyelid often forms a violet-coloured, spongy ectropium, which readily bleeds. Those symptoms are accompanied with a great flow of mucus from the upper eyelid, and a weak, frequently intermitting pulse. In such patients, traces of existing syphilis and scorbutus always show themselves, the latter manifests itself particularly by bleeding gums, a stinking breath, and black corroded teeth. After the ophthalmoblennorrhœa has formed, the eye is lost by colliquation in a very short time, often, in from twelve to twenty-four hours.

The PROGNOSIS is very unfavourable, death often ensues.

CURE.—The treatment must be quite the same as in the second stage of pure ophthalmoblennorrhœa, but no Mercury is to be ex-

hibited against the existing syphilis, because the smallest doze induces frightful salivation, or colliquative diarrhœa.

Of Psoric Ophthalmia. Psorophthalmia.

There is scarcely an inflammation of the eyes which, till a short time ago, was so imperfectly defined as that now to be described. Even at present this imperfection exists, probably owing to our defective knowledge of chronic cutaneous diseases, which however, amidst the present labours of medical men to perfect this branch of the healing art, will not apply in future.

In former times every inflammation of the eyes was called psorophthalmia, in which the eyelids were affected with an itching pain, and were covered with crusts and ulcers; it was confounded with pure and mixed blepharoblennorrhœa; it was treated under the exanthematous ophthalmiæ, and distinguished

according as it was caused by herpes, crusta lactea et serpiginosa, tinea capitis, favus, scabies, &c.

At the present day, in consequence of the researches of Rob. Willan and Th. Bateman, the characteristic differences even of chronic cutaneous diseases have been sufficiently distinguished from each other, and it is known that the second and third order, according to the division of the above-mentioned physicians, namely, the scaly and pustular eruptions, in a particular manner have a disposition to attack the eyelids.

At present I shall consider that psorophthalmia, which can be induced only by the matter of itch, and actually deserves this name; at the end of the chapter however I shall add some remarks respecting psorophthalmiæ, as they are called, originating from other kinds of eruptions.

As the itch is known not to affect the skin of the face, it appears that the real psorophthalmia arises either after a sudden repression of

the eruption, in which manner however it does not often occur,—or from infection of the eyelids with the matter of itch. This real psoric ophthalmia, according to Beer, is found always as an inflammation of the eyelids.

Symptoms of this Inflammation.—A dark-red swelling forms on the edge of the eyelids, accompanied with severe itching, and small pustules grow every where on its surface, which at last burst and change into ichorous ulcers, accompanied with a burning itching pain. These ulcers afterwards enlarge underneath the crusts with which they are covered. Fresh pustules appearing in succession, the now increased swelling is found in a short time covered with them, giving to the eyelid the appearance of an opened fig, called Dasyma, Sycosis, Palpebra Ficosa. If the ichorous ulcers now penetrate very deep into the edges of the eyelids, the bulbs of the ciliæ are lost, Madarosis, Alopecia, and either trichiasis or an incurable entropium remains. It not unfrequently happens also in children, that

when they forcibly open the eyelids, which are firmly glued together in the morning, they produce a bleeding of their edges, and thus occasion their partial adhesion.

Prognosis.—If the psorophthalmia has been the consequence of an infection of the eyelids with the matter of itch, has been of short continuance, and the patient paid attention to cleanliness, the prognosis is pretty favourable. But if the contrary be the case, if a trachoma have already formed, or the conjunctiva bulbi been attacked, the prognosis is very unfavourable. When a psorophthalmia has been repressed by salves containing Lead, an opacity of the vitreous humour, Glaucoma, often follows, in consequence of which, the patient is for ever robbed of his sight.

Cure.—If the psorophthalmia be the consequence of an inoculation, the cure may be accomplished by topical treatment. Cleanliness is therefore to be observed, whilst the affected parts are to be often washed with a warm infusion of the Herba Scordii, at first without,

and afterwards, when pain and tension have subsided, with the addition of as much Hepar Sulphuris as the sensibility of the eye will bear. It is to be well dried off after every time it is used. If the ulcers now dry, but the skin lying underneath still remain red, irritable and moist, let the size of a lentil of the following salve be rubbed upon the eyelid every evening:

℞. Butyr. Recent. Insuls. ℥ss.
Sulph. Cupri. gr. x.
Camphor. gr. iv.
Tutiæ Ppt. gr. vi. M. exacte et fiat Ung.

If these appearances continue, this salve is to be exchanged for the following:

℞. Merc. Precip. Rub.
Butyr. Recent. Insuls.
Ceræ Flavæ. * M. exacte.

If these appearances do not yield even after the employment of this application, recourse

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* The proportions are not marked in the original. *Trans.*

must be had at last to Janin's Ointment; which however must seldom be used oftener than every second day.

If the existing psorophthalmia be the consequence of a repressed psora, general treatment must be conjoined with the local. For this reason, Antimonials, Sulphur or Camphor, are to be given internally. Sulphur baths are to be employed, and above all things an Antimonial Salve is to be rubbed into those parts of the body where formerly the eruption had been checked, or if these parts should be too far distant from the eye, the frictions are to be made behind the ear. If however the disease resist obstinately all curative measures, the repressed cutaneous disease must be reproduced. *

Those psorophthalmiæ which accompany any other chronic cutaneous eruption than the itch, or have appeared after their repression, may be

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* Callisen (*System der neuern Wundarzneikunst.* 1. Theil. S. 293) and several others say; that ophthalmia arising from repressed itch, and resisting all means of cure, is with difficulty healed if the eruption be not recalled.

properly distinguished by a due consideration of the kind of eruption, and treated agreeably to its nature. In regard to the prognosis of these diseases in general, when they are properly recognised, and are not inveterate or neglected, a favourable issue may in general be expected. There are eruptions however, which, when they extend to the eye, may become rapidly destructive. * Baths, other irritations of the skin, and derivations, frequent purgatives, along with the greatest cleanliness, may be recommended in such cases as general means of cure, which will be seldom contraindicated, at the

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* I treated, a short time ago, a child of two years of age, who suffered from what are called by Wichman, crusta serpiginosa; the eruption had appeared nine days before, and had extended the second day, over the eyelids, particularly of the right eye. When I carefully opened the glued-up eye, I discovered a perfectly formed staphyloma of the cornea. The conjunctiva bulbi was little reddened in the other eye, however, the eruption had also approached nearer to this eye within the last two days, but its farther extension was prevented.

same time however the cutaneous disease must be treated suitably to its particular nature. *

Psoriasis, Porrigo, and the Impetigines, in a particular manner, extend readily over the eyelids.

The local treatment varies according to the degree of obstinacy of the disease, and the sensibility of the patient. Success is often obtained by the topical means which have been formerly mentioned under pure Psorophthalmia, after the crusts which cover the eyelids have been previously softened by smearing them with Almond Oil, or bathing them with warm water or milk. If obstinate excoriations and ulcers of the eyelids exist, particularly in torpid people, recourse must be had to stronger measures, for example, to the Ung. Citrin. or to the careful employment of the Lapis Infernalis ; these means however are seldom

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* See Thom. Bateman, *pract. Darstellung der Hautkrankheiten, nach Willans System bearbeitet. Uebersetzt von Abraham Hanimann, mit vorrede und Anmerk. begleitet von Kurt Sprengel.* 1815.

applicable in children. Sometimes a cure may be expected from the use of a salve of Zinc, or the Ung. Hydrarg. Alb.

Of Scrofulous Inflammation of the Eyes. Ophthalmia Scrofulosa.

No ophthalmia occurs more frequently than this. Professor Beer reckons that in Vienna, ninety of a hundred cases of ophthalmia are scrofulous. *

The Surgeon is seldom called so early as to treat the active inflammatory stage, as it runs its course very rapidly.

Scrofulous ophthalmia varies in regard to its

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* The proportion of scrofulous ophthalmiæ to the others, appears to be equally great in the north of Germany. In Italy, on the contrary, and particularly in the southern districts, at a distance from the sea, I have very seldom observed scrofula and scrofulous ophthalmia, even among the poorest classes, who make use of their indigestible polenta, a coarse country bread, at almost every meal.

seat, for sometimes the eyelids merely are attacked, in which case it is called *Blepharophthalmia Glandulosa Scrofulosa*,—or, secondly, the anterior part of the eyeball is also inflamed, and then it is called *Ophthalmia Scrofulosa externa;* at other times, the lachrymal sac is the affected part, and then it gets the name of *Blennorrhœa sacci lacrymalis Scrofulosa*, also *Dacryocystalgia cacochymica, Dacryoblennorrhœa*, scrofulous clap of the lachrymal sac. The second form usually exists along with the first, or at least is apt to appear afterwards, on which account both may with propriety be considered in connexion.

Symptoms.—The edges of the eyelids become slightly reddened and swollen, along with a sensation of burning, lachrymation, and aversion to light, which are more severe in irritable lively people, of acute sensibility, than in those who are callous and flabby. An unusual secretion of mucus from the Meibomian glands is present from the commencement, in consequence of which the eyelids

generally glue together. At the same time the tears are so acrid, that they excoriate the parts with which they come in contact, and frequently induce an œdematous swelling of the parts surrounding the eye.

The conjunctiva bulbi now gradually partakes of the inflammation, and is covered with a diffused redness. Clusters of blood-vessels, all running concentrically towards the cornea, are observable, some of them extending over the edge of the cornea and even reaching its centre. The sclerotica reddens, and in torpid people pustules appear at the extremity of the bundles of vessels, which sometimes change to ulcers, see Tab. IV. fig. 8; frequently they form fungi. The ulcers perforate the cornea, and when the iris has fallen into the opening, a staphyloma is produced; on the other hand, in scrofulous subjects who are lively and of great sensibility, watery vesicles, Phlyctenulæ, take place, which burst and frequently produce a true hernia of the cornea, Ceratocele. In the latter class of patients, also, there

are not only much more aversion to light, and more frequent, continued, painful spasms of the eyelids, but a more frequent termination in iritis and total staphyloma of the cornea thereby produced, than among patients of dull, torpid habits. The appearances of general scrofulous disease, when it exists in a considerable degree, may accompany these symptoms, or if the patient have merely a slight disposition to scrofula, no such appearances may be observed.

Scrofulous ophthalmia seldom terminates in blepharoblennorrhœa and ophthalmoblennorrhœa, more frequently in callosity of the edges of the eyelids, Tylosis; sometimes also a loss of the ciliæ, Milphosis, Ptilosis, which however generally continues but a short time, because the roots of the eyelashes are not destroyed.

The following is to be remarked in regard to the PROGNOSIS: this ophthalmia is generally very tedious, and so long as the scrofula is not removed, it very readily relapses,

particularly in autumn and damp weather. If the eyelids only be inflamed; if the disease has not continued long, and the scrofulous diathesis be not great, the prognosis is favourable. But if frequent relapses have already taken place; if the edges of the eyelids have already become indurated; or a blepharoblennorrhœa be present, the prognosis is much more unfavourable. It is still more so however, if in very scrofulous people the conjunctiva of the sclerotica and of the cornea be also inflamed and ulcerated. It will be in the highest degree so, if ulcers occur in delicate, irritable people, in whom the disease extends far more rapidly than in those who are torpid; and if the iris fall into a hernia of the cornea which has already taken place, and thus form a complicated ceratocele; or if the inflamed iris adhere to the whole cornea, and produce a total staphyloma of this tunic.

The TREATMENT is partly general, partly local. The general treatment is sufficiently known; the following however may be remark-

ed. For unirritable, dull and stupid scrofulous patients, the proper antiscrofulous medicines, in combination with wine and tonic, stimulating medicines, are the most suitable; to irritable and delicately formed people, on the contrary, mild, volatile, tonic medicines are to be administered without any spirituous drinks.

At the commencement of the disease, when the ophthalmia is very severe and painful, and even on the increase, the use of Tartris Potassæ, in combination with Rhubarb and Tartris Antimonii, in small dozes, or of the Liquor Ascetitis Potassæ Spirituosus, * with or without Rhubarb, has been much recommended. But when the inflammation has abated, and the pain diminished, proceed without delay to the use of Bark in powder or decoction, and combine it with Cicuta, Bitter Extract, Calamus Aromaticus, or the Tinct. Guaiac. Vol. of which four or five drops three times

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* ℞. Acet. Potassæ pt. i. solve in.
Spt. Vin. pt. iv.

daily are sufficient for a boy of ten years. In like manner the Æthiops Antimonialis has been recommended, at first in a doze of ten grains a-day, gradually increased to twenty, which is to be continued for fifty or more days in succession.

A strong diet is particularly powerful in the CURE of scrofula, and is to be given according to the above-mentioned distinctions of scrofula.

The local treatment is regulated like the general, according to the stage of the inflammation, for though the properly active stage be seldom severe, and generally run its course so rapidly as to elude the observation of the Surgeon, yet the scrofulous ophthalmia, even after that stage is over, requires more gentle means than at a later period, provided it has not existed for a long time.

At first, therefore, so long as pain, aversion to light, and dryness of the eye are present, apply warm poultices, or fomentations of Cicuta Leaves, or of Poppy heads, with some

Hyosciamus, which are to be often renewed, particularly if spasmodic shutting of the eyelids, Blepharospasmus, occur, in which case salve made of narcotics, with Ung. Hydr. Ciner. may also be rubbed in around the eye, or if the salves disagree with the skin, use the following from Graefe : *

℞. Pulv. Ext. Belladon. Siccat. gr. x.
—— —— Hyosciam.
—— Opii Pur. a. a. ℈ i. M.

To be mixed with saliva and rubbed into the neighbourhood of the eyes.

By degrees let the Surgeon proceed to the use of slight astringent eye-waters, for which purpose, according to Scarpa, a decoction of Hyosciamus Leaves, with some drops of Aqua Veget. Mineralis and some Tinct. Thebaica, of the London Pharmacopæia, is much to be recommended.

The topical treatment of scrofulous inflammation of the glands of the eyelids, corresponds

* *Repertorium augenarzlicher Heilformeln.* 1817. S. 52.

entirely with that of the passive stage of blepharophthalmitis glandulosa pura.

If blepharo- or ophthalmoblennorrhœa has taken place, the local treatment is to be conducted according to the principles laid down under ophthalmia neonatorum.

When there are excoriations of the edges of the eyelids, and a disposition to induration, the use of saturnine medicines is to be entirely avoided. Let the Surgeon rather immediately make use of a Red Precipitate salve, in order to prevent a commencing tylosis.

But if the precipitate salve do not operate favourably on the disease, and the edges of the eyelids be in a very callous state, their internal surface is, according to Wardrop, to be scarified, and allowed to bleed freely, and then the above-mentioned salve applied, by means of a hair-pencil. This treatment, according to that English oculist, will procure the most marked benefit in a short time.

When the conjunctiva of the eyeball is inflamed and pustular, in irritable, stupid patients,

the pustules must be opened by a weak solution of Sublimate, with Mucilage and Laudanum, and the open ulcers healed by dry warmth, and a solution of the Lapis Divinus, mixed with Laudanum. If fungi form around the ulcers, or a staphyloma iridis take place, the Laudanum Liquid. Syd. must be streaked into the eye twice daily. But if an onyx should form, not only must the Laudan. Liquid. Sydenh. be used, but Calomel must also be given internally, in strong dozes, that the absorption may proceed the more promptly and vigorously.

If the patients be very spirited and irritable, all strong and alterative medicines must be avoided. A green shade is to be worn when there is an aversion to light, and the Ung. Tart. Ant. is to be rubbed in over the vertebral column, or behind the ears. If phlyctenulæ form, a tepid, mucilaginous eye-water, with Laudanum, without Sublimate, is to be employed. If the vesicles burst, a solution of the Lapis Divinus, with a considerable proportion of Laudanum Liq. Syd., is useful. If they threaten

to induce a hernia of the cornea, add a little of the Acetate of lead to the latter eye-water, and let the hernia be streaked over, at least once daily, with the Laudan. Liquid. Sydenh.

Should pannus occur, along with severe inflammation, let a leech be applied to the internal canthus. But if a real staphyloma threaten, it is to be stifled by the method of Beer, described under pure iritis.

The itchy eruption, often discharging some moisture, which sometimes appears around the eyelids, yields commonly to a solution of the Hepar Sulphuris, in a decoction of the Leaves of Scordium (Water Germander).

The Hordeolum Scrofulosum, which is frequently met with, and distinguished from others by its great disposition to terminate in induration, chalazion, hail-stone, may be treated like pure stye, only every means must be used to bring on suppuration; for which purpose, poultices of Cicuta, Saponaria and Camphor, are the most advantageous. When, from bad treatment, or in irritable people, the stye changes

into a real carbuncle, the treatment is the same as in gangrene.

Scrofulous puriform discharge from the Lacrymal Sac. Blennorrhœa Sacci Lacrymalis Scrofulosa. Dacryocystalgia cacochymica. Dacryoblennorrhœa.

No manifest symptoms appear in unirritable subjects; in irritable, lively people, on the other hand, the inflammation of the lachrymal sac shows itself, even on superficial observation, in the form of an anchylops erysipelatosa. If the examination be more strict, a hard, bean-shaped swelling is found in the site of the lachrymal sac, which, when pressed upon, discharges thin, sometimes thick mucus, through the lachrymal puncta, but never through the nasal canal; in consequence of which, the nostril of the affected side is dry. This blennorrhœa is apt to become habitual, or should it disappear, readily relapses. Moreover, it di-

minishes when the weather is dry and warm, and increases when moist and cold.

The PROGNOSIS varies according to the duration and degree of the disease.

If it has already relapsed repeatedly, or become habitual, a cure is very seldom possible; however, it often disappears on the approach of manhood, and in women after the first pregnancy, without the aid of surgery. If it terminate in a fistula of the lachrymal sac, not only is the nasal canal obliterated by adhesion, but also, in general, the lachrymal sac. An impervious state of the nasal canal, and a consequent stillicidium of tears often also remain, without any fistula of the lachrymal sac. Unless the accumulated mucus of the lachrymal sac be frequently and carefully pressed out, a hernia sacci lacrymalis will often follow. If the canaliculi and the nasal canal get impervious, in consequence of hard mucus remaining in the sac, a hydrops sacci is often the consequence.

CURE.—Anel's syringe is not to be employed

for the purpose of introducing medicines, and probes are not to be passed through the puncta; the callous swelling of the lachrymal sac is rather to be diminished by rubbing Mercurial ointment upon it, and by streaking into the internal canthus, sometimes stronger, at other times weaker Precipitate salves, which, spontaneously absorbed by the active puncta, will be carried into the diseased lachrymal sac. In other respects, the treatment corresponds entirely with that of pure inflammation of the sac.

Scorbutic Ophthalmia. Ophthalmia Scorbutica.

The sclerotica is covered with a violet redness, which, soon extending to the conjunctiva bulbi, renders it varicose—see Tab. IV. fig. 9. At the same time, there is a very peculiar aversion to light, and a dislike to glittering objects. The cornea becomes muddy and cadaverous, also the aqueous humour; the iris projects towards the cornea, and varicose blood-

vessels, running in a concentric direction, are observed in the former membrane, on the appearance of which it becomes immoveable, without being either considerably expanded or contracted. At the same time, the motions of the eye are more sluggish, and extravasations of blood spontaneously form in the varicose conjunctiva; blood even appears in the anterior chamber. The vision, hitherto weak, now disappears entirely; the sclerotica rises around the cornea in dark-blue swellings, called staphylomata scleroticæ, and sometimes, along with epistaxis, a flow of tears resembling washings of flesh, occurs, accompanied in general with all the other known symptoms of scurvy.

Prognosis.—A perfectly established ophthalmitis, in a scorbutic patient, admits of no hope of recovery. If however the scorbutic diathesis exist merely in a slight degree, the prognosis is less unfavourable. It occurs very seldom, and when the patient is highly scorbutic, attacks both eyeballs throughout their substance.

The CURE of this ophthalmia depends on that of the general scurvy; for, with the exception of dry warmth, the eye does not bear local means. Yet, according to Beer, what are called Antiscorbutic medicines ought on no account to be employed for the general cure of the scurvy; an attempt is rather to be made by means of a general tonic treatment, to excite the powers of the patient, and thus gradually to remove the disease.

Fig. 1.

Fig. 2.

Fig. 3.

Fig. 4.

Fig. 5.

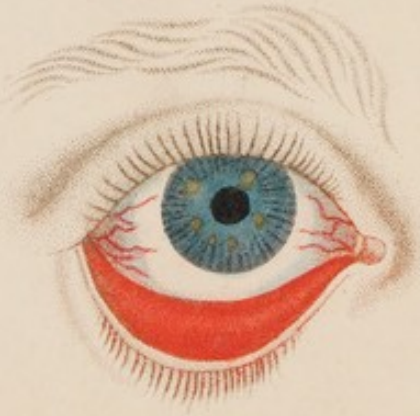


Fig. 6.

Fig. 7.

Fig. 8.

Fig. 9

Joseph Swan Sculpt Glasgow

EXPLANATION OF THE PLATES.

PLATE I.

Figure 1.

This eye, painted by me from nature, belongs to an aged woman, who formerly suffered frequently from spasmodic fits even of the eyelids; this, as well as a relaxation of the external skin of the eyelids, gave rise to the total inversion of their edges (Entropium) observed in the figure. The inverted ciliæ are only remaining in part, and are connected here and there, in small bundles, by a gluey matter secreted by the Meibomian glands. The edges of the eyelids are somewhat hard, thicker than usual, and exhibit a circumscribed redness. The surface of the eyeball has been long in an inflamed state, which, particularly at first, was accompanied with constant, pretty severe pains, and aversion to light: the pains are now inconsiderable, but the

aversion to light still exists. The under half of the cornea, in consequence of the lingering inflammation, has become leucomatous, and even the remainder of this membrane has no longer its natural clearness. The perfectly round, but contracted pupil, is yet worthy of being remarked.

Figure 2 and 3.

I have borrowed both these figures from Saunders (see his work). Fig. 2 represents an open eye, from which the tarsi have been cut out, agreeably to the method of curing entropium described by that Surgeon. Fig. 3 exhibits the same eye when closed.

Figure 4.

The ciliæ have lost their natural direction in the upper eyelid, though it retains its proper position. Trichiasis is also to be seen in this figure, which, by way of distinction from that represented in Fig. 1, may be called Pure Trichiasis. In the under eyelid, which is drawn a little down, an unequal double row of ciliæ is observed. I copied both these affections of the eyelid from a figure in Demour's *Traité des Maladies des Yeux*, Paris, 1818.

Figure 5.

Without having any previous conception of the disease of the eyelid, so very perceptible in this figure, an

eversion of the under eyelid, Ectropium, may be recognized.

The painting is taken from a tanner of middle age, who previously suffered from frequently returning and much neglected blepharophthalmiæ, which by degrees corroded considerably the external canthus; in consequence of which, the palpebral conjunctiva, particularly that of the lower eyelid, became swollen, and at last a very visible ectropium was induced. The Meibomian glands still secrete much mucus, particularly in the morning, and the tears run frequently down the cheeks, because, as may be seen, the punctum lachrymale of the under eyelid is everted, and has become unfit for absorbing the tears. The conjunctiva of the under eyelid is moreover considerably swollen, and of a scarlet red colour, which had been somewhat increased, in consequence of the parts having been rudely cleaned, without my permission, immediately before the painting was taken.

Brownish points may be also observed in the iris, around the pupil, which represent what are called rust-specks, and are commonly met with of a much lighter colour, falling into a reddish-brown. I have never observed these specks in children, but always in old men. They have been held as sugilations, and as consequences of previous inflammation of the iris; however, they are often met with in people who have no trace of previous iritis; they would appear rather to take their rise in

the same manner that the small ring of the iris, yea even its whole surface, changes to a brownish colour from age. See Tab. II. fig. 6, &c.

Figure 6.

This eye, which I have taken as correctly as possible from a dirty Jew, has two different diseases. A longish swelling is observed under the internal canthus, which has extended downwards into a purse-like shape. It is a dropsy of the lachrymal sac, which, however, it is worthy of remark, is not in the situation where this dropsy usually appears, according to the anatomical position of the parts; for, in this case, the external opening of the *Canalis Lachrymalis Oss.* appears to extend unusually low down. The swelling is pretty hard, insensible, and on pressure does not allow any mucus to escape by the puncta lachrymalia, or by the nasal canal, and consequently does not diminish in size. At the same time it does not always retain the same size, but decreases almost always, according to the observation of the patient, during the increase, and enlarges during the wane of the moon.

The patient assured me, moreover, that the swelling had at a former period become softer, and that, upon pressure, mucus made its appearance at the nasal canthus. It appears from this, that formerly only a Hernia Sacci was present, which however, by complete neglect, and a low, dirty manner of living, had now terminated in a *Hydrops Sacci Lachrymalis.*

He had also in this eye, one, or rather two, what are called fatty specks, lying close to each other, and scarcely elevated above the surface of the eye; on which account their excision (by which means I removed them) was rendered somewhat difficult.

Figure 7.

This eye of a boy, taken from *Wardrop's Essays on the Morbid Anatomy of the Human Eye*, represents an inflammation of the conjunctiva of eight days' duration. The upper eyelid is somewhat raised, in order to show the eyeball better. The scarlet-red blood-vessels in the conjunctiva divide in all directions, but anastomose only in the parts at a distance from the cornea, and do not enter the latter tunic. The conjunctiva is little swollen, the eyelids however are considerably so, and the latter have a velvet-like appearance on their inner surface. The ciliæ are glued together by a puriform, fluid matter, particularly observed on the under eyelid. The blood-vessels in the inflamed conjunctiva are evidently too large, particularly in comparison with the vessels of the sclerotica, which, for the most part, are very fine; this difference will be observed when the eye is placed alongside of another in which the sclerotica is inflamed. The blue circle around the cornea is here also worthy of notice, as it almost resembles an arcus senilis. Such opacities of the edge of the cornea are rarely met with; however, they have been observed of

very various appearances, in widely different people and ages.

Figure 8.

This eye is painted by me from nature, and belongs to a man thirty years of age, who, for a year and three quarters, suffered from frequent and neglected relapses of rheumatic ophthalmia, which, in consequence of his great disposition to such affections, was induced by every cold and current of air. Pannus of the cornea showed itself from the commencement; its progress, however, was several times not only arrested by military physicians, but was once almost entirely removed; it always however returned, whenever he got slight rheumatism from an error in diet. When I painted this pannus of the eye, it had been for three days violently inflamed by a new attack, and was of a bright red. I have here strongly drawn up and everted the upper eyelid with the finger, so as to allow the observation of a greater surface of the eyeball and internal surface of the palpebra. The whole anterior surface of the eyeball is covered over as with a thick red veil. The limits of the pupil and cornea can scarcely be distinguished, however, the upper part of the latter appears less covered over with vessels, it is rather of a greyish-red and of a dull colour, and at this place the iris may be perceived. The more the large and small blood-vessels empty themselves, and the more the inflammation abates in

Fig. 1.

Fig. 2.

Fig. 3.

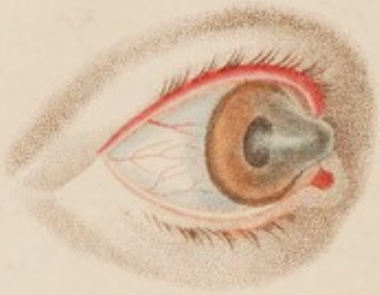


Fig. 4.

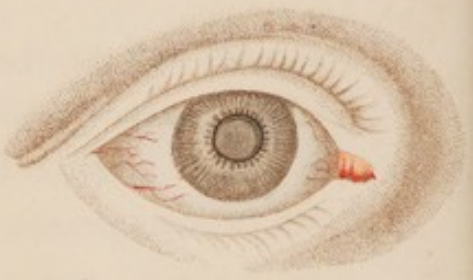


Fig. 5.

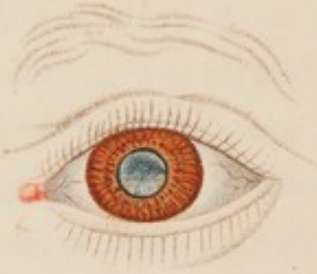


Fig. 6.

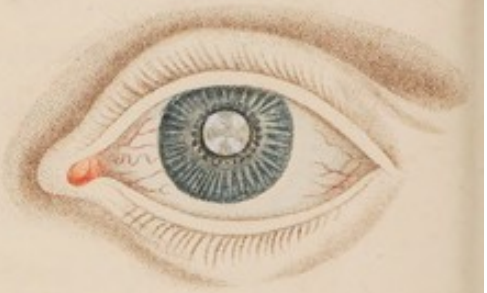
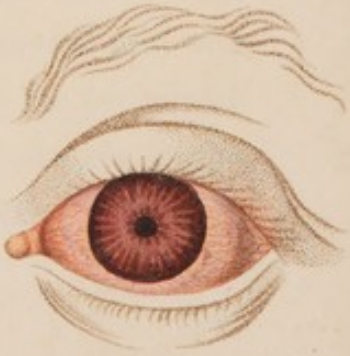


Fig. 7

Fig. 8.

Fig. 9.

Fig. 10.



Joseph Swan. Sculp.t Glasgow.

activity, the colour of the white of the eye acquires, as is usual, a more dirty red, and the cornea appears of a more dirty greyish-red. The inner surface of the eyelid is also very red, as may be observed in the upper one, but here the colour is more of a vermillion colour than in the eyeball.

Figure 9.

This figure is a true copy of an original painting in Wardrop's Essays, &c. and gives a very distinct representation of a common Pterygium. Its basis is firmly attached to the membrana semilunaris, its apex extends somewhat over the cornea, where it is fixed as at its basis, but lies loose and spongy (at least generally) on the surface of the eye. Pterygium is sometimes thick, at others thin; it may be semitransparent or opaque, it may have an acute point directed towards the centre of the cornea, or it may be blunt or irregular.

PLATE II.

Figure 1.

Two cicatrices are observed on the cornea of this eye, the smaller of which, *a*, appears perfectly distinct, but the larger, *b*, is furnished with an opaque circumference, which extends chiefly towards the pupil, and interferes with the sight more than the cicatrix itself.

As such cloudy opacities of the cornea may be readily removed, but cicatrices remain incurable, it is evident how much improvement of sight may be gained in this case. *(Beer.)*

Figure 2 and 3.

Both figures exhibit the conical projection of the cornea. It is observed in both, that the highest point of the projected cornea includes its centre, as is almost always the case. In the 2d. Fig. copied from Wardrop, sketched only in outline, the disease is much evolved; but in Fig. 3 there is a particularly large conical projection of the cornea, which seldom occurs. Moreover the cornea may be distinctly recognized as perfectly transparent in this case. *(Demours.)*

Figure 4.

This represents the eye of a man eighty-three years of age, who formerly enjoyed good health; it contains a perfect, pure, and pretty hard lenticular cataract, which required fifteen months for its completion. The crystalline lens has assumed a uniform greyish colour, fluctuating somewhat to a yellowish green, and is still distant from the iris, on which account a distinct shadow is recognized behind the black edging of the pupillary edge of the iris. The shadow is thrown by the iris upon the lens, now rendered visible by its opacity. That the opacity has its seat in the lens only, may be more than pre-

sumed from the mere observation of this eye. The iris is sluggish, but yet moveable, and has changed by degrees its former bluish-grey colour into that represented here. At the same time, a dark line at the pupillary edge of the iris may be observed, which is never visible in those cases in which the naturally black pupil appears to the observer of a lighter colour merely than usual, in consequence of muddiness in the posterior chamber, or deeper parts. Moreover this patient, whose eye I have drawn as faithfully as possible, had a distinct sense of light, but could, even towards evening, when of course the pupil was dilated, distinguish nothing.

Figure 5.

This figure shows as distinctly as is in the power of the pencil, a pure *Cataracta Morgagni*, in which, consequently, neither the lens nor the anterior capsule of the lens is opaque. Cloudy, bluish-grey shades are observed in the pupil, representing the coagulated liquor morgagni. Its thicker and finer parts fall down when the head has been long at rest, so that a thinner, more transparent layer is always visible above this thicker and more opaque portion, which circumstance even Professor Beer (from whom I have exactly copied the figure) had taken care to represent. If the lens or its capsule become opaque, these appearances cease to exist. The shadow of the iris is wanting; its dark border only is visible.

FIGURE 6.

In this figure, painted by me from the very large eye of a man sixty-two years of age, a Capsulo-Lenticular Cataract can without trouble be recognised. The anterior capsule is clearly perceived in the pupil in the form of four teeth-like processes, which glisten like spermaceti, and inclose a greyish cross, consisting of the capsule of the lens, which still continues transparent, and at this part allows the pale-grey and opaque lens to be seen. The cataract is so bulky, that not only no trace of a shadow of the iris is visible on the cataract, but the latter even presses the iris somewhat forwards, and renders it arched. That the posterior chamber must in this case be entirely abolished, that the dark border at the small ring of the iris must be very visible, and the iris immoveable, is certain from what precedes. It is moreover worthy of remark, that the opacity of the capsule in this case has extended from its posterior to its anterior parts, whereas the contrary is generally the case in old people.

FIGURE 7.

This figure exhibits a *dry hulled Capsulo-Lenticular Cataract* in a child, drawn from nature by Beer. The crumpled capsule of the lens is readily discovered, which in this case must lie far behind the pupil, because the iris throws a considerably broad shadow up-

on the cataract, on which account the dark border on the small ring of the iris is hardly conspicuous.

Figure 8.

This figure represents a Glaucomatous Cataract, which in this case was not accompanied with arthritic inflammation, and was the consequence of a previously established glaucoma. This cataract existed in a very flabby woman, forty-eight years of age, who suffered from most severe general gout after the cessation of the menses. The cataract has that sea-green colour which has procured it the name of Cataracta viridis; the greenish colour however is not unfrequently wanting, on which account the latter name is not admissible, the less so, as there are cataracts approaching to a greenish colour, which in other respects have no resemblance to a glaucomatous cataract. The much swollen lens, still inclosed in its capsule, projects in this figure over the under pupillary edge of the iris, in consequence of which the upper pupillary border of this membrane appears distinctly turned backwards. The pupil, which resembles that of ruminating animals, as also the bluish, scarcely visible border around the cornea, the dirty colour of the sclerotica, and the scattered network of varicose blood-vessels in the conjunctiva of the eyeball, prevent this kind of cataract from being mistaken for any other. *(Beer.)*

All these species of cataract here exhibited become

particularly interesting and useful when compared with each other.

Figure 9.

As I travelled from Rome to Ancona, in the year 1817, I had an opportunity in an inn at Loretto, (not far from Santa Casa,) where I lodged, of copying this interesting dropsical eye, belonging to a woman of forty-two years of age. A mere look, shows, that the aqueous humour in particular is at present in greater quantity than it ought to be, however the vitreous humour seems also to partake in some degree of the disease, for already the blackish iris is observed to be somewhat pressed forward. The whole eyeball was evidently oblong, and moved sluggishly, at least much more so than the other perfectly sound eye; the pupil was not much longer than in the natural state, but perfectly immoveable; the sclerotica around the cornea appeared of a bluish colour, in other parts however the white of the eye had assumed a colour tending to lividity, but few varicose vessels were seen on the external surface of the eyeball. The cornea was clear and transparent, and the whole eye had a peculiar glassy appearance, which is always met with in dropsy of the eye. The vision was very weak, and the edges of the eyelids were always moist and glutinous. The patient, who was of a choleric temper, related to me that she had received a blow with a fist on this eye a long time ago,

Fig. 1.

Fig. 2.

Fig. 3.

Fig. 4.

Fig. 5.

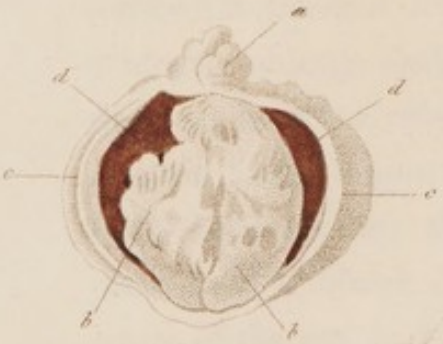


Fig. 7.

Fig. 8.

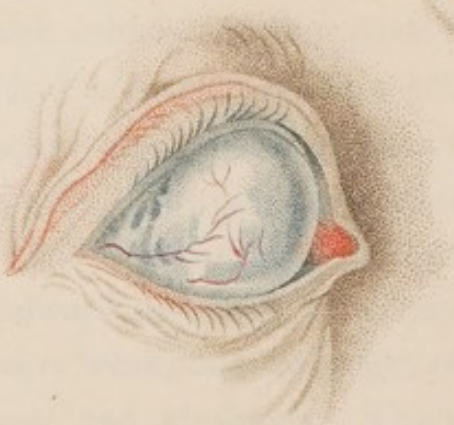


Fig. 6.

Fig. 9.

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which had caused much redness and pain for a considerable time. From the period of this accident, the sight was always very weak, and she had a sense of constantly seeing mots. The dropsical state of the eyeball had formed by degrees.

Figure 10.

This brown eye suffers from a Pure Iritis, still in the first stage. The pupil is as yet round, but considerably contracted, it no longer appears of a jet black, as in the natural state, but (particularly when observed with the assistance of a glass) has already become dull and of a pale black, in consequence of which, the pupillary border of the iris is indistinct. At the same time, the change of colour of the iris produced by inflammation is observed, particularly commencing from the internal smaller ring, in consequence of which the bulging projection of the latter towards the cornea, cannot be overlooked. This figure becomes particularly interesting when compared with and distinguished from the 7th Fig. of the third Plate, which represents the Pure Internal Ophthalmitis commencing from the innermost structures of the eyeball. *(Beer.)*

PLATE III.

Figure 1.

This represents the second stage of a Pure Iritis,

in which two different collections of matter have already formed on the iris. The one of these bags of matter has already burst and thrown its contents into the anterior chamber, by which an actual hypopyon has taken place. The matter resting at the bottom of this chamber moved according to the motions of the head, and the flakes of the burst bag, hanging on the iris, still fluctuated in the aqueous humour. The other bag of matter, which is here still entire, burst a very short time after Beer had painted this figure. Moreover the previously blue iris has become green and swollen around the pupil, and the latter appears contracted, angular, and muddy, from effused coagulable lymph. The pupillary edge of the iris is funnel-shaped, and turned towards the anterior capsule of the lens.

Figure 2.

This *Amaurotic Cat's Eye*, copied from Beer, belonged to a woman forty-two years of age, who was thereby rendered completely blind. The iris, as may be observed, is very pale, the pupil dilated, and on every impression of light the concave posterior surface of the eyeball (which in this case is of a red colour) becomes visible in the bottom of the eyeball. The shining appearance in the eye, observed only in certain positions of the eyeball, when in a half-dark place, and which peculiarly gives occasion to the name of this amaurosis, could not be represented in the figure.

Figure 3.

This figure, painted by Beer, will without difficulty be recognised as representing a completely formed Gouty Amaurosis. In the enlarged oval pupil resembling that of ruminating animals may clearly be distinguished, the greenish-black opacity of the disorganized vitreous humour; the iris is also observed to be changed in its colour, and varicosity is visible on the white of the eye. A glaucomatous cataract, and at length an atrophy of the eyeball readily supervene upon this amaurosis, in a longer or shorter period of time, after which the gout ceases in the organ.

Figure 4.

This figure gives a conspicuous representation of a Fungus Hæmatodes of the Retina. The patient was treated by Astley Cooper. No attempt of cure however was made, because the disease had gone as far, as is here represented, before he was consulted. The swelling projecting from the orbit was of a whitish colour, uneven, but smooth, and became sphacelous before the death of the patient.

At the same time, this figure shows what an extraordinary size the lymphatic glands may sometimes attain in this disease.—The enlarged glands represented here are ulcerated on the surface. See *Wardrop's Observations on Fungus Hæmatodes.* Also,

FIGURE 5,

Represents a Fung. Hæmatodes Retinæ in an opened eyeball. This degeneration of the retina of a patient nine months old, from whom this painting, so clearly indicating the origin of the fungus, has been obtained, commenced first in the left, not in the right eye here represented. The left eye was not inflamed, but loaded with vessels and a little enlarged. The iris in particular was full of blood-vessels, and the pupil much dilated and immoveable. The retina appeared in the posterior part of the eyeball as a hollow plate of silver. The eye was blind, without pains however, and the patient moreover was healthy. When fifteen months old, the right eye (here exhibited) was likewise attacked, and evinced similar appearances. The left eye soon changed in a greater degree; the crystalline lens was carried from its natural position, and lay opaque in the under part of the vitreous humour. About three months before the death of the patient, the left eye enlarged, having been irritable for some time, and soon commenced to project between the eyelids, in the shape of a red mass, which at length attained the size of a large apple. About fourteen days before his death, he fell into a comatose state, during which he sometimes screamed. He took convulsion fits, in one of which he died. The right eye was examined some days before death, and it was found, that what formerly

had the appearance of a hollow, metallic plate, in the region of the retina, now projected forwards, and filled up to appearance all the space that lay behind the iris. The dazzling substance seemed to touch that membrane, and the eye looked as if a whitish coloured cataract existed, along with a dilated pupil. This however was a deception, for the foreign body merely assumed the place of the vitreous humour; the lens, moreover, retained its natural position, and was transparent.

As the swelling of the left eye was divided, after the death of the patient it was observed to consist of a hard, fibrous and vascular mass: none of the original structures could be discovered. After the head was opened, it was found that the disease had extended along the course of the left optic nerve, as far as the ganglion, which was totally changed into a bloody swelling, and could not be properly examined, on account of its great softness. The right optic nerve was sound on both sides of the ganglion. The ventricles were unusually enlarged, and full of water.

The right eye opened, and, here represented, shows at the optic nerve, *b b*, the diseased mass into which the retina is changed, *c c*, the sclerotica, and lastly *d d*, the choroid.—See *Saunders*, p. 145, also *Wardrop's Observations on the Fung. Hæm. Ret.*, pp. 42 and 179.

The 6th Figure

Represents an external, pure, but very severe inflammation of the eye, *Chemosis*, painted by Beer, towards the end of its first stage, when suppuration could scarcely be prevented. The conjunctiva of the eyeball is equably swollen up like a wall around the cornea, but the eyeball itself is not so; by which latter circumstance this figure is distinguished at the first view from *Ophthalmitis Universalis*, represented in the second Figure of the fourth Plate. The cornea is already of a muddy, reddish-grey colour, and no part of the iris or pupil can be any longer discerned through it.

Figure 7.

When this eye is properly considered, when the formerly greyish-blue, now greenish coloured iris, somewhat swollen around its centre, is well observed; when the pupillary edge of the iris, drawn backwards at its centre in the shape of a funnel, along with the so much obliterated pupil, is attended to, a severe inflammation in the eye may be readily supposed to exist; if the subjective symptoms be also called to aid, and the merely pale red colour of the sclerotic be compared with all this, —certainly no doubt can longer remain, that an inflammation of the eyeball is present, commencing from its innermost structures. It belongs to the class of pure

ophthalmiæ, and is copied from Beer's original painting.

Figure 8.

A spherical-shaped total staphyloma of the cornea can hardly be mistaken in this figure. It belonged to a man twenty-five years of age, and began after an inflammation of the eye, caused by a wound with a sharp-pointed instrument two years before. The cornea forms a perfectly spherical-shaped swelling, furnished with some blood-vessels. The swelling is of a non-transparent, whitish colour, falling towards its apex into a bluish pearl colour. The sclerotica has lost its natural whiteness and glitter, and the eyelids are a little inflamed. *(Wardrop.)*

Figure 9.

I have exactly copied this partial staphyloma of the cornea (which may certainly be readily recognized) from a young woman of sixteen years of age, otherwise in perfect health. It was the consequence of a variolous inflammation of the eye, from which, according to the declaration of the mother, she had suffered about ten years before. The staphyloma, in this case, includes the whole under half of the cornea, has a bluish, whitish, glistening, somewhat uneven appearance, and projects considerably, as may be observed in the profile

painting. The upper half of the cornea is perfectly transparent and clear, which is the reason that the iris, of a dark greyish-blue colour, and almost touching the cornea, is so distinctly observed. Scarcely a third part of the half obliterated pupil is visible.

PLATE IV.

Figure 1.

This eye represents a Clavus, which belonged to a young woman twenty-three years of age, and was painted from nature by Professor Beer. The woman had been affected with it for more than seven years; immediately after it began, it was more elevated, and of a darker colour than now. It had generally become covered with a semi-transparent membrane, which was so firm, that on attempting to remove it, the strongest escharotics had no effect upon it, and it therefore became necessary to cut it off at its base.

Figure 2.

This figure represents a pure general ophthalmitis universalis in the second stage, distinguished from chemosis (6th Figure of the 3d Plate) particularly by considerable swelling of the whole eyeball. The generally enlarged eyeball, as well as its conjunctiva,

Fig. 1.

Fig. 2.

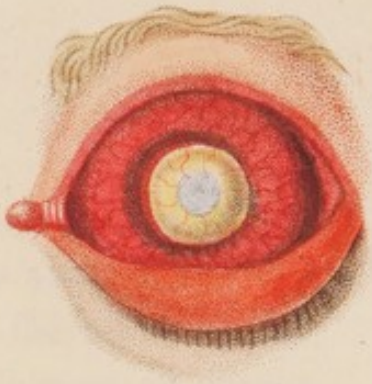

Fig. 3.

Fig. 4.

Fig. 5.

Fig. 6.

Fig. 7.

Fig. 8.

Fig. 9.

Joseph Swan Sculpt Glasgow

swollen around the cornea, and of a deep red colour, has not only pushed backwards the already inflamed upper eyelid, but has also everted the under eyelid. The cornea forms, in the centre as it were, an opaque plug of matter, which has risen from the pit that existed in the first stage, and was formed by the swelling of the conjunctiva around the cornea,—and accordingly, it is to be feared that the eyeball will burst at this spot.

Figure 3.

This very remarkable eye, which represents an atrophy of the eyeball, a scirrhus of the palpebra, and an anchyloblepharon partiale, belonged to a man eighty-two years of age, who had suffered from gout for more than forty years. Eight years ago, the gout first showed itself in the right eye, as here expressed; he suffered from severe, tearing pains, particularly seated in the supra-orbitary region, there was constant redness of the external surface of the eyeball and eyelid. From total neglect, the inflammation crept on and injured the vision, the inflammation and the pains sometimes ceased, particularly in summer, and returned again when cold, wet weather, set in. The vision gradually declined, the eye diminished in bulk, retracted more and more into the orbit, and the eyelids sunk in proportion. At the same time the eye shed tears, and the Meibomian glands threw out mucus which glued together the eyelids du-

ring night; and, as the edges of the eyelids were in a constant state of inflammation, and frequently of excoriation; as the patient also kept the lids closed, without observing cleanliness, their edges gradually adhered together at the external canthus, to the degree I have here represented. Even before this, induration, and three indolent elevations, resembling the skin in colour, presented themselves in the upper eyelid, at first at its margin, afterwards farther off. The ciliæ were lost, in consequence of the creeping inflammation, and did not grow again in either eyelid. Almost the whole of the upper one is now indurated, and the three swellings are affected with a darting, burning pain, when touched, which, along with the other symptoms, announce the commencement of carcinoma. The eyeball itself has hardly a third part of its natural size, is of a dirty red, and the crumpled cornea has a greyish appearance, but nevertheless permits the iris to be seen below it. The opening of the palpebræ was perfectly closed; on which account, it became necessary, when I painted the eye, to pull down the under eyelid, in order to expose the part of the eyeball here referred to.

Figure 4 and 5.

Both these eyes, painted by Beer from nature, represent the true Arthritic Iritis. The 4th Figure is the

eye of a tall, thin, rigid, irritable man, who had blue eyes; the pupil appears very narrow and angular, the pupillary edge of the iris funnel-shaped, drawn backwards to the anterior capsule of the lens, and adhering with the latter by a fine network of coagulable lymph, already visible with the naked eye.—In the 5th figure, on the other hand, which belonged to a little, thick, flabby, indolent woman, with brown eyes, and forty-eight years of age, in whom menstruation had ceased two years before, the pupil is dilated, and resembles in form that of ruminating animals, the small circle of the iris is reverted towards the posterior chamber of the eye, and has thus become invisible. At the same time no effused coagulable lymph is observed in the pupil, but in place of it, a greenish-grey muddiness of the vitreous humour, varying in its shades, at the bottom of the eyeball, which announces a completely formed glaucoma, and is an appearance quite peculiar to unirritable, flabby, gouty patients. In this eye, accordingly, every remnant of the perception of external light is gone; on the other hand, the eye of the 4th Figure not only retains a sense of light, but is even capable of still distinguishing large objects.

A pale redness of the sclerotica is moreover observed in both eyes, and over this a dark red network of blood-vessels in the conjunctiva, which forms at the circumference of the cornea a pretty compact zone, but appears

here and there as it were evidently cut off from the edge of the cornea, by an uneven, narrow, dirty, bluish ring. The varicose blood-vessels, running towards the pupil, are neither distinguishable in the blue-coloured iris, nor in the brown iris, which has changed its colour, and both of which are swollen forwards.

The 6th Figure

Is one of the most expressive paintings, and represents the genuine Syphilitic Iritis. An extended, pale, peculiar redness is observed over the whole conjunctiva and sclerotica, forming a zone around the cornea; at the same time, the iris is of a green colour, the pupil is angular and placed in a diagonal direction towards the root of the nose, and the whole eye is dull and void of lustre. Three perfectly formed condylomatous growths, seated partly on the ciliary, partly on the pupillary edge of the iris, leave no doubt in regard to the nature of this inflammation.

Figure 7.

This drawing, which represents an Arthritico-Syphilitic Iritis, I have accurately painted from the eye of a thin, choleric woman, of middle age, infected by her own husband nine years previously, in consequence of which, she got syphilitic ulcers in the neck, and even ficæ, but was apparently cured by a medical man. Five

years ago, she was attacked pretty severely with gout, but always felt well from that time till a short while since she very suddenly got an ophthalmia in consequence of previous exposure to cold. Fifteen days after its commencement, when I first saw the patient, it showed itself as an arthritico-syphilitic iritis. Though I immediately ordered her the usual frictions of Ung. Hydr. Cíner. with Opium, along with the internal use of Mercury, two condylomatous tumours of a dirty, yellowish-white colour, formed at the lower part of the ciliary edge of the iris, as may be observed in the figure. Moreover, a distinct, rose-red zone of vessels is observed around the cornea, and between the two, the pathognomonic bluish-white ring. The bluish-grey iris has become of a greenish-brown and grey, the pupil is contracted, drawn towards the root of the nose, and no longer of its natural black colour. A fine network of coagulable lymph may be observed in it with the aid of a glass. The vision was indeed much weakened, however, the patient could still distinguish even small objects. The inflammation was cured in a short time by a continuation of the treatment.

I have drawn down the lower eyelid a little, in order to allow the zone of vessels on the white of the eye, to be more distinctly seen.

Figure 8.

This figure represents Genuine Scrofulous Inflammation of the Eyeball, as it usually occurs in unirritable, flabby, indolent, scrofulous children. The blood-vessels of the conjunctiva of the eyeball, which are of a deep red colour, and distributed in bundles peculiar to scrofulous inflammation, contrast strongly with the very pale, uniformly distributed redness of the sclerotica. Two pustules are observed on the cornea, the larger of which seated almost in its centre is burst, and now exhibits a deep ulcer, which has a fungous tendency around its edge. *(Beer.)*

Figure 9

Is a genuine Scorbutic Ophthalmia, copied from Beer, which occurred in a very scorbutic subject. The sclerotica is of a dirty, livid colour, a thick, bluish-red network of blood-vessels is observed in the superjacent conjunctiva, the cornea, the aqueous humour, the whole eye indeed is muddy, dull, and void of lustre, even in the interior of the eye, every thing is indistinct, on which account, the edge of the pupil itself, which is of natural size, can be but indistinctly perceived. Dark, varicose blood-vessels are perceived in the iris running towards the pupil. The patient was of course perfectly blind, but regained a slight sense of light after the

Fig. 1.

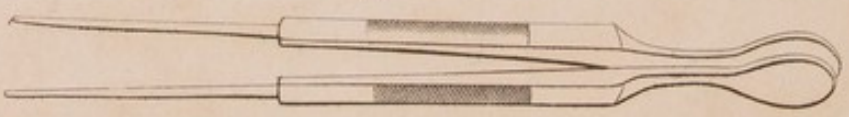

Fig. 2.

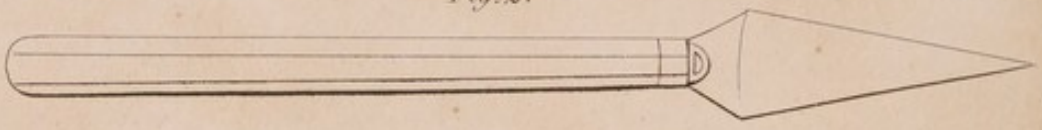

Fig. 3.

Fig. 4.

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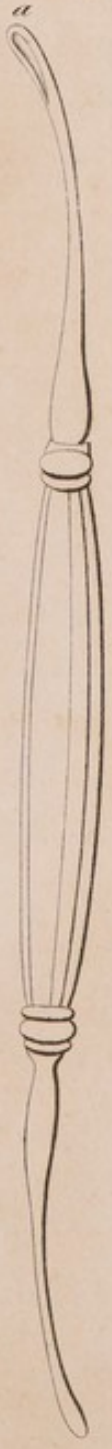

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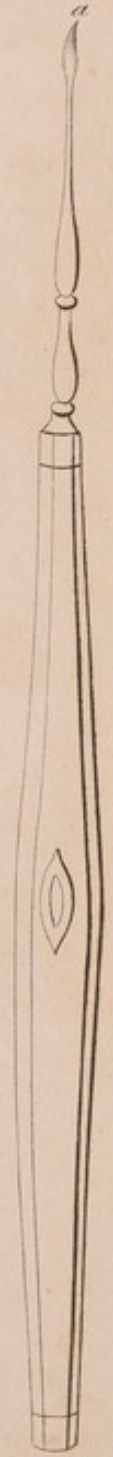
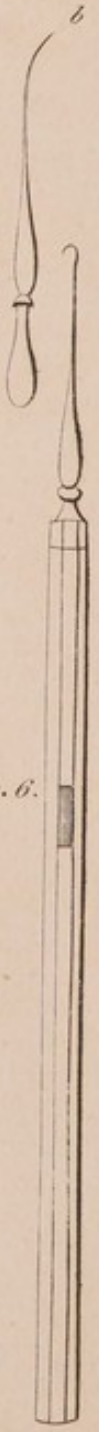


Fig. 6.



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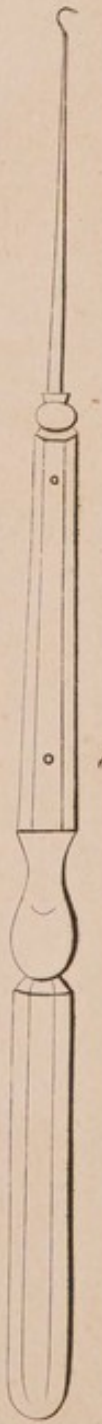
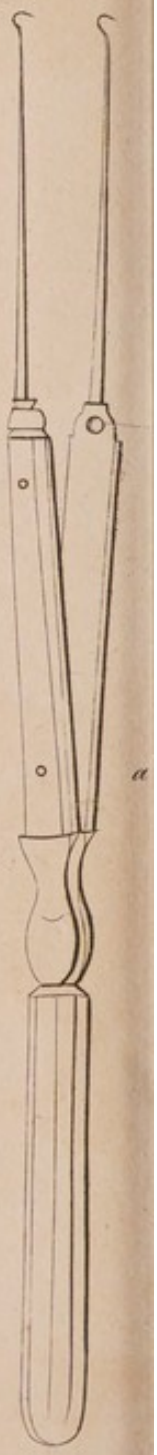


Fig. 8.



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cure of the scurvy. Though this eye does not represent the highest degree of genuine scorbutic ophthalmia, even this degree is very rarely observed.

In all the figures here described, those appearances of disease only are painted which are capable of being represented. If it be desired to obtain a perfect knowledge of these diseased eyes, it is necessary, on considering each individual figure, or what is the same thing, on studying the objective symptoms capable of delineation, to call to memory, along with the subjective symptoms, those objective symptoms which are not capable of being represented by the pencil.

PLATE V.

Figure 1.

A fine eye forceps, which has a small tooth at the very extremity of one of its branches, fitting a cavity in the other branch, and serving the purpose of retaining more firmly whatever is laid hold of, and at the same time prevents the branches from sliding on each other. It is particularly used for extracting foreign bodies fixed in the conjunctiva bulbi; the opaque capsule of the lens may also be removed by it, and it is employed in the operation for pterygium.

Figure 2.

This sharp-pointed knife, cutting on both edges, is firmly fixed in its handle, and is particularly used for the opening of the lachrymal sac when over-distended with mucus or matter, of Hypopyon, of abscess of the cornea, as also for the puncture of the cornea in forming an artificial pupil, according to the method of Reisinger.

Figure 3.

This lancet-shaped, straight Cataract needle, must be so formed, that its neck may accurately fill up the opening made by its very sharp, easily penetrating, lancet-shaped point.

Figure 4

Represents Beer's Cataract knife, and must have accurately the dimensions here pointed out. In making it, attention must be paid, that the back of the knife, from *a* to *b*, be blunt, and not broad, but rounded off; its lancet-shaped point, *b c*, must be sharp and cutting, in order to facilitate its perforating the cornea; both sides of the knife must be gently arched, so that it may retain its shape. Moreover the blade must neither be too much nor too little tempered.

FIGURE 5.

Daviel's scoop, which this figure represents at *a*, should be made of gold or silver, so that it may not rust. The spoon-like cavity must be as large and deep as possible, but is not to exceed the breadth and height of that represented here, so that the Surgeon may not raise the flap of the cornea too high when introducing it into the eye, and produce an inflammation, probably caused by it alone. The silver, elastic spathula, *b*, at the other end of the handle, is not unfrequently employed by the oculist.

FIGURE 6

Shows the form of the steel, fine-pointed Cataract hook.

FIGURE 7

Is Schmidt's crooked, lancet-shaped needle for Corodialysis.

a shows the side of the needle, and *b* its edge, to represent its curve. The point of the needle and the edge of its lancet-shaped part must be as sharp as possible.

FIGURE 8.

Reisinger's hook-forceps, for Corodialysis, open at

a, and represented in a half-side view, shut at *b*, and in such a position, that both hooks lie exactly under each other. The exact fitting upon each other of the two fine, little hooks, sharp at their points, is an essential circumstance, and is in some measure assured by the cavity, *c*, into which a steel head belonging to the other branch enters on shutting the instrument.

FINIS.

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