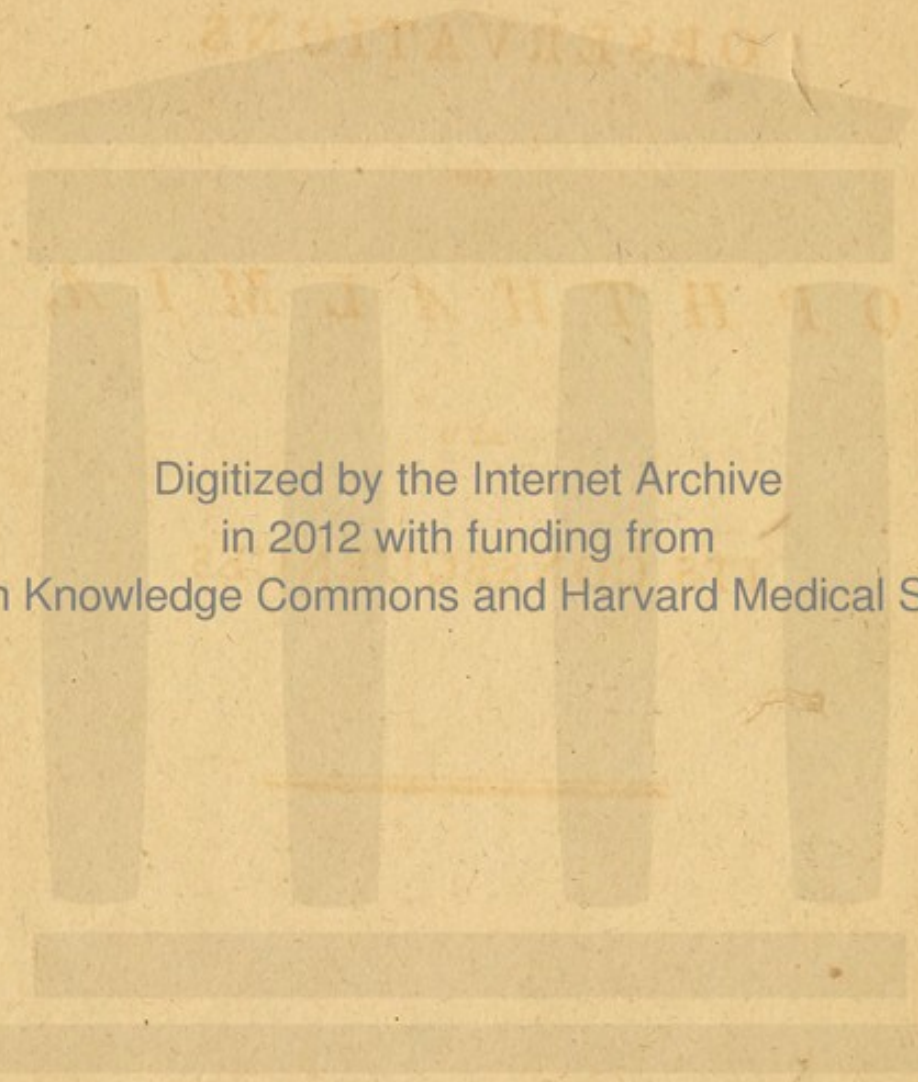
Observations on ophthalmia and its consequences / by Charles Farrell, M.D.



OBSERVATIONS

ON

OPHTHALMIA,

AND

ITS CONSEQUENCES.

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BY

CHARLES FARRELL, M.D.

SURGEON TO HIS MAJESTY'S FORCES.

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INTRODUCTORY REMARKS.

I SEE no reason, as far as I can judge at present, to think that ophthalmia, as it exists among the troops in the Mediterranean, differs in any respect from the ophthalmia, which is occasionally observed among our troops on other foreign stations and at home. If this be the case, it cannot be expected that I am to advance much new matter on a subject, which has been so amply and ably treated by others before me. But though I do not lay claim to originality, still I hope it will not be deemed presumption in me to say, that I hope to render this little work worthy of notice, by presenting in it some illustration of the causes of ophthalmia in our army, and by endeavouring to establish a division of the disease into the varieties which it seems naturally to present, and to institute a method of cure adapted to each variety.

I believe it is now pretty generally admitted, that ophthalmia has been more or less prevalent in our army, since the landing of the British troops

in Egypt in the year 1801, to the present time. As I have had but little opportunity of seeing the disease in England, and as I have been deprived for the last four years of the means of learning the forms it assumes, or the degree to which it prevails at home, or on any foreign station but this, I must content myself with simply describing it, as it presented itself to me in individual cases, in the British army in Egypt, in the year 1807, and afterwards in the British army in the island of Sicily, in the years 1808, 9, and 10, during the greatest part of which time I was employed in an ophthalmic hospital. By giving an account of what passed thus under my own eyes, I shall furnish to others a basis upon which to form a comparison between the states which the disease assumes in these and other countries.

I am informed by Dr. Franklin, Inspector of Hospitals, that ophthalmia prevailed to a considerable degree among the troops at Malta, for some time after the return of the army from Egypt in 1801; but that it gradually diminished, and was at last nearly extinct in 1805, when some regiments of that garrison embarked for the kingdom of Naples. The British army landed in Sicily early in the year 1806; and in a few months, ophthalmia became much more prevalent among the troops in this island, than it had been for some time previously among those at Malta. It appears to have continued nearly stationary from this time,

until the return of the little army from Egypt in the year 1807, after which it raged for a considerable time in several regiments in Sicily. I feel it incumbent on me to acknowledge, that I am indebted to Dr. Franklin, whose accuracy on all matters relating to the medical concerns of the army in the Mediterranean, is far beyond my praise, for the documents from which I have taken this brief sketch of the history of ophthalmia in our army in the islands of Sicily and Malta.

As the practice of medical men in the army in my station, presents the peculiarity of being conducted under the eye, I might say, of being more or less influenced by the favourite projects or opinions of a superior medical officer; it follows that in treating of the diseases of soldiers, as well as in curing them, it is impossible to separate the consideration of the disease from that of the duty and ability of the medical officer at the head of the department. The establishment of hospitals, the selection of healthy situations for military quarters, and many other important matters, relating to the preservation of health of an army, as well as to the medical treatment of the sick, devolve on this individual; and unless he possess enlarged and enlightened views of the nature and causes of disease, and much personal activity, it is, I fear, not to be expected that these objects can be fully accomplished. The subordinate medical officer is obliged to look up to him for support in all his

measures, and is taught to count on his judgment and experience in cases of difficulty and danger.

This view of the relations between the medical officers of the army, and the influence of those on the treatment of diseases, will, perhaps, justify me in the eyes of medical practitioners in private life, for entering on a subject which is totally unimportant to them. As I have entered, however, whether justly or not, on the discussion of such a subject, justice would demand it of me, if my feelings and conviction did not dictate to me to say, that it has been my good fortune, and it is with much pleasure I relate it, to serve in the Mediterranean under two medical officers (Dr. Franklin and Mr. Green) possessing, in an eminent degree, all the requisite qualifications for their situation.

I have not been able to learn whether a violent inflammation of the eyes, such as is now observed among our troops, or indeed ophthalmia of any kind, existed at any time in the army, before the expedition to Egypt in 1801. The settling of this point would go a great way towards fixing the origin, and ascertaining the causes of this disease. For my own part, in as far as I have been able to carry my researches into the accounts of the diseases of our army both at home and abroad, I have not been able to discover any marked traces of it before the above period. Cleghorn, as well as I recollect, mentions in his account of the diseases of Minorca, that ophthalmia was prevalent there

in the summer season; but I believe he does not say that it prevailed more among the soldiers than the inhabitants. Indeed, many of the ancient and modern physicians, who practised in the south of Europe, treat pretty fully of the disease; and a tolerably accurate description of a violent form of it, but one perhaps less violent than that observed at all times in Egypt, may be found in the writings of some of them. Perhaps, when we are better acquainted with the history and causes of the disease, it will be found that warm climates are favourable to the production of it. All historians, both ancient and modern, who have given us accounts of Egypt, and all medical men, both ancient and modern, who have written on the diseases of Egypt, agree as to the frequency and violence of ophthalmia in that country. Ophthalmia, such as it is observed at this day, among the people of Great Britain, occurred, no doubt, occasionally among our troops at all times; but from the little notice taken of it by medical writers on the diseases of the army, and from the extraordinary frequency in which it occurs, and the great violence it assumes at present, I am inclined to believe that that form of the disease, which has, within the last nine years, proved such a scourge to our army, has been introduced into it in Egypt.* I think it

* I do not mean to deny, but that cases of violent inflammation of the eye, as such an affection may be produced by various causes sufficiently obvious, occurred occasionally among our

will be also proved in time, when our knowledge of the fact is more extensive and better founded, that an inflammation of the eyes, is much more frequent, and runs to a much higher degree, among the inhabitants of Sicily and other islands of the Mediterranean, than among the same number of people in any part of the united kingdoms of Great Britain and Ireland.* This may be owing to a variety of causes; but the most obvious are, the glare and heat of the sun by day, succeeded by the coldness and humidity of the night, and vicissitudes from hot to cold, changes not at all unfrequent in the climate of the southern islands and shores of the Mediterranean sea. Egypt is, perhaps, the part of the world, in which all the causes of ophthalmia, arising from soil and climate, exist in the greatest abundance and force. This circumstance is sufficient in itself to account for the prevalence of the disease in that country; and how far such a combination of causes may contribute to the production of a species of ophthalmia, which by frequency, inveteracy, or other means, may acquire the power of propagating itself by contagion, I cannot take upon myself to determine. As it is probable that the contagious quality of many diseases originated from a source somewhat similar, I see nothing contrary to ana-

troops at all times; but this will not account for the unusual frequency of the disease in the army for the above-mentioned period.

logy in the supposition of the violent species of ophthalmia, observed at present among our troops, being contagious. Indeed this supposition is corroborated, and rendered highly probable, by attending to the origin and mode of spreading of the disease in an army. The French army, it appears from all accounts, suffered as much or more from ophthalmia in Egypt than ours. The disease accompanied it to France, and is not, I believe, as yet eradicated from it.

Though I have gone thus far in endeavouring to establish an Egyptian origin for the violent species of ophthalmia, which has latterly excited so much attention, still I can see no reason why a violent inflammation of the eyes should not take place occasionally in other countries. I fear the fashion of putting down the ophthalmia observed in Egypt as a disease *sui generis*, and of considering it as different from every other inflammation of the eye, met with in Europe, has had some share in disturbing our opinions as to the true nature of the disease, and consequently in leading us away from a right method of treating it. As its inflammatory nature is now ascertained beyond a doubt, and as it resembles in every respect any other violent inflammation of the eyes, in the production of which the climate or contagion of Egypt could have had no share, I see no advantage in giving it the denomination of "Egyptian ophthalmia," or in allotting to it a separate consideration. We find the

same disease of other organs often produced by various separate causes; but as long as the method of cure is not affected by the nature of the cause, I see no necessity for combining the name of the cause with that of the disease. Now the disease which has been called Egyptian ophthalmia, is to be treated precisely in the same way as any other violent inflammation of the eyes. No one acquainted with the history of Egypt, or with the recent campaigns of European armies in that country, will dispute the frequent occurrence of a violent species of ophthalmia in that country; but it appears to me that this very circumstance has eclipsed others of a minor consideration, and laid the foundation of error. Almost every modern writer, whether French or Italian, and perhaps I might add, English, whom I have consulted on the subject of Egyptian ophthalmia, represents the disease in its most violent shape; from which one would be led to infer, that there was no such thing as a mild form of ophthalmia in Egypt. Now, I can take upon myself to say, that I have met with a great number of cases of ophthalmia in that country, in which the inflammation was by no means high, not higher indeed than in the ordinary mild ophthalmia in England, and in which that symptom yielded to the usual collyria and blisters to the temples. It appears then, from this fact alone, that the general denomination of Egyptian ophthalmia ought to imply two species of the

disease; and that it leads into error when it is confined to the representation of one of a violently inflammatory nature. Influenced by these views of this subject, I do not intend giving a separate account of ophthalmia as it appears in Egypt; but I shall endeavour to mark, in the divisions of the disease which I adopt, every peculiarity of cause and modification of symptoms attending the disease in that country.

Among the numerous species of ophthalmia pointed out, one is said to be produced by the introduction of the matter of gonorrhæa into the eye, or by that disease being repelled; and the inflammation is represented as assuming an extraordinary degree of violence, when arising from these causes. I cannot dispute the authenticity of this assertion; but I know to a certainty, that a single case of the kind has not presented itself to me, in the whole course of my experience, among persons in whom from their habits and negligence it might be expected. I have had repeatedly patients under my care, who laboured under both gonorrhœa and ophthalmia, without being able to trace any connection between these complaints, or having observed that the inflammation of the eyes was particularly violent in such cases. In many cases the inflammation of the eye yielded to the simplest means, and in no case has it run very high, or been attended by the purulent discharge from the eye, which is said to be characteristic of that spe-

cies of ophthalmia. Two or three patients labouring under ophthalmia and gonorrhœa got swelled testicles, accompanied by a cessation of the discharge from the urethra, and I did not find that the affection of the eye was in the slightest manner influenced by this event.

Before entering on the history of ophthalmia, it may not be amiss to take a cursory view of the habits of life and peculiarity of situation of the persons, who, as far as my experience goes, were the subjects of the disease, and those from whom my observations were taken. In doing so, I hope to afford some illustration of the causes of ophthalmia in soldiers, and to account in some degree for the extreme violence it manifests in persons of this description.

The soldier is necessarily exposed in times of active service to the full influence of every climate in which he happens to serve. The necessity of situation, and often the strictness of military discipline, precludes the possibility of his accommodating his manner of living or clothing to the climate he inhabits, or the particular service on which he is engaged. Besides these inevitable disadvantages, he is often improvident and careless of the future, and unfortunately the circumstances or practices of the service, do not place him under the necessity of correcting these defects. As it must be a primary object in the army to have the soldier always ready and fit for service, the shortest

and most effectual means are taken for accomplishing this. He is not allowed to procure food and raiment for himself, lest in his habitual prodigality he should consume the funds allotted to this purpose. His officer takes to himself the charge of providing him with these necessary articles of life. He is not allowed to act, I might say to think for himself, lest the freedom of thought or of action should interfere with his obedience as a soldier. In a word, he has little of the employment, and none of the wants or cares, which conduce to reflection and circumspection of conduct. He fears nothing but his officer's displeasure, and the heavy punishment annexed to military misdemeanours. By the heavy hand of military discipline only is he kept in order and in awe; and when he fancies he can escape this, as is almost natural to expect, he revels in the pursuits and enjoyments from which he was restrained.

The British soldier, I am sorry to have occasion to say, is too prone to indulgence in the excessive use of intoxicating liquors. This vice, independently of the direct injury it does to his health, and the series of moral evils it brings in its train, exposes him to many causes of disease. He often sleeps abroad in a state of intoxication, exposed to noxious exhalations, to the meridian sun, or the chilling air of the night; and if he be fortunate enough to escape confinement in the guard-house for this offence, he is consigned to his tent or

quarters, there to await returning sobriety. As soon as the state of intoxication is passed, he is put on some laborious duty, handed over to the drill-serjeant, or perhaps treated still more roughly, in order to make atonement for his irregularity. The repetition of excesses and practices of this kind, must shake the constitution of the strongest man; but if the soldier happen to be naturally delicate, or have a predisposition to any disease, nothing is more likely to ruin his health, or call forth the disorder, the germs of which already existed in his constitution. Accordingly we find that pneumonia, dysentery, rheumatism, phthisis pulmonalis, and a long list of other complaints, are produced in this way. Intemperance, it is well known, is prejudicial to health in all countries, but it is particularly destructive in warm climates.

When the unfortunate soldier is attacked with any disease that reduces suddenly his strength, or causes him much pain and suffering, he requests to be sent immediately to hospital; but if his ailment be ophthalmia, which arises as often as any other from his carelessness and excesses, as he does not feel any general sickness, he seldom reports his complaint to a military or medical officer, until he feels some serious inconvenience. He can often go about, and even do his duty in the incipient state of his disease, and it sometimes happens that a day or more passes over in this way, before the inflammation of his eyes attracts atten-

tion. This time he usually spends on guard, or some other duty or employment equally unfavourable to the state of his eyes; and when it is at last found necessary to send him to hospital, finding his appetite good, and feeling no aversion to wine, he frequently drinks as much of it as he can procure on his way from his quarters to the hospital.

Under circumstances such as these, I suppose it will be readily conceived that an inflammation in the eyes of soldiers must often attain a great height before it comes under the management of the medical officer; and that the organ concerned, from the nature of its structure and the effect of inflammation on it, must often suffer irreparable injury. I have had the mortification to see more than once patients with ophthalmia admitted into hospital in a state of intoxication, in whom the eye suppurated before a state of sobriety had returned.

It is an opinion entertained by many officers, both military and medical, that soldiers produce ophthalmia in themselves, with the intention, it is said, of causing blindness, or such imperfection of sight as will render them unfit for the service. Though this may be the case in some rare instances of vile cowards, and senseless unfeeling wretches, I have every reason to think that it rarely occurs in the British army. I have now had under my care some thousands of ophthalmic patients, and I must confess that, though I have used a vigilance sharpened by a bias towards that opinion, I

I have not as yet been able to make out, clearly, a case in which the soldier produced the disease in himself by improper means, or even intentionally aggravated its violence. I am sorry, however, to have another charge, of a serious nature, to make against some of my patients, by declaring that many of them have ignorantly, and, I am sure, unintentionally, injured themselves most materially by not only neglecting my instructions, but by indulging, at the very height of the disease, in the intemperate use of intoxicating liquors. Some patients, and these very few in number, were foolish enough to substitute a treatment of their own for that ordered by me. This irregularity I found, generally, to consist of the introduction of powdered alum or sugar into the eye; and I have every reason to believe that it was had recourse to with a view of saving, not of destroying the eye. Now many men, much more capable than the uncultivated private soldier, of appreciating the advantages of good medical advice, slight the sagest doctors, and the wisest counsel, and treat their diseases according to their own disordered imagination, or commit themselves to the hands of empiricks.

It may be asserted, that gross irregularities, such as I have just stated, could not take place under a proper system of hospital management. It is not for me to determine how far this allegation is founded in truth. I shall only beg leave to remind

those who maintain it, that an hospital for ophthalmic patients solely, presents some peculiarities which require to be well weighed before censure is passed on the medical men in charge of such an establishment. In the ophthalmic hospitals under my care, both in Egypt and Sicily, I had usually from 100 to 150 patients, or more. Some of these were necessarily convalescent, and most of the remainder, though labouring under a greater or less degree of inflammation of the eyes, felt no loss of strength or want of appetite, and were, indeed, nearly free from those sickly feelings which accompany the diseases of most other patients who are judged fit subjects for a general hospital. Such men, possessing no resources within themselves—leading a life of indolence and restraint—suffering nothing of what in their minds constitutes sickness—totally unacquainted with the nature of their disease, and, of course, unapprehensive of its results, were in a state, of all others, the most likely to induce them to neglect or make little of medical advice, as well as to give birth to the desire of indulging in their favourite propensities. It will, I apprehend, be admitted, that it requires no small share of vigilance and activity to keep patients, so circumstanced, in proper order. For my part, it is with much concern I am obliged to state here, that neither the fear of severe punishment, inflicted occasionally on the least pardonable transgressors, nor the vigilance of the medi-

cal officers * and hospital attendants, who resided in the hospital, was sufficient to effect this purpose. The patients who undertook to procure wine, or any other article not allowed to be conveyed into the hospital, clandestinely, exposed themselves to numerous causes of evil. As they could not escape from the hospital by day, they were obliged to carry their wicked schemes into execution in the dead of the night, by which they were exposed to the night air and fatigue, and were deprived of their rest; and as the love of wine was at the bottom of all their wickedness, there can be little doubt of their having indulged pretty freely in the use of it. An irregularity of this kind occurring now and then, would not deserve much notice. It is the frequency of it, and the difficulty of correcting it, that constitute the crime.

It is distressing to be obliged to institute so grievous a charge as that of intemperance, and an intemperance too under the least excusable circumstances, against any part of our army; but I am reluctantly compelled to do so from a perfect knowledge of the enormity of the practice, and from a thorough conviction of its effect in producing and aggravating the disease in question,

* It is due to the merit and professional abilities of Mr. E. Black, assistant surgeon, 10th Foot, who shared the labours of the ophthalmic hospital with me for more than two years, to state, that he discharged the duties of his station with zeal, steadiness, and ability.

and I might add many others. It would not be difficult to trace the effects of intemperance in soldiers in warm climates, from the disordered stomach and slight head ache, to a diseased state of the liver, or other abdominal viscera, and general dropsy; or until the constitution was so shattered that no function of the body was performed in a healthy manner, and premature old age and infirmity were brought on. I do not mean, however, to assert that all soldiers are so destitute of a sense of duty and propriety as to give themselves up to intemperance. All I mean to inculcate, is, that a certain proportion of them, by doing so, bring disease on themselves; and I entertain the most sanguine hopes that this public avowal of the fact will have some effect in bringing about the suppression of a practice so prejudicial to the health, so unfavourable to the duty, and so derogatory to the character of a soldier.

PART I.

OF OPHTHALMIA.

Nosologists generally point out several species of ophthalmia, giving an appellation to each taken from the part of the eye affected with inflammation. Some late writers have divided the disease into several varieties, and given a name to each, deduced from the prevailing symptoms or supposed causes. For my part, without at all pretending to question the arrangements of others, I shall adopt a division of the disease into varieties, founded on the degree of violence and character of its symptoms; and I do this more with a view of enabling me to propose a fixed and precise mode of treatment for each variety, than of attempting any radical distinctions as to the forms of the disease, or of following it through its transitions from one state to another. Three species of ophthalmia, viz. two of an acute inflammatory type, and one of a chronic nature, may then be pointed out according to this view of the subject. But the two first, though re-

sembling one another in the leading feature of acute inflammation, still present such difference in the number and violence of their symptoms, run such different courses, and require so different modes of treatment, that it will be necessary to consider them under separate heads. In conformity to this plan, then, one species of the acute kind may be denominated *ophthalmia mitis*, or the mild ophthalmia, and the other, *ophthalmia gravis*, or the virulent ophthalmia. The chronic species, though it is difficult to ascertain, with precision, the point at which it begins, and though it presents some variety in its appearance, is still sufficiently well marked in its aspect to admit of being described under one denomination.

I shall, therefore, proceed to make some observations on each species of ophthalmia included in the above division.

CHAPTER I.

Of Ophthalmia Mitis.

The first symptoms usually observable in this variety of the disease are a sense of heat and itching of the eye. These are generally succeeded by an increased secretion of tears, which, by being diffused over the cornea, alter the refraction of the rays of light, and thus cause some indistinctness of vision. These symptoms are soon followed by more or less pain, and intolerance of light. Sometimes both eyes are affected at once; but more commonly the disease appears first in one eye, and passes to the other. Cases, however, occasionally occur, in which the inflammation runs its course in one eye, without the other being at all affected. Often a sense of roughness of the eye ball, or a pain in one spot of the eye, as if arising from the irritation of a moat or grain of sand, is the first indication of the disease. On looking under the eye-lids, in these cases, a small plexus of red vessels is seen running in the direction of the pained part. It not unfrequently happens, that the pain is first felt in one point of the tarsus,

and a small ulcer, or tumefaction, is found at that particular spot. After these symptoms have continued some time, the eye-lids are generally drawn closer together, the pain becomes more acute, the intolerance of light increases, and the secretion of tears becomes more copious. On examining the eye in this stage of the disease, the caruncula lachrymalis is often a little swelled, but is always redder than natural; the tunica conjunctiva is found more or less injected with red vessels, some of which run to the very verge of the cornea, and the edges of the palpebræ are redder than natural. The pulse, or natural functions, are seldom disturbed, unless in cases of very delicate persons, and there is rarely any head-ache, or soreness of the integuments of the head.

It will appear from the preceding account, that this form of the disease is the one with which most practitioners in private life are conversant, as it corresponds pretty much with their description of ophthalmia. I have met several instances of it in the army in Egypt and Sicily. It is, however, a much more frequent occurrence in the latter than in the former country. Did it not form a large proportion of the cases in the army, I fear that ophthalmia would incapacitate more men for the service than all the diseases of the army put together.

The inflammation, and other symptoms, vary in degree from a slight redness, watering and uneasi-

ness of the eye, to that of acute pain, intolerance of light, and copious secretion of tears. It never terminates, as far as I know, in a suppuration of the cornea, or any part of the eye. By mismanagement however, in the treatment of it, or by the continued application, or the combined action of some of the most powerful of its existing causes, it sometimes passes into the virulent or chronic state, the consideration of which belongs to another place. The inflammation may last for a week, or even longer, but it generally gives way to proper treatment in the course of a few days.

This variety of the disease is produced by exposure to high winds, especially if they are cold and damp; by too great exercise of the eye; by the action of smoke, dust, and other irritating substances on the eye; by long exposure to the glare of the sun; but it is most commonly produced by cold, or vicissitudes from hot to cold, and is often accompanied by catarrhal symptoms.

TREATMENT.

The great object is to subdue the topical inflammation of the eye. This may be done, in a great number of cases, by removing the patient from the sphere of action of the existing causes; by putting him on a low and cooling diet; by confining him in a well ventilated room, from which the light is excluded; by opening the bowels with saline purgatives; and by keeping the eye moist

and cool with a weak solution of cerussa acetata, a mixture of vinegar and water, or even cold water. If the inflammation, however, do not speedily yield to these means, it will be necessary to bring into their assistance the application of leeches to the temples, after which, blisters are to be applied, if necessary, in succession to the temples, behind the ears, and to the nape of the neck. I have seldom met with a case in which the inflammation did not yield to these means. When, however, the inflammatory symptoms run high from the beginning, or prove obstinate and tedious, I would recommend taking eight or ten ounces of blood from one of the branches of the temporal artery. This will be found productive of the most marked and decisive benefit. Patients are often unwilling to submit to this operation, and medical men are not forward in recommending it; but I am fully persuaded that it is by far the most speedy and effectual, and, perhaps, the least productive of pain of any active remedy hitherto employed in this disease.

The conjunctiva sometimes remains injected with red vessels after the inflammation has ceased. This symptom usually gives way to a solution of sulphate of zinc, in the proportion of one or two grains of the sulphate to the ounce of water. This is to be used as a collyrium several times in the course of the day. Another mode of removing this symptom consists in dividing the red vessels

with a small scalpel, or the shoulder of a lancet. This may be also had recourse to in conjunction with the use of the collyrium of sulphate of zinc.

I am well aware that some persons commence the treatment of this species of ophthalmia by dividing the vessels of the conjunctiva, and using, from the beginning, astringent or stimulant collyria. This practice is strongly recommended by some medical men in the army in the Mediterranean, who have had excellent opportunities of observing its effects; and from their accounts of it, I am perfectly satisfied that it is often successful. I have no hesitation, however, as far as my experience goes, to give a decided preference to the former method of treatment. The latter, I have many reasons to think, is by no means so certain or efficacious as the former, as it is not unusual to see the inflammation pass into the chronic state in cases in which it has been used. Besides, it does not appear to me to effect a resolution of the inflammation in so short a time as the other; and I have sometimes observed that the first effect of it was a considerable augmentation of all the symptoms of the disease.

Another mode of treating this species of ophthalmia, consists in having recourse to astringent and stimulant collyria, without emptying the vessels of the conjunctiva by dividing them, or reducing the inflammation by leeches or the applica-

tion of blisters to the temples or parts in the neighbourhood of the eye. This practice appears to me to be injudicious in every point of view, and will, I fear, increase the inflammation, and be productive of other kinds of mischief in a great majority of the cases in which it is used.

The patient, as soon as he is convalescent from this disease, must be cautious, for some time, not to expose his eyes to a vivid light, or, indeed, to any cause of irritation. It will be necessary for him also to avoid scrupulously cold, fatigue, night-air, and, indeed, every cause of the disease, until the healthy state of the eye is perfectly restored.

CHAPTER II.

*Of Ophthalmia Gravis.**

ALL the symptoms enumerated in the ophthalmia mitis are present in this variety of the disease, but they exhibit a much greater degree of violence. The inflammation generally begins in the outer coats of the eye, and extends to the iris, retina, and other parts; but cases occasionally occur, in which there is reason to suspect, that the inflammation commences in the interior of the eye, and extends to the exterior. These are, however, ex-

* I had at one time determined on dividing the subject of this chapter into various sections; but on a closer view of that mode of proceeding, I found that it would necessarily lead to tiresome repetitions. The derangements in the structure of the cornea, and the affections of the iris and humours of the eye, which I am obliged, by adopting the present plan, to consider as symptoms only of ophthalmia, are put down as distinct diseases by others. In order, however, to avoid confusion and obscurity in the arrangement which I adopt, I shall endeavour to follow and describe the symptoms in the order in which they appear from the beginning to the termination of the disease; and to institute a method of cure calculated in the first instance to subdue the inflammation, and when that has not been accomplished, to save the eye from total destruction.

ceedingly rare; and when they do occur, I am disposed to think the inflammation generally produces an opacity of the lens, or a derangement in the structure or position of the humours of the eye, which occasions blindness. In a few cases in which I thought the inflammation commenced in the interior of the eye, I observed that the pupil was closed like the mouth of a purse, and it never afterwards acquired the power of dilating.

Sometimes one eye only is affected, but much oftener both are inflamed from the beginning. I have seen cases in which the inflammation was confined to, and ran its course in one eye, without any affection of the other. Such were, however, very rare. It is not unusual to find the inflammation become more moderate after extending from one eye to the other, especially if some time elapse from the attack of the one to that of the other. It would appear that the force of the inflammation is diminished by being divided between both eyes. Sometimes as soon as the inflammation begins to abate in one eye, it appears in the other; and it is occasionally observed, that it reaches suddenly from one eye (leaving, however, always some watering, redness, and tenderness of the eye) and as suddenly appears in the other. These may be considered as deviations from the regular appearance of the disease, as that is in general found to consist of a steady and intense inflammation of both eyes. It matters little, except in respect to

prognosis, whether the inflammation commence in the external or internal parts of the eye. When the disease is at its height, every part within the orbit, and even the palpebræ, are in a state of violent inflammation.

The conjunctiva in the early stage of this disorder is red, swelled and turgid. The secretion of tears is copious. I have never met with a case in which this symptom was absent. The patient complains of excessive pain and roughness of the ball of his eye, and he cannot bear even a feeble light. The eye-lids are red at their edges, and swelled, and there is often a sense of weight and scalding of the eye. Sometimes the integuments of the forehead and temples are red, swelled, and painful; or there is a soreness of the integuments of the whole head, with head-ache, a hard quick pulse, rigors, and other symptoms of fever. In almost all cases there is pain shooting across the forehead or along the temples. To these symptoms succeed in a very short time, odematous swelling and tension of the eye-lids, and prodigious tumefaction and turgescence of the conjunctiva, with a feeling as if the eye was to burst out of the head. If a ray of light now fall on the retina, the patient stoops his head with extraordinary celerity, covers his eye with his hand, and describes his feeling as if some sharp instrument was thrust into his eye, or as if something of a red colour darted through it. The eye-lids are painful to the touch, and the

force necessary to use in opening them causes much distress. The coats of the eye being now enormously inflamed, distended and tense, and the eye-lids, and very probably the lachrymal glands, and every part contained within the orbit, being in a similar state, the globe of the eye must be greatly pressed, and its motion in the socket rendered difficult and painful. The muscles which move the eye, being themselves inflamed, are rendered highly irritable by this circumstance, and act with redoubled force on the ball of the eye. This violent action of the muscles is, no doubt, a source of pain in itself, as far as the muscles are concerned; but the violence of the action on the inflamed and distended ball of the eye, already pressed by the swollen parts within the orbit, must cause a lancinating pain in every motion of the globe of the eye. As the muscles of the eye are almost always put in motion by the impression of light on the retina, on a person's coming from a dark place into the light, I think it probable that a portion of the excruciating pain following the impression of light on the retina in the case of violent inflammation, is owing to the violent action of the muscles on the ball of the eye, and to the difficulty of its motion in the orbit. In addition to all these causes of pain, it may be observed that the inflamed parts are chiefly membranous, or of an extremely delicate texture; and that inflammation in such parts runs a particular course, and is

attended with most exquisite pain. I may further add, that an affection of the eye, from the importance of the organ, and from the prevailing opinion among mankind of its being the most delicate and tender part of the human frame, causes much mental distress.

In some cases the under eye-lids are turned outwards, in others both eye-lids are closed, and swollen, and the skin of these parts has an efflorescent, shining appearance. It is not unusual to see the eye-lids open, and the conjunctiva so much swelled and turgid as to protrude from the eye in the form of two or three folds. The tarsi in these cases are necessarily separated from one another, and the tumefied conjunctiva fills the whole anterior part of the space between the eye-lids, so that it is not possible to obtain, by any means, a sight of the cornea, or other parts of the globe of the eye. When, however, the tumefaction of the conjunctiva is not so great, and the eye can be brought fully into view, the cornea appears sometimes to be unusually pellucid; the pupil is contracted; the iris is discoloured, or, as it were, full of spots, and I have often thought that it was forced nearer to the cornea than it is observed to be in the healthy state of the eye.

If the inflammation be now allowed to continue some time longer, a secretion of a purulent like matter takes place from the surface of the conjunctiva and glands of the tarsi. This matter is

pent up for some time within the eye-lids, in cases in which the tarsi come in contact; and in others where these are separated, it flows out of the eye mixed with the tears. It is so acrid as to irritate the eye exceedingly, and to excoriate the palpebræ and cheeks in passing over them. The sufferings of the patient in this stage of the disease are excessive. He describes his feelings as if boiling water was poured into his eyes. He is hot and feverish. He can get no sleep by night or day; nor can he remain long in any one posture or situation. Bleeding from the temporal artery, large doses of opium, and washing the acrid matter repeatedly from the eye, will bring slight relief in most cases; but in others, no topical application or internal remedy will alleviate the sufferings of the patient, and he at last becomes delirious. If a sight of the ball of the eye can be now obtained, it is found bathed with the purulent matter; a groove or depression, filled with this matter, runs round the whole circumference of the cornea; and the cornea itself is muddy in a part or the whole of its extent, or its surface is studded with small white spots. These appearances are unfortunately the commencement of a suppuration of the cornea, and when the disease has got this length, the muddiness partial or general of the cornea increases, or the white spots increase in size, or run into one another, and a suppuration of the cornea to a greater or less extent always takes place. The

muddiness in these cases, is owing to the effusion of lymph in the substance of the cornea, and when this extends over the whole or a part of the cornea, it is not unusual to see an abscess result, equal in extent to the muddiness. The white spots are owing to the same cause, and always prove to be the seat of abscesses. Sometimes, then, the whole of the cornea is included in the suppuration and destroyed; the iris is laid bare, the lens and vitreous humours are forced forwards on the iris, or entirely evacuated, and even the form of the eye does not remain. At other times, a portion only of the cornea suppurates, and the sight is more or less affected afterwards, according to the point at which the suppuration has taken place, and the extent to which it has gone. If the abscess be situated before the pupil, and if it penetrate the whole depth of the cornea, the aqueous humour, in escaping, will carry with it a portion of the iris through the aperture in the cornea, and the pupil will be generally totally obliterated by the protrusion of the iris, and its subsequent adhesion to the sides of the ruptured cornea. It not unfrequently happens however, that a suppuration of the cornea, penetrating also its whole depth, takes place at a point nearer its circumference than center; and in such cases it rarely happens, that the pupil is obliterated, as a small portion only of the iris, and that at some distance from the pupil, protrudes. I suppose it is unnecessary to observe that

the cornea collapses in all these cases, on account of the escape of the aqueous humour, and that the eye loses its rotundity for a time. When the aqueous humour is regenerated, and the eye regains its natural form, the pupil is found to deviate more or less from the circular form, and vision is rendered more or less imperfect according to the injury done to the pupil. It is surprising, however, how little the sight is affected by the protrusion and subsequent adhesion to the cornea of a considerable portion of the iris, provided the pupil be not included; and how forcibly nature afterwards endeavours to bring the pupil to its natural form. I have seen some cases in which the iris protruded at three parts of the cornea, and the pupil had a very irregular form; and many others in which it protruded at two points, and the pupil had an oblong form, sometimes in a transverse, at other times in a perpendicular direction, and yet vision was nearly as perfect in all these cases as before this derangement of the pupil took place. Generally no more of the iris protrudes after the bursting of the cornea than the portion at first carried out by the aqueous humour; but in some melancholy instances it continues to protrude from time to time, until the pupil is totally destroyed, or reduced to such a size that a glimmering only remains. This sad event seems to be owing to an adhesion not forming speedily between the iris and the cornea, by which the aqueous humour, when

it is regenerated in any quantity, escapes through the wound, and carries with it at each time an additional portion of the iris.

In the disastrous cases in which the whole eye is destroyed, the humours are generally evacuated in a violent paroxysm of pain. In cases of partial suppurations of the cornea, the patient feels at the moment of the escape of the aqueous humour, as if something in his eye gave way, or as if fire was knocked out of it by a blow. The escape of the aqueous humour, and the protrusion of a portion of the iris, events apparently so much to be dreaded, are followed by an abatement of the sufferings of the patient. The tension of the eye, and of all parts within the orbit, and even that of the eye-lids, is considerably diminished by this circumstance. The inflammation of the eye begins to decline from this moment, and the state of the eye to improve, unless in the melancholy instances in which the iris continues to protrude. The constriction, however, of the tender iris,* and its exposure to the air, tears, and acrid secretions of the eye, as well as to the motion and friction of the eye-lids, keep up still considerable inflammation of the eye, and cause much suffering. This is al-

* I do not mean to infer that the cornea possesses a contractile power. The constriction of the iris is occasioned by the inflammation and consequent accumulation of fluids in the protruded portion, by which it is pressed against the sides of the wound in the unyielding cornea.

ways the case for several days after the protrusion of the iris; but the pain and inflammation decline gradually; and if the little eminence on the cornea be not destroyed by caustic, or removed by a cut of a scissars, it becomes covered in time by a membranous or horny substance like the cornea, by which it is protected from the air and tears, and the patient ceases to feel any inconvenience from it.

In some few instances it appeared to me that the protruded portion of the iris was contained in a membranous sack. I was led to suspect that this was the case, from having observed in some instances of protrusion, especially when the iris protruded near the junction of the cornea with the sclerotica, that the eye preserved nearly its natural rotundity and size; but that the aqueous humour escaped, and the cornea collapsed by touching the little eminence with caustic, for the purpose of destroying it. It appears to me that the first effect of the caustic in these cases was the corrosion of the membrane, which restrained the flow of the aqueous humour, and contained the protruded portion of iris. I have repeatedly observed that the aqueous humour escaped, and the cornea collapsed in cases of protrusions of this kind, from the patient's being attacked by a violent fit of coughing, or a new accession of inflammation. After having noticed these facts for some time, I resolved to pay close attention to every case of

protrusion of the iris, in which the aqueous humour had not escaped, nor the cornea collapsed; and I uniformly found that the little eminence formed by the iris, was seated near the circumference of the cornea; and that it was not as sensible to the touch, or productive of as much pain from the friction of the eye-lids, and irritation of the air and tears, as when the iris was bare. I also found, that when the membrane gave way, in consequence of corrosion by caustic, or of violent straining of the eye in a fit of coughing, the iris protruded in greater quantity, and the sufferings of the patient, arising from the exposure and friction of the iris, increased.

Sometimes, the suppuration of the cornea does not penetrate its whole depth, and an ulceration or depression on its surface, is the consequence. The ulcer, in some cases, penetrates deeper, and brings about the escape of the aqueous humour with its concomitant symptoms; and in others is filled up with more or less opaque matter, rendering vision more or less imperfect, according to its extent, and the degree of opacity accompanying its cicatrization, if it happen to be situated before the pupil.

Ulcers of the cornea are sometimes so numerous as to render its surface uneven. They differ much in form and aspect. When they are produced by a high degree of inflammation, they are in general large and deep. Sometimes they are small, round

and deep; at other times they are irregular and deep; and often they are extensive and superficial, consisting of the removal of a portion of one or two lamellæ of the cornea. They are produced by inflammation, and they are themselves a cause of keeping up that symptom; and a fertile source of suffering and danger to the patient. They are much more prone to spread and penetrate deeper in some persons than in others; and they are often not filled up for a year or more after their formation; nay, I have reason to suspect that they are not filled up to the level of the cornea, in some cases, for a great length of time. Sometimes, however, the ulcer is speedily filled up with very opaque matter, which rises above the level of the cornea, and forms a prominence of the colour of pearl. If an ulcer of this kind, and the cicatrix which ensues, be situated before the pupil, vision will be necessarily obstructed. It rarely happens that any red vessels are seen running to the ulcers formed in this variety of ophthalmia, for several days after their first appearance. If the ulcer be situated near the tunica sclerotica, red vessels shoot into it in a very short time; but if it be situated in the center of the cornea, a considerable time elapses before any red vessel extends to it.

I have sometimes observed small aqueous vesicles in various parts of the cornea, but most commonly in the site of ulcers, near its junction with the sclerotica. These ulcers, notwithstanding

what many writers assert to the contrary, appear to me to be formed by the aqueous humour contained in a pellucid membrane. I have punctured several of them, and have uniformly found that the aqueous humour escaped, and the cornea collapsed. I do not pretend to determine whether the membrane which contains the water in this case, and the protruded portion of iris in the other just alluded to, be what anatomists have called the tunic of the aqueous humour, or an internal lamina of the cornea. The aqueous vesicle is represented by some writers as being formed by the vitreous humour. This may be the case, no doubt, in some instances; but I have seen vesicles of this kind rise from the bottom of ulcers, or appear just in the center of an ulcer which had been nearly filled up, in cases in which not a single drop of the aqueous humour had escaped, and where consequently the vesicle could not have been formed by the vitreous humour. When the vesicle appears in an ulcer in which the process of cicatrization is considerably advanced, a small transparent point is seen exactly in the center of the opaque spot, which to a person who views it superficially, appears to be a hole about the size of a pin's head.

The conjunctiva, besides being swelled and inflamed, has, in many cases, numerous ulcerated points on its surface, particularly on that part of it which covers the tunica sclerotica. When the inflammation and purulent discharge continue for

some time, the surface of the conjunctiva acquires a vitriol-like appearance, or it is covered with a fungous growth.

Swelling and turgescence of the conjunctiva are sometimes among the first symptoms of this variety of the disease. The discharge of a puriform matter from this membrane and the glands of the tarsi, though it occurs in a very large proportion of cases, is not however a constant symptom. When there is no purulent discharge, the swelling of the eye appears as if it was occasioned by the effusion of serum, or rather a glairy fluid under the conjunctiva. No water, notwithstanding, is let out by puncturing this membrane. The sufferings and danger of the patient's losing his eye, are usually less in cases of this sort than in those attended with a purulent discharge. I have seen cases of this kind in which the patient complained but little of pain, and could bear the light without much inconvenience. A large suppuration of the cornea is not to be dreaded under these circumstances; but vision is rendered frequently very imperfect by large superficial ulcers of the cornea. As there is evidently an effusion of serum under the conjunctiva lining the eye-lids and covering the sclerotica, so it seems to me that there is also an effusion of serum under that portion of the conjunctiva which passes over the anterior surface of the cornea. This membrane being thus detached from the subjacent parts, a portion of it sloughs off,

and a large superficial ulcer of the cornea remains, which takes a long time to fill up.

I may observe here, that the pain attending this disease, though it is a predominant symptom, has sometimes intermissions in its most violent forms. I am disposed to believe that pain is never entirely absent, but that what is called a cessation of pain is nothing more than a diminution, which by the ease it brings, is mistaken for a total cessation of pain. In this way, the pain frequently becomes moderate in the course of the day, but setting in pretty sharply in the evening, rises to an excruciating degree in the night, and the cornea is often found suppurated to a greater or less extent in the morning. It is important to be acquainted with this fact, as there is no trusting to the efforts of nature to remove the disease, as long as the other symptoms of inflammation are present.

The period at which the suppuration of the cornea takes place is various. Sometimes it comes on in 30 or 48 hours after the attack of inflammation; but often not for three or four days, or even longer. In cases of very violent inflammation in the summer season, suppuration may come on in 24 hours after the full establishment of the inflammatory symptoms. The purulent secretion from the glands of the tarsi and surface of the conjunctiva, is by no means uniform in the periods of its appearance. Sometimes it is an early symptom, and at others it does not come on for two or three

days after the attack of inflammation. This secretion is more abundant, and apparently of a more acrid quality in some persons, especially in those of a scrofulous habit of body, than in others. It is a great source of irritation to the eye, and by being pent up within the palpebræ, it causes much suffering to the patient, and hastens the suppuration of the cornea. When this discharge is abundant, the cornea, whether owing to a diseased action in itself, or to the action of this matter on it or to both, becomes dim. even when all danger of its suppurating is past. A close examination of it in this state gives an idea of its being softened in its texture and rendered thicker. The appearance of this discharge does not indicate any diminution of the inflammation. I have seen the whole cornea corroded or consumed in one night, in cases attended with a copious secretion of this matter.

The vessels and coats of the eye are so enfeebled and relaxed by the violent inflammation in this species of the disease, that though we may be able by rigorous treatment to prevent suppuration, still we cannot by any means in our power prevent its passing into the chronic state, in some few cases. It might be supposed that the tender retina would be so much injured by so violent a degree of inflammation, that its sensibility to the impression of light would be destroyed. I have met, however, with more than two or three cases in which the disease terminated in amaurosis of one eye. I

have seen no case in which it produced amaurosis of both eyes.

The course which I have now described is that which this disease usually runs, when left to itself. It occasionally, however, presents other symptoms, with which it is equally necessary to be acquainted. Sometimes purulent matter is deposited in the anterior chamber of the aqueous humour. This matter is generally taken up by absorption; but I have now and then seen it discharged through an aperture in the cornea. I have never seen it effluxed in such quantity as to distend the eye, and render it necessary to puncture the cornea in order to let it flow out. It generally assumes a semilunar form at the bottom of the aqueous humour in the anterior chamber of the eye. In some cases the lens becomes opaque, in others the opacity seems to be confined to the capsule. Sometimes an adhesion is formed between the posterior part of the iris and the capsule of the lens; or a tumour formed in the iris, which reaches to the cornea and lens and adheres to them. I may observe in this place, that diseased affections of the iris are much more frequent in this species of ophthalmia than I have reason to think they are supposed to be, from seeing so little mention made of them by writers on the diseases of the eye. If the iris be examined closely in most cases of violent inflammation of the eye, the pupil will be found to be more or less irregular in form. Small tumours in the substance

of the iris are by no means unfrequent occurrences. I have sometimes seen these so large as to press on the cornea, and make it project at a particular point. I have no satisfactory idea of what the nature of these tumours may be; but from seeing them frequently in cases in which purulent matter was effused into the aqueous humour, I have suspected them to be abscesses. They always disappear in time, leaving, however, a slight irregularity in the form of the pupil, which continues for a long time, and does not injure the sight in the smallest degree; or they cause an adhesion to take place between the iris and lens or cornea, by which vision is more or less injured, if not totally lost. I have observed these tumours of the iris more frequently in persons of a scrofulous diathesis than in others. They are always accompanied with great pain, watering, and intolerance of light. In one case, two points of the edges of the pupil were brought into contact by a tumour of this kind. The iris adhered at these points, and when the tumour disappeared, the pupil was divided into two parts by a line across it; yet the person could see pretty distinctly.

Sometimes blood is effused into the aqueous humour, and the cornea assumes a purple colour. It is seldom effused in such quantity as to produce inconveniences; and it is in general taken up by absorption. In some cases the lens is forced forwards on the iris. In others the iris is brought

forwards on the cornea, and the eye has a singular appearance from the iris lying close to the inner side of the cornea. An adhesion in these cases between the lens, iris, and cornea takes place, and the sight is irrecoverably lost. I have often suspected that the inflammation commenced in the interior of the eye in cases of this kind. It is somewhat singular that almost all the cases of this latter description, which have fallen under my observation, had been under the care of others for weeks before I saw them.

Having now given as full, and at the same time as correct an account of the symptoms of this species of ophthalmia, as it is in my power to communicate, it remains for me to observe, that cases of it occasionally occur, in which the inflammatory symptoms are not so violent, nor the sufferings of the patient so great, as I have represented them. That this comparatively less violent state of the disease belongs, however, to the virulent species of ophthalmia, will, I conclude, be admitted from the circumstance of its being attended by a degree of inflammation, sufficient to bring about the destruction of the eye by a suppuration of the cornea. It will be necessary, therefore, to keep this remark in view in the cure of the disease, not for the purpose however of changing the principle, but of modifying it and suiting it to the state of the case.

It will, I suppose, be readily perceived that the

variety of the disease, which I have now endeavoured to describe, as it is by far the most violent in its symptoms and destructive in its consequences, is that which by way of distinction has been called " Egyptian ophthalmia." I have not adopted this title for the reasons already alledged; but I am willing to allow, that if the frequency of a particular disease in any one country gives a right to a special denomination, no name was ever more justly applied. The marks of the disease in the eyes of the inhabitants of Egypt are evident to the most superficial observers. Its prevalence in our armies in that country will, I believe, be allowed by both officer and soldier to have been alarming and distressing. I wish I could state, from my own experience, in the treatment of the disease, and from what I saw of the practice of others, that our efforts in combating and subduing it, were more successful than, I fear, they will prove to be, on referring to the number of men lost by it to the service, and I may say to society, out of the armies employed in that country. I think I may venture to assert, that ophthalmia will be at all times prevalent in any army serving in Egypt, and that a certain proportion of men will be incapacitated for service by the disease, under the best system of military arrangement and medical treatment; but that an immense number will be lost to the service, unless judicious preventive

measures be adopted, and a proper system of medical treatment be pursued.

The troops in Sicily have been, it appears, at no time exempt from this species of ophthalmia; but it was particularly prevalent among them for a year or more after the return of the army from Egypt in the year 1807.

In Egypt it attacked, indiscriminately, women, children, and persons of all ages and ranks in the army. No peculiarity of constitution seemed to furnish an exemption from it. Persons of a scrofulous habit, or those having naturally weak eyes, were, however, more liable to it than others. The private soldier was, it is true, even in the relative proportion of soldiers to officers, the most frequent subject of attack; but the officer experienced occasionally its influence.

In Sicily, the disease seemed, as far as I have observed, to be pretty much confined to non-commissioned officers and private soldiers, and to their wives and children.

With respect to the most obvious existing causes of this species of ophthalmia, they are the action of dust and other irritating substances on the eye; exposure to high winds, especially on the march of an army, or in its manœuvring on a white and sandy plain; exposure to the glare and heat of the sun by day, and to the coldness and humidity of the night air, especially if it happens to blow fresh and the air be very humid. To these causes may

be added, privation of sleep, fatigue, and intemperance in the use of intoxicating liquors. I think it reasonable to suppose that any of the preceding causes, if applied for a sufficient length of time, and in sufficient force, may produce the disease; but many, or all of them, are often found to co-operate in producing it in the case of the private soldier.

I may observe here, that many of the causes which I have now enumerated, exist in great force in lower Egypt. The heat of the sun is very powerful for a great part of the year, and there is little shade to ward off its direct rays, or verdure to relieve the eye fatigued by the reflection of the light from the white and sandy surface of a great part of the country. The coolness and humidity of the night air are remarkable, and as to dust and high winds, all who have visited the country bear ample testimony to them.* These circumstances

* Ophthalmia prevailed to a greater or less degree in every regiment in Egypt in 1807; but much more in some corps than in others. It was observed to attack, in a great number of cases, men on guard, or those employed on working parties. I often suspected that the dust, carried about in such quantities by the winds in Alexandria, and in the adjoining desert, contained a considerable portion of pulverised salts. The surface of many parts of the desert abounds with salts, the water obtained by digging in almost every place about Alexandria, is brackish, and the ruins and walls of the houses of Alexandria are incrusted with saline productions. Perhaps some explanation of the fact of salts being so abundant in the soil of Egypt, might be derived

have, no doubt, considerable influence in modifying the disease in lower Egypt. If to the effect of these be added the various hardships of a military life, and the intemperance and carelessness of the soldier in a climate to which he is not habituated, and in which the progress of inflammatory diseases is uncommonly rapid, can it any longer appear extraordinary that ophthalmia should be so prevalent and at the same time so formidable a disease to an army in that country?

from the circumstance of the land being so nearly on a level with the sea. The formation of salts on the walls of the houses of Alexandria, and the absolute disintegration of the calcareous stone of which the walls are built, form an interesting subject of chemical inquiry. The stones have totally disappeared in parts of the walls of many houses, and the mortar in which they were bedded remains. It would be taking me too much away from my present subject to enter on an explanation of this fact. I shall content myself with briefly mentioning that it appears to me that the demolition of the stone is effected by its particles being separated and detached from one another by the crystallization of salts in its pores, and by a part of its composition going to the formation of saline compounds. Perhaps it is in the same way that the calcareous stones used for the construction of the ancient Syracuse, and many other cities, have disappeared, as it is said, from the face of the earth. But to return to my subject—is it not probable that dust, containing a large admixture of salts, may in as far as it acts as cause, contribute to the production of a violent inflammation of the eyes? I do not mean, however, to say that the co-operation of this cause is necessary to produce this effect, for I have repeatedly seen instances of the most violent ophthalmia in persons who lived on board ship, and never came on shore.

Many of the causes arising from soil and climate, which I have considered as belonging more expressly to Egypt, exist also in Sicily, but in a less degree of intensity.

It may appear surprising to many who have not been in Egypt or Sicily, and who have heard so much of the delights and warmth of a Mediterranean climate, to hear cold adduced as a cause of disease in these parts of the world. But, it must be recollected, that though the thermometer does not fall as low in these countries, as in the northern parts of Europe, still it rises much higher, and descends often in the winter season to a degree at which the body cannot maintain its proper temperature, in a state of inactivity. Besides, the body is rendered so susceptible of the action of cold by the long and uninterrupted summer heats in these latitudes, that a degree of temperature, which would be called warm in England, produces here a sensation of cold, and in all probability has as much power in producing diseases arising from cold, as a more reduced degree of temperature on more northern regions. With respect to the climate of Sicily, it may be said to be unpleasantly hot for four months, temperate for four more, and cool for the remaining months of the year. Its vicissitudes from hot to cold, and *vice versa*, are very considerable in the cool season. It is not unusual to experience two or three vicissitudes, with a difference of several degrees of

temperature in the course of one day. There is also considerable difference, at times, in the humidity of the atmosphere. The *Scirocco*, or south-east wind, which blows in general pretty freshly, is generally loaded with humidity. The climate of lower Egypt is, perhaps, more uniform in temperature, but high winds are very prevalent, and the night air is cool and uncommonly damp for a great part of the year.

The appearance, in the first British army that visited Egypt, of a more violent species of ophthalmia than had before at least been noticed by our army medical men; the degree to which the disease prevailed in the army; the continuance of it in some regiments after leaving the country; and the circumstance of its not only attacking a great number of men of the same corps after once appearing in it, but of its spreading from one corps to another; have very justly given rise to the opinion, that this species of ophthalmia has been introduced into our army in Egypt, and that it is contagious. In addition to these facts, I can safely state, from my own experience, that this species of ophthalmia prevailed, to an alarming degree, in some regiments in Egypt in 1807; and that it was much more prevalent, for a year, or more, in some of the regiments which returned from that country to Sicily in that year, than in those which did not form a part of the expedition to Egypt. I can further say, that when it made its appearance

in any regiment, whether it had been in Egypt or not, it generally attacked a large proportion of the men of that corps. These are imposing facts; and though some of them may be accounted for without adopting the supposition of the disease being contagious, still I am disposed to think that the impartial consideration of the whole of them will lead to, if not firmly establish the inference of the contagious nature of the disease.

With respect to the fact of the disease attacking a great number of men of the same corps, some explanation may be given of it, by attending to the similarity of their habits, situation, and employments. Thus we find, that if a regiment be stationed in a place in which the cause of any disease is particularly prevalent, a great proportion of the sick of that regiment will be found to labour under the same disease. Now, as ophthalmia is produced by a variety of causes as well as contagion, it is found to prevail more in particular situations than in others; but will this account for its continuing in the regiment after it is removed from that station, and for its being communicated from the infected regiment to one which had not been exposed to the causes, and in which the disease was previously unknown; I may also ask of those who maintain that the disease is not contagious, or new, in the medical history of the army, why the causes, to which our troops have been exposed in various parts of the world, did not pro-

duce ophthalmia in a degree and form of violence to attract general attention as well before the year 1801 as after it? Influenced by the preceding views of the subject, and submitting, at the same time, to the superior judgment of others, I have, myself, always acted on the supposition of the disease being contagious. Indeed, were the evidence less strong and persuasive on this side of the question than it really is, I think it would be the duty of every medical man in the army to incline to it, until the matter is put beyond all doubt, as it holds out numerous and obvious advantages. But as contagion is not the sole cause of this disease, we are to keep in view the other causes, and to guard against them as much as possible.

There are strong reasons to conclude, from analogy, that this species of ophthalmia may be produced by the introduction of morbid matter into the eye. I have reason to suspect, that it is occasionally propagated in some corps to a greater extent than it would otherwise go, by this means. I can adduce no direct evidence in support of this opinion, but I am disposed to think, the consideration of the habits of life of soldiers, their carelessness, and the crowded manner in which they live, will bear me out in it.

Though individuals may entertain very different opinions as to the less obvious causes of this disease, still I am persuaded, that all medical men, who have had an opportunity of observing its rise and

progress in an army, will be agreed as to the propriety and advantage of a speedy and effectual separation of the diseased men from the healthy, and of their being confined in an hospital set apart for themselves. For my part, as far as I have been able to observe, I have found, that the vigilance of military and medical officers, in detecting the disease on its first approach, and the plan of separation which was adopted in Egypt and Sicily, have had the effect of saving the eyes of many, by bringing those that were attacked immediately under medical treatment; and I have no doubt of diminishing the number of persons attacked by cutting off the source of contagion. Such has been the happy result of this measure, carried on with steadiness and perseverance in the army in Sicily, that ophthalmia is now (1810) so much diminished, that a recent attack of any of its acute forms is extremely rare. Surely it does not betray too sanguine a disposition to look for a still further diminution of the disease in the army to a continuance of the same measures. *

* It is incumbent on me to mention here that Dr. Franklin, inspector of hospitals, gave it as his opinion in the first conversation I had with him on the subject, that ophthalmia was contagious. I do not mention this fact so much with a view of supporting my own opinion by so highly respectable an authority, as of stating, that Dr. Franklin founded on it, and carried into effect, establishments for ophthalmic patients and convalescents, the favourable results of which have far exceeded the expectations of their most sanguine admirers.

TREATMENT.

It would appear, that the indications of cure in this variety of ophthalmia, ought to be obvious on the first view of the subject; yet there are few diseases, on the treatment of which, medical men in the army entertain such various, and even contradictory, notions. Some, supposing it to be a new disease, resembling, in no respect, the ophthalmia on which we have received lessons at school, overlook its inflammatory nature, and, of course, err very widely from the proper mode of treating it. Others, confounding it with the mild and chronic species of the disease, have no precise or settled notions of its nature, and, consequently, do not see clearly the necessity of adopting, in time, and with vigour, the measures calculated to arrest and subdue its violence. These aberrations of judgment are, in all probability, owing to the disease not yielding, in general, to the mode of treatment prescribed by the practitioners in private life, on whose authority, in other medical subjects, we have implicitly relied. It is certainly not owing to any deficiency of judgment or want of professional ability, but to their not having seen the disease in the extreme violence in which it appears in the army, that these persons have not recommended a more effectual mode of treatment. I have every reason to believe that the species of ophthalmia which we have now under consideration,

rarely presents itself in practice in civil life. * The few cases of it that do occur, fall generally under the observation of persons who seldom think of publishing an account of them; and this circumstance, with that of the rarity of occurrence of the disease, will account satisfactorily for our not having copious and correct descriptions of it from that quarter.

As all the symptoms are of an highly inflammatory nature, and as the organ concerned can suffer no derangement in its structure, without greater or less injury to its functions, it is evident that a resolution of the inflammation must be the primary object. This, in a number of cases, is not to be accomplished, unless judicious and active means be employed within twenty-four or thirty hours after the accession of a violent degree of inflammation. Such is the tendency of the cornea to suppurate after this time, that the most active antiphlogistic means, pushed to a great extent, sometimes fail to prevent its suppuration. In no disease is it more necessary than in this to adopt a fixed and vigorous mode of treatment, in order to ensure success. As time is of the utmost importance, it will not answer to try first blisters and collyria, and then go on to blood-letting, topical

* I do not recollect to have met, during my attendance at civil hospitals in Great Britain and on the Continent of Europe, a single case of ophthalmia, equal in violence to many I have seen in our own military hospitals.

or general—Bleeding, and that from one or both temporal arteries, as one or both eyes may be affected, to the amount of sixteen, twenty ounces of blood, or more, according to the urgency of the case and the strength of the patient, is to be the first measure. After this a large dose of salts is to be administered; the whole head is to be shaved; and large blisters are to be applied behind the ears and to the nape of the neck.* The patient is to be lodged in a dark but well ventilated room, and the ball of the eye, if there be any purulent discharge, is to be repeatedly washed by injecting some mild fluid between the eye-lids. It is particularly necessary to avoid violence in injecting or introducing by any other means the fluid into the eye. I do not expect any advantage from this latter measure but that of simply removing the acrid and irritating matter from the surface of the conjunctiva. Whether there be a purulent discharge from the eye or not, the ball of the eye, palpebræ, and forehead, are to be kept constantly cool and moist, by means of one fold of fine old

* Blisters are not to be applied to the temples, lest it may be necessary to take more blood from the temporal arteries. In cases, however, in which blisters were applied to the temples before the patient came under my care, I have been obliged to divide the temporal artery, nor have I ever abstained from the measure on account of the necessity of cutting through the blistered surface. I have met with no more difficulty in obtaining blood in these cases than in many others.

linen, wet with a weak solution of cerussa acetata, laid loosely over them. I must observe, that in some few instances the saturnine solution seemed to irritate and disagree very much with the eye; and that I have been obliged to desist from its use, and substitute for it a mixture of vinegar and water, or water alone. The cerussa acetata appeared to aggravate the symptoms in some cases in which there was a redness of the forehead and temples. When I had it in my power, I caused the temperature of the fluids I used in this way to be reduced by means of ice, and I applied them in that state to the eye.*

If the inflammation do not become considerably more moderate in eight hours after the first bleeding, it will be necessary to take more blood from the temporal artery, regulating the quantity according to the intensity of the inflammation, and to apply a blister to a great part or the whole of the surface of the head. And if the inflammation has not completely subsided in eight hours more, it will be still necessary to repeat the bleed-

* When a solution of cerussa acetata is used, it will be necessary to wash the piece of linen occasionally, to prevent the accumulation of the salt of lead on it, which necessarily happens in consequence of the evaporation of the water. By neglecting this precaution, I have sometimes seen the piece of linen become so impregnated with the salt, that a much stronger solution was applied to the eye than was originally intended. Care must also be taken not to allow the wet cloth to remain so long on the eye as to be heated and converted into a warm fomentation.

ing from the temporal artery to a considerable amount if the symptoms seem to require it.

In conformity to this plan, I have, in many cases, taken from the temporal artery from thirty to fifty ounces of blood in the space of the first twenty-four hours of the disease; and I have had the satisfaction to see the most violent degree of inflammation completely subdued by this practice in conjunction with the application of blisters and the other means just pointed out. It is not to be understood, however, that it is necessary to carry the bleeding in all cases to this extent, which I think may be fairly stated as the *maximum*. The inflammation, especially when attacked early, may be completely subdued, in many cases, by one bleeding of sixteen or twenty ounces, or by two bleedings of ten or fifteen ounces each, in conjunction with the effect of blisters and the other means. It is difficult to give precise rules as to the extent to which the bleeding is to be carried; but as it is the principal remedy upon which the cure of the disease rests, it is evident that it ought to be proportioned to the degree of violence of the symptoms, and repeated until all the inflammatory symptoms are very considerably abated. As I have never used bleeding without the application of blisters, I cannot say that the inflammation would yield to the first remedy solely; but as long as I had any suspicion of the least trace of inflammation, I never desisted from the application

of a series of blisters to the temples, behind the ears, and to the nape of the neck.

When the inflammatory symptoms have disappeared, which is known by the cessation of pain and intolerance of light, the patient may be allowed to use a weak solution of zincum vitriolatum, or some such astringent collyrium. The zinc, in the proportion of a grain and half, or three grains to the ounce of water, I have found the best collyrium. It does not, however, agree equally well with all patients, and I have been often obliged to substitute for it a solution of alum, acetate of zinc, or of lead. The addition of about half an ounce of tincture of opium, to eight ounces of any the preceding solutions, is found to contribute much in allaying irritation and diminishing weeping in many cases. Any of these washes may be persisted in as long as any tenderness of the eye remains.

Too much attention cannot be paid to the idiosincrasy of patients respecting collyria. The same wash does not agree with all patients, and a collyrium of a strength scarcely sufficient to produce the slightest effect in some, will irritate and inflame the eyes of others.

The swelling and turgescence of the conjunctiva, and the purulent discharge, are always considerably diminished by the means which reduce the inflammation. They continue, however, sometimes in a moderate degree, after the pain, in-

tolerance of light, and other inflammatory symptoms have totally disappeared; but they in general give way in a few days to the use of astringent collyria, and to bathing the eye repeatedly in cold water.

I suppose it is unnecessary to observe that the patient ought to live on a low and cooling diet, and be kept free from every thing likely to irritate his eyes during the treatment of the inflammatory stage of his disorder. His bowels must be kept freely open by means of neutral salts, and something may be done towards alleviating pain by large doses of opium. I have no dread of this medicine at any moment of the inflammatory stage; but it is to be considered only as a palliative remedy, and no relaxation in the other parts of the treatment is to be admitted on account of its use. It is particularly well adapted to those cases in which the pain intermits and comes on in violent paroxysms. A large dose of opium, given a little before the expected exacerbation, mitigates considerably the sufferings of the patient.

Even after all the inflammatory symptoms have disappeared, and the eye has regained its natural and healthy aspect, it will be necessary for the patient to observe precautions. He must accustom himself by degrees to the impression of light, and he must by no means fatigue his eye by reading, or any other exercise in which that organ is concerned. When he walks out he ought to wear a

green shade over his eyes for a considerable time. Exposure to night air, to a current of cold air, to fatigue or want of rest, is highly prejudicial, and will, in all probability, bring about a relapse. Such is the tendency of the inflammation to return, for weeks, I may say months, that a relapse is often brought about by the slightest causes that irritate the eye. I have repeatedly seen this happen from the use of even a moderate quantity of wine. No person but one familiar with the disease, and the treatment of ophthalmic patients, can have an adequate idea of the influence of spiritous liquors on the eye, when once weakened by an attack of inflammation. It is not unusual to find the cornea, which was before perfectly transparent and destitute of red vessels, become cloudy and covered with blood-vessels, in consequence of one fit of drunkenness. Small specks, and little depressions of the cornea, which were before scarcely perceptible, have been rendered conspicuous by the same course.

I have never used poultices or warm fomentations to the eye in this species of ophthalmia, as I was apprehensive they would increase the tendency to suppuration. Indeed in some few cases, in which this practice was adopted, before the patients came under my care, I found it impossible to stop the suppuration of the cornea. When the purulent discharge was very copious, and the eye-lids were glued together in the morning, I have been

sometimes compelled by the cries and sufferings of the patient to allow him to bathe his eyes in tepid water once a day. As I do not consider the appearance of the purulent discharge as indicating a cessation or even diminution of the inflammation, it cannot, of course, enter into my plan to recommend any means of encouraging it.

Some persons recommend scarifying the turgid conjunctiva, or even cutting away a circular portion of that membrane. I must confess, that as a first measure, I have perceived no kind of advantage from either of these operations. They are not of themselves by any means adequate to check, much less to subdue, the inflammation, and they occasion much pain and irritation of the eye. After the inflammation has been somewhat allayed by the vigorous treatment which I have already proposed, they will be often found excellent secondary measures. When scarifications are had recourse to, they may be made with the shoulder of a lancet, and they are to be carried down to the sclerotica. Of the two operations I prefer cutting out a circular portion of the conjunctiva. Neither of them is, however, to be used without some limitation. They are, beyond all doubt, most useful and best adapted to cases in which there is little or no purulent discharge from the conjunctiva. I have frequently found the discharge, particularly in scrofulous cases, to be much increased by them.

Now when this matter is copious, independently of its irritating and corroding effect on the coats of the eye, it is attended with another disadvantage, that is, the necessity of frequent interference with the eye for the purpose of washing it out, which is, I have little doubt, productive of much mischief.

As to the operation of cutting out a circular portion of the conjunctiva, it is best performed with a small forceps, and a curved round backed scissars. The patient being seated on a chair before the light, an assistant is to keep the eye-lids open and support the head, while the operator seizing with the forceps, a portion of the conjunctiva near the lucid cornea, is to commence the incision at that spot, and carry it round the ball of the eye, as near the cornea as possible. Bleeding is to be encouraged by removing the clot of blood from time to time and bathing the eye with tepid water. I have never known a sloughing of the cornea, or any injury result to this, the other coats, or to the humours of the eye, from this operation, when performed under proper circumstances and at a proper period of the disease.

Blisters, though applied ever so extensively to the head and parts in the neighbourhood of the eye, will be found, I should suppose, totally inadequate, of themselves, to subdue the inflammation. As an auxiliary measure they prove of incalculable

use, and they possess the advantage of not reducing the strength, though applied to any extent or for a considerable time.

I have given a full trial to bleeding with leeches in this variety of ophthalmia, and I have found the effect, though a dozen or more were applied, to fall very far short of that from opening the temporal artery. They may, no doubt, be used with advantage in cases in which the propriety of taking more blood from the temporal artery may be questionable; but experience justifies me in stating that they are, of themselves, totally inadequate to subdue the inflammation in its early and violent stage. When leeches are used as auxiliaries, or with any other view, they ought to be applied to the temples and forehead; for when they fasten on the eye-lids, or under the eye, their bites occasion much irritation, and there is always a quantity of blood effused into the cellular substance of these parts, which increases the tension and swelling of the eye-lids, and adds very much to the sufferings of the patient.

Cupping, and scarifying the temples, I am disposed to place, as to effect and utility, in the same scale as the application of leeches.

I have, in many cases, tried bleeding from the arm to a great extent, and I am fully persuaded that, under every variety of circumstances attending the disease, it is vastly inferior in efficacy to taking blood from the temporal artery. I am also

of opinion, that the inflammation will be much sooner arrested, and more speedily and effectually subdued, by a given quantity of blood taken from the temporal artery than by a much larger quantity taken from the arm. I fear that patients have been sometimes so much exhausted by large bleedings from the arm in this disease, that their general health has suffered considerably, and that the inflammation, from this cause, as well as the inadequacy of the bleeding to subdue it effectually, has often passed into the chronic state, in which it has either totally destroyed the eye, or rendered the patient unfit for the duties of a soldier.

I have also given a trial to bleeding from the jugular vein. This mode of taking blood my experience leads me to consider as preferable to bleeding from the arm, but I have seen no advantage attending it to induce me to think it superior in efficacy to opening the temporal artery. Besides, opening the jugular vein is a troublesome operation, and often not easily performed in some persons.

It appears from the writings of the ancient physicians, many of whom lived and practised in the very countries in which it has fallen to the lot of some British army medical men to see the disease, that bleeding from the vessels near the eye was recommended in ophthalmia in the earliest days of medical science. This fact, as it must have come to the knowledge of most medical men in the

course of their reading and studies, has, no doubt, excited the curiosity and fixed the attention of many medical men in our army, both at home and abroad. I cannot learn, however, that a remedy recommended by so venerable authorities, and one having all the appearances of being eminently useful, has been either generally adopted or pushed to a sufficient extent by any considerable number of medical men serving with the army in the Mediterranean. Those who, in the army at present serving in this part of the world, have adopted the practice in its true spirit, many of whom I have the pleasure of numbering among my friends, are agreed as to its superior efficacy. Surely, it is not a little gratifying to us to be able to announce, as more successful than any other hitherto adopted, a practice carried into effect in the same countries in which it was originally recommended by the most venerable medical authorities of antiquity.

The Arabian physicians, and many of the medical writers of the middle ages, mention the operation of taking blood from the vessels in the vicinity of the eye as a thing extremely common in ophthalmia. What medical man ever visited Egypt without being forcibly struck by reading the following observation of Prosper Alpinus? "Usus vero venarum capitis apud illos Ægyptios frequentissimus atque familiarissimus est, quòd sæpe ingens ipsorum caterva oculorum lippitudinibus corripiantur atque afflictentur."—"Itidemque

venas temporum magnorumque angulorum oculorum, ipsi in eisdem affectibus secant." De Medicina Ægypt. lib. ii. c. 10.

With respect to the operation of opening the temporal artery, I perform it generally on the anterior branch of that vessel. Some purpose, independently of the extraction of blood from the system in general, and that too from a part so contiguous to the inflamed spot, may be answered by opening this branch, as it communicates freely with the vessels which supply the internal and external parts of the eye. The operation itself is not only free from danger, but inconvenience. Before dividing the integuments, it is necessary to ascertain precisely the course of the artery, which is easily done by means of its pulsation. This being settled, an incision, somewhat less than an inch long, is to be made in the integuments in a transverse direction to the artery, and carried down until it is laid bare. The vessel is now to be opened with a lancet, or by a gentle stroke of the scalpel used for dividing the integuments. When as much blood as is necessary is taken away, it is advisable to cut the artery across by another stroke of the scalpel. The wound is now to be cleared of blood, its sides brought neatly together, and retained so by a slip of adhesive plaster. This precaution secures, in general, against any after bleeding; but in order to guard more effectually against this event, a small compress of lint may be

applied on the adhesive plaster, and secured by one or two turns of a roller round the head.

I have sometimes succeeded in obtaining as much blood as I required by puncturing the artery with a lancet, as is done in the operation of letting blood at the arm. I am informed by a medical gentleman in the army, that this is his usual mode of taking blood from the temporal artery, and that he very seldom fails in obtaining as much blood in this way as he wishes to draw off.

I know some persons are of opinion that it is not possible to obtain a large quantity of blood, in many cases, by opening the temporal artery. To this objection I can reply, that I have not attempted dividing the artery below its bifurcation, or touching any part of it but its anterior or posterior branch, and that I have not failed in more than one instance in a hundred to procure as much blood as I wished to draw off. My assistants and myself have now opened each some hundreds of temporal arteries, without failing, I may safely say, in half a dozen of instances, to procure fully as much blood as was required. Nay, we have performed the operation on the same persons three or four times, or even more, and have uniformly obtained as much blood each time as we wanted. In no instance have we experienced any difficulty in stopping the bleeding, or have we observed any unpleasant consequence to follow the operation. The patient generally faints, if he be bled in the

erect posture, when twelve or fifteen ounces of blood are taken away; but this is rather a desirable event than otherwise.

Sometimes, when the artery is not cut quite across, a small aneurism is formed, which, if left to itself, seldom produces any inconvenience, but which readily yields to moderate pressure or to dividing it with a stroke of a scalpel. At other times, when the artery is not completely divided, the wound in the integuments does not unite, a small black spot appears in the centre of it, which suddenly gives way, and a bleeding ensues. Both these events are owing to mismanagement. If an attempt be made to stop the bleeding by pressure, the patient will be exposed to much unnecessary pain and trouble, and the object will not be effectually or speedily obtained. As soon as it is found that the wound does not unite, and that a black spot is observed in the centre of it, all that is necessary to be done is to divide the artery quite across, and to bring the lips of the wound into contact as I have already pointed out. This occurrence is a very rare one, and can seldom happen under the management of an expert operator; and the mode of remedying is so simple that it furnishes no solid objection to the operation.

It would appear then, from both experience and a knowledge of the anatomy of the part, that opening the temporal artery is as safe a mode of letting blood as any other with which we are ac-

quainted. Indeed, the only objection to this operation is that arising from the supposed impossibility of procuring enough of blood. I have already shewn how much my experience is in opposition to this opinion, and I might adduce to the same effect the testimony of many others who have adopted the practice of opening the temporal artery in ophthalmia and other diseases. But as it is admitted that a sufficient quantity of blood can be obtained by the operation in some cases, it follows that the objections to it must diminish in proportion to the number of such cases; and as the success or failure of the operation cannot be predicted by any known means without making the trial, is it not incumbent on us, were it proved that it fails in a much larger proportion of cases than is admitted by those who object to it most strongly, to give the patient the chance of a remedy, which promises more relief in his complaint than all the others which have been used for it, put together?

I have been obliged, in about one case in a hundred, to relinquish the first incision in the artery on account of not getting blood enough from it, and to make a second incision, sometimes in the other branch of the artery, and at other times lower down in the same branch. I have uniformly succeeded in the second attempt; and had this not been the case, I question if it would not have been advisable to make a third incision rather than

give up the advantages of the operation. There is to be sure a good deal of cutting in this way of going to work, and two or three small scars will remain in the temple; but I leave any one to judge of the difference between the pain of the operation, and the scarcely perceptible disfiguration of a small cicatrix, compared with the torture of a violently inflamed eye, and the hideous deformity of blindness, without once taking into account that endless and inconsolable calamity.

The plan of treatment which I have now proposed will, I believe, be found as effectual in subduing the inflammation, and bringing the disease to a happy termination, as any other with which we are acquainted. I have not adopted the usual custom of giving returns of the number of patients admitted into hospital, and of specifying the number cured, and those who lost their sight, to give validity to my opinions and practice; for were I to adopt this plan, I would be under the necessity, in order to enable others to judge fairly, to give the individual cases of a great number of patients. Nothing can furnish more fallacious grounds for judging of the merit of any particular mode of practice than returns from military general hospitals, without an elucidation of this kind; as many of the patients are transferred from regimental to general hospitals, on various inevitable occasions, in such a state of disease as to be past recovery. I do not mean here to cast any imputation on the

character of regimental medical officers, or to say that the same melancholy fate would not have befallen those unhappy people, were they originally sent to a general hospital on the first appearance of their disease.

Having hitherto treated of the means calculated to prevent the suppuration of the eye; it remains for me to make some observations on the plan of treatment to be adopted when that distressing event takes place.

When, therefore, a suppuration of the cornea takes place either in consequence of some peculiarity of constitution of the patient, mismanagement on the part of the medical practitioner, or the want of timely assistance, our efforts must be directed towards palliating the sufferings of the patient, and saving the eye from total destruction.

It is plain when the whole of the cornea is involved in the suppuration, that nothing remains to be done, but to palliate the sufferings of the patient. The inflammation, however, does not terminate with the suppuration of the cornea. It continues in the iris and other parts of the eye; and opening the temporal artery, blisters and purgative medicines will, as may be expected, afford most relief. To these are to be added warm fomentations to the palpebræ, great attention in washing the purulent matter from the eye, and the free internal use of opium.

As to ulcers of the cornea, I know of no mode

of preventing their progress, and causing them to fill up, but that of keeping down inflammation, and leaving nature to perform her work undisturbed. With this view, then, blood must be drawn copiously from the temporal artery, and the other parts of the antiphlogistic treatment, which I have already pointed out, must be had recourse to. I am perfectly satisfied that it is to this mode of treatment that we are to look for the prevention of the spreading or penetrating of the ulcer, and consequently for the preservation of the eye. I may observe here, however, that ulcers of the cornea, by keeping up an almost constant state of inflammation of the eye, cause the disease frequently to pass into the chronic state, and that when we have reason to think this is the case, we are to adopt the treatment suited to it. It is recommended by some to touch the ulcers of the cornea with caustic: this practice, I am much disposed to think, ought never to be attempted, until the inflammation is reduced as low as it is possible to bring it under such circumstances. I am not quite certain that it is productive of good effects, even when its operation is aided by every possible precautionary measure. I have often had reason to suspect that it revived the inflammation, and thus brought about an extension of the ulcerated surface, and the deposition of more opaque matter than, in all probability, would have taken place, were the ulcers left entirely to nature. The caustic also often cor-

rodes a portion of the sound cornea adjoining the ulcer, and thus occasions an enlargement of the ulcerated surface with all its concomitant dangers and disadvantages. Ulcers, when not seated before the pupil, affect vision so little, that it is of very little importance with what kind of matter they are filled up. The great object is to prevent their penetrating deeper, or spreading so as to obscure the pupil; and I greatly fear that neither of these purposes is to be effected by the application of caustic.

When a deep ulcer is situated on the center of the cornea, exactly before the pupil, as this is the part of the globe of the eye most affected by the action of the muscles of the eye, and as it is necessarily weakened by a loss of substance, it frequently happens that the cornea gives way at the ulcerated point, and the escape of the aqueous humour, with the protrusion of the iris and obliteration of the pupil, follow. I have applied caustic to the ulcer in cases of this kind, as the danger of the eye bursting is so imminent as to justify any practice promising the slightest benefit. Finding, however, that this practice rather augmented than diminished the evil; and that no method of treatment hitherto adopted, had the slightest effect in saving the eye from total destruction; it occurred to me that the pressure on the ulcerated and weakened point of the cornea, might be diminished by letting out the aqueous humour. I have accord-

ingly performed this operation in every case that has occurred to me lately, in which there was a deep ulcer in the center of the cornea; and I have had the satisfaction to find, that by the time the aqueous humour was wholly regenerated, the ulcer of the cornea was so much filled up, and the part so strengthened as to be secure against bursting. By this operation I saved the iris and pupil from injury; and the only impediment that remained to the sight, was a small cloudy spot in the site of the ulcer, which though occasioning some imperfection of sight, was not so dense and impenetrable to the rays of light, as the cicatrix following a rupture of the cornea. The inflammation of the eye in general was always diminished by letting out the aqueous humour; and this, I have no doubt, contributed much to the deposition of less opaque matter in the ulcer than would otherwise have taken place. In some cases, the spot was not so opaque as to prevent the total admission of rays of light; and in others it was so circumscribed as to obscure only a small portion of the pupil. This operation may be performed with a lancet, or the knife used for cutting the cornea in extracting a cataract. The opening is to be made in the lower part of the cornea near its junction with the sclerotica, and the instrument must be introduced so as not to injure the iris.

It appears, then, that the most favourable thing that can happen in all ulcers of the cornea, is their

filling up with a matter which will admit the passage of some rays of light. A cicatrix is the inevitable consequence; but this is observed to occur in various degrees of density and cloudiness. In some cases, it is so opaque as to obstruct totally the passage of the rays of light, while in others, it has a certain share of transparency. Cicatrices from a rupture of the cornea, or deep ulcerations attended with much inflammation, are always the most opaque. The ulcerated portion of the cornea, when the ulcer is very extensive, and situated remote from the center of the cornea, is sometimes so weakened by the loss of substance as to yield to the pressure of the aqueous humour and to project beyond the regular convexity of the cornea. As the ulcers in which this takes place are very extensive, the opacity generally extends over a certain portion of the pupil, and vision is injured by this circumstance, and by the derangement in the convexity of the cornea.

The cicatrices remaining after ulcers and a rupture of the cornea, constitute a large proportion of those defects of the eye, which are called specks. I cannot say that I have found any topical application or internal remedy of much use in diminishing these. I have tried the internal use of mercury, and various stimulant and corrosive applications to the eye, without any manifest advantage. The only thing, perhaps, that human art can do in diminishing the opacity in these cases, is to divide

the red vessels that run to the opaque spot, and in that way prevent a supply of opaque matter. We are not, however, to put down every recent case of this kind as insusceptible of improvement.—When the healthy state of the eye is re-established, and a proper balance is restored in the action of the absorbing and secreting vessels of the eye, the absorbents begin to act with great force, and reduce considerably the dimensions and cloudiness of the speck. I have seen, in many instances, specks of this kind, which obscured the whole of the pupil, so much reduced in size by time, that the person regained a considerable share of sight. No case, however, has occurred to me in which more or less opacity has not ensued to ulcers of the cornea.

I have not observed any benefit result to the sight from destroying the little prominences, which are sometimes formed by the process of cicatrization, in the site of ulcers of the cornea, as they are opaque generally through the whole or a considerable portion of the depth of the cornea.

Various methods of treating protruded portions of the iris have been proposed. Some recommend removing the little eminence by a cut of a scissars, while others advise destroying it to the level of the cornea by means of caustic. The first method, though apparently the most expeditious and efficacious, is liable to one great objection, which is that a fresh portion of the iris is apt to protrude, after

the removal of the first. The second is free from this objection, if it be used under proper circumstances. It will be necessary, therefore, before applying the caustic, to reduce the inflammatory symptoms by the means already pointed out. If the protrusion be touched with the caustic before this is accomplished, the inflammation increases, and the iris protrudes in still greater quantity; whereas if the caustic be used, under favourable circumstances, it is productive of the most marked and decided advantages. All things, therefore, being in a proper train for the use of this remedy, an assistant is to keep the eye-lids open, while another person is to touch the protruded portion of the iris with a piece of argentum nitratum, rounded at the point. The patient sometimes moves the eye so rapidly about, that it is difficult to touch the little eminence with the caustic; but a person accustomed to the operation, will easily surmount this, by watching the motions of the eye, and bringing the caustic dexterously into contact with the iris. The patient complains of a very unpleasant sensation for some time after the application of the caustic; but this is soon succeeded by a state of relative composure and ease. When the eschar formed by the caustic falls off, the protrusion will be found considerably diminished in size; but if it be not brought to a level with the cornea, it will be necessary to repeat the application of the caustic, until that end is attained. It is seldom

necessary to apply it more than twice or thrice, with an interval of three or four days between each application. The eye is to be washed out by injecting some tepid water in it immediately after the application of the caustic. Protrusions of the iris, of ever so long a standing, may be effectually and safely removed in this way.

In cases in which the iris, though protruded, is, as I suppose, contained in a membranous sack, the utility of caustic is by no means decided. Before doubts arose in my mind respecting the nature of protrusions of this kind, I touched the little eminence with caustic, and I sometimes found that no impression was made on it by a first application. By a repetition of the practice, however, the membrane was corroded, the aqueous humour escaped, and the iris protruded in greater quantity. After observing these unpleasant occurrences, I abstained from applying the caustic in all cases of this kind, and I have had the satisfaction to see the little eminence at length disappear of itself quite to the level of the cornea, an adhesion, however, always remaining between the iris and cornea. It is but fair at the same time to acknowledge that the progress and termination of all cases of this kind were not so favourable. In some the sack gave way, sometimes without any perceptible cause, and at other times in a fit of sneezing or coughing; and it became necessary to have re-

course to caustic to destroy the protruded portion of the iris.

All attempts to return the iris into the cavity of the eye are not only vain but hurtful. In those distressing cases in which the iris continues to protrude, all that can be done, is to reduce the inflammation as quickly as possible, and then have recourse to the caustic.

As the puriform matter effused into the anterior chamber of the aqueous humour, was, in no case that occurred to me, so abundant as to cause great distension of the eye, I have never been under the necessity of puncturing the cornea, for the purpose of letting it out. I have the same observation to make respecting effusions of blood. Both these fluids have been absorbed in every case that I have seen, except in those, where they were discharged through an aperture of the cornea. As these symptoms are always preceded, and generally accompanied by a violent inflammation of the eye, bleeding from the temporal artery, and the other means already pointed out, are those on which our reliance is to be placed for the removal of them. If the fluids be not absorbed speedily, it will be advisable, as soon as the inflammation is subdued, to put the patients upon an alterative course of calomel.

Opacity of the lens, or of its capsule, in one or both eyes, is often produced by the violent inflammation in this species of ophthalmia. I cannot say

that I found any remedy or mode of treatment, except that by which the inflammation is subdued, of use in removing these symptoms. I have uniformly put patients labouring under these affections on a course of mercury, and I have kept them under the influence of that medicine for a great length of time, without being able to perceive any perceptible diminution of the opacity in a great number of cases. In a few, however, whether owing to the effects of the mercury, or the re-establishment of a proper balance in the action of the vessels of the eye, I have found that the opacity, whether seated in the lens or its capsule, gradually diminished, and was reduced to one small spot, seated behind the center of the pupil. Vision was very imperfect in all these cases, but it generally improved in time.

I have not as yet ventured on an operation for the purpose of removing the opaque lens or its capsule; in the first place, because I have met with no case in which the opacity in both lens was so great as to do away all hope of its diminishing in time, and when the opacity occurs in one eye only, let it be ever so dense, I do not think the operation justifiable; and secondly, because such is the weakness and tendency of the eye to inflame for a great length of time after suffering from this disease, that I am doubtful if any operation on the lens, let it be ever so opaque, will improve the state of the eye, until that tendency is completely

done away by time, and the different parts of the eye restored to their healthy tone and action.

As the inflammatory affections of the iris are always accompanied by an inflammation of the coats of the eye, they can require no peculiarity of treatment. In cases in which adhesions take place between the iris and cornea or lens, I think it advisable not to attempt any operation, unless the pupil be obliterated. Many unfortunate cases of the latter description have fallen under my observation, and I have thought that an attempt might be made towards opening an artificial pupil in some of them. I have lately read in a Neapolitan newspaper, that an operation of this kind has been performed with success on several persons in France. I have not, however, made any attempt of the kind, for the reasons which I have already mentioned, as influencing me in cases of opacity of the lens or its capsule.

Having now gone through the treatment of what may be called the two stages of this species of ophthalmia, and having pointed out the diet and regimen suited to patients in the first stage, it remains for me to say, that the patient, during the whole course of treatment of the second, is to be kept as quiet as possible, and out of the influence of every cause likely to irritate his eyes. His diet is to be mild and moderate, and no wine or spiritous liquor is to be allowed him, unless under the most pressing circumstances.

It is evident from the consideration of the history of this disease, as well as from that of the mode of treatment found most successful in it, that inflammation is the great source of all the evils with which it is pregnant. By the timely resolution of this symptom the eye is in general saved; but from some strange peculiarity in the constitution of patients, or from a weakness and loss of tone produced in the vessels and coats of the eye, by the intensity of the inflammation, it sometimes happens that the disease changes its character, and assumes the chronic state. It is highly important to mark this distinction, as the respective methods of treatment of both varieties are influenced by it.

CHAPTER III.

Of Ophthalmia Chronica.

It is difficult to give a satisfactory description of this variety of ophthalmia, as it grows out of the others, and is accompanied by a great number of their symptoms. As it is attended by a loss of tone and relaxation in the vessels and coats of the eye; and as it sometimes originates from a general debility of the constitution, it might perhaps be viewed as a transition of the disease from one stage to another. But as many of its symptoms present some peculiarity of character, and require a peculiarity of treatment, it may answer some purpose to collect under one head all the observations arising out of these circumstances.

Ophthalmia is often found to pass into the chronic state in consequence of its repeatedly occurring in the same person. This state succeeds much more frequently to attacks of the virulent, than to those of the mild species of the disease. It sometimes assumes the chronic state after a first attack of the mild species; but this is in general owing to

some peculiarity of constitution, or to bad treatment, especially the improper use of astringent or stimulant collyria. If one eye be weaker than the other, as is generally the case with persons who squint, the inflammation in the weak eye is extremely liable to pass into the chronic state, and to be afterwards revived by the slightest causes. As the other eye is affected by sympathy, persons with a defect of this kind, are liable to repeated attacks of inflammation in both eyes from causes which scarcely affect the eyes of others.

I have found ophthalmia prone to pass into the chronic state, when it attacked patients labouring under other complaints, or persons in a state of debility recovering from disease. It sometimes assumes the chronic state in patients under the influence of mercury ; and it is not unusual to see it pass into the chronic state in persons who have suffered much from pulmonic or rheumatic complaints, or in those labouring under herpetic affections, and in persons whose constitution is shattered by intemperance. It is extremely obstinate in all these cases, and often produces more or less imperfection of sight, or even total blindness.

The chronic, like the other varieties of ophthalmia, is frequently accompanied with some pain and intolerance of light. These symptoms are, however, never very violent or of constant duration. The patient is often free from pain for the greatest part of the day, but is suddenly attacked

with a paroxysm in the evening, which lasts several hours. The secretion of tears is more copious than natural at all times; but it sometimes comes on in violent paroxysm. When this is the case, the patient feels usually in the evening an uneasiness and itching of his eyes, which are soon followed by an overflowing of tears. These symptoms generally last the greater part of the night, and prevent sleep. The patient appears harassed in the morning, his eyes are weak, watery and suffused, and cannot bear even a feeble light.

As the ball of the eye has not regained its healthy appearance, the conjunctiva remains somewhat swelled and injected with red vessels. The eye-lids are also sometimes a little swelled, and the patient can seldom open them as freely as in health. This latter symptom is, no doubt, often owing to an increased sensibility of the retina to the impression of light; but I have observed it in cases in which that cause could not be suspected, and in which it appeared to be owing to a relaxation and inability in the muscles to raise the upper eye-lid, and to an effusion of serum into the cellular substance of the eye-lids.

If the watering and other symptoms continue some days, the red vessels of the conjunctiva shoot into the cornea. In some cases, the vessels advance only a short way over the cornea; in others, they pass in various directions over its surface, and are numerous and large. Sometimes they are

in such quantity, and of such a size as to destroy the transparency of the cornea, and give it the appearance of a piece of liver. I have often suspected that a portion only of the red vessels, in cases of this kind, ran under the conjunctiva, and that another set of red vessels, came from the tunica sclerotica, and ran in the substance or along the inner surface of the cornea. I have often seen red vessels coming from the sclerotica, so deep seated in the substance of the cornea, or as I thought in some cases, running along its inner surface, that I could not divide them without cutting deeper into the sclerotica than could with safety be attempted. Is it not probable that it is by these vessels, which are pellucid and imperceptible in the healthy state, that the cornea is nourished and saved from mortification, when all the vessels running to it under the conjunctiva are divided by scarifications, or by cutting out a circular portion of that membrane?

As the discharge of a purulent-like matter from the conjunctiva and glands of the tarsi, is a frequent cause of ophthalmia passing into the chronic state, so it is a frequent symptom of this species of the disease. It is usually observed in cases of scrofulous persons, and in such is accompanied with a diseased state of the surface of the conjunctiva, and a thickening and ulceration of the tarsi. This discharge keeps up the inflammation of the eye, and I fear that by passing into the lachrymal

ducts, it irritates and inflames them in some cases, and lays the foundation of fistula lachrymalis. If allowed to remain long in contact with the cornea, it corrodes its surface, or loosens its texture so as to render it more susceptible of ulcerating.

The eye is extremely liable in this species of ophthalmia to occasional accessions of more active inflammation. This is often brought on by the most trivial irregularity; but it is sure to succeed to exposure to the sun, cold night air, or intemperance in the use of intoxicating liquors. The dissipated mode of life, and the thoughtlessness of soldiers, expose them in a shocking manner to the influence of these causes, and it is now well known that when the disease has once assumed the chronic state in such persons, it is extremely difficult to bring it to a favourable termination. These accessions of inflammation produce a sense of scalding and grittiness of the eye, and increase the secretion of tears and intolerance of light. They are followed by the shooting of red vessels over the cornea, and the deposition of albuminous matter between its laminæ, or by partial suppurations and subsequent ulcerations of the surface of the cornea. The sufferings of the patient are very great during the time the inflammation lasts, and the eye is always rendered more watery and weaker by it.

It is necessary both with respect to prognosis and the method of cure, to understand clearly the

difference between an opacity of the cornea arising from the shooting of red vessels over it, and the deposition of albuminous matter under the conjunctiva reflected over it, or in its substance; and that formed by cicatrization of ulcers, or in consequence of a rupture of the cornea. An opacity of the whole or a part of the cornea, is, as I have already mentioned, a symptom of the inflammatory stage of the virulent species of ophthalmia; but it is only the forerunner of suppuration, and always proves to be the seat of an abscess. The opacity of the cornea in the chronic state of the disease, is owing to the deposition of albuminous matter between its layers, or under the conjunctiva reflected over it, and perhaps to a thickening of that membrane, and does not always indicate the suppuration of the cornea. I may also observe that it is, in general, accompanied by the circumstance of a number of red vessels spread in various directions over the cornea. This latter kind of opacity of the cornea, is, I may say, in general removed by absorption; whereas that formed by the cicatrix of an ulcer, or in consequence of a rupture of the cornea, is permanent, and perhaps not to be diminished beyond a certain extent, by any mode of treatment with which we are acquainted.

Ulcers of the cornea are, as I have already observed, sometimes produced by accessions of inflammation. These ulcers are, in general, superficial, and few in number; but in some instances,

they are so numerous as to render the whole surface of the cornea uneven. When an ulcer is situated near the circumference of the cornea, red vessels shoot into it in such abundance as to strengthen the eye at that part, and prevent its bursting. The cornea, however, sometimes gives way, when a deep ulcer is seated in the center of it, and the escape of the aqueous humour with its concomitant symptoms, follows. Sometimes a lamina of the cornea, to the extent of one half or a quarter of its surface, is removed by one accession of inflammation; and in some distressing cases, the cornea is totally destroyed by the successive separation of its laminæ, and the iris is laid bare. It might be supposed that the lens and vitreous humour would escape in every case of this kind; but this does not happen by any means frequently. It is prevented by the edges of the pupil growing together, and by the iris being soon covered over with a substance resembling the cornea, by which it is strengthened.

In some cases the cornea is so opaque as to have the appearance of being covered with a film. The opacity of the cornea, in all cases of this kind, which have fallen under my observation, was occasioned by a thickening of the conjunctiva, by a number of red vessels running under it, or in the substance of the cornea, and by the deposition of opaque matter in the interstices between them. I could never ascertain to my satisfaction, that there

was a membrane, or a new growth lying over the surface of the cornea.

Excrescences on the surface of the cornea, in the site of ulcers, are sometimes observed in this, as well as in the second stage of the virulent species of ophthalmia. They are in general abundantly supplied with red vessels.

The chronic inflammation of the eye is kept up by every cause that irritates the eye, but it is not unfrequently kept up by the formation of sties, by ulceration of the tarsi, and by disease in the roots of the cilia.

I have often suspected that it was connected with a venereal taint in the constitution, without there being any affection of the bones of the orbit. I was led to adopt this opinion, from having observed some peculiarity in the appearance of the eye and character of the inflammatory symptoms, when this form of the disease occurred in persons labouring under secondary venereal symptoms, and more especially, when a venereal eruption on the skin formed one of them. Both eyes are generally affected; the patient complains little of pain, and still less of intolerance of light, and is not in fact conscious of any thing being wrong with his eyes, until the sight begins to grow dim. The eye is more watery than natural, but there is no great secretion of tears. The redness of the conjunctiva is not so vivid, as when the disease of the eye is unconnected with lues; the form of the pupil is

sometimes irregular, or its edges are jagged, and the cornea is muddy in its whole extent, without any red vessels passing over it. Vision, as may be easily conceived, is totally lost for a time, or imperfect according to the degree of opacity of the cornea. This series of symptoms corresponds pretty well with the appearances of the eye in by far the greatest proportion of patients labouring under this complication of ophthalmia and lues; but the pain, weeping, and intolerance of light, go sometimes to a much higher degree. The inequality in the form, or jaggedness of the edges, of the pupil, will be found a pretty constant symptom; but I am apt to think, the opacity of the cornea, without any red vessels shooting over it, is the symptom the most strongly characteristic of a venereal taint being connected with the disease of the eye. There is in soldiers a peculiar expression of countenance, not easily to be described, which, in conjunction with the preceding symptoms, establishes in my mind the existence of a venereal taint in the constitution.

The connexion between the affection of the eye and lues, is rendered still more probable, by the fact of the opacity of the cornea disappearing, and the redness of the conjunctiva vanishing as soon as the venereal symptoms on the skin, or in other parts, begin to disappear.

I often observed that the lens was opaque in cases attended with the preceding symptoms; but I can-

not say that I ever found mercury of any use in discussing the opacity.

TREATMENT.

The uncertainty, and often the inefficacy of any mode of treatment in this variety of ophthalmia, have, I am led to suspect, brought the cure of the disease into disrepute in the minds of many medical men; and the circumstances of its resisting all means in some cases, and of its yielding to various and opposite ones in others, has, no doubt, had a share in giving rise to the contradictory opinions on the modes of treating almost every species of inflammation of the eye.

It is impossible to lay down a settled plan of cure, because there is no leading principle on which to found it. Our efforts, then, must be directed towards curing other diseases, with which the affection of the eye is connected, and to removing and palliating particular symptoms.

As to what relates to the management of the eye itself, it will be always necessary to guard against an attack of active inflammation, and when this supervenes, to remove it by opening the temporal artery, and applying blisters in the manner already repeatedly pointed out.

It is in this variety of the disease in its purely chronic form, that dividing the vessels of the conjunctiva, is found productive of such good effects. This operation may be performed with the shoulder

of a lancet, and as the object is simply to empty the turgid and relaxed vessels, it will be sufficient to draw the shoulder of the lancet once or twice along the conjunctiva on the under eye-lid. This being done, astringent or stimulant collyria may be used with decided advantage. Perhaps a collyrium of a solution of zincum vitriolatum, will be found as generally useful as any other. A small quantity of tincture of opium, camphorated spirit, or even brandy, may be added to it in a great many cases with manifest advantage. I have often found a mixture of tincture of opium or spirit and water, in the proportion of one ounce of the tincture to six of the water, answer admirably well. It will be necessary to increase the strength by degrees of any collyrium that is used, as all collyria lose their effect on the eye by long continued use. As much of the cure of this variety of ophthalmia depends upon collyria, it will be necessary to watch their effect on the eye, and to suit them to the state of each case, and the idiosyncrasy of each patient. I have used solutions of vitriolated zinc, of alum, and of vitriolated copper, by themselves, with great benefit; and I have often found their good effects much increased by the addition of a small quantity of tincture of opium or spirit. The eye will in some cases bear the application of verdegris, or a strong solution of corrosive sublimate; and it is but just to acknowledge that these violent applications are often of use when all others fail. The

collyria just enumerated, will, I should suppose, answer every purpose to be expected from such remedies in this species of ophthalmia; but I see no objection to the use of many others of the same class. Collyria are sometimes recommended, composed of such a variety of ingredients, that I am apprehensive the persons who order them, are not sufficiently aware of the changes which take place during solution. One thing is certain, that the substance to which the good effects of many of these collyria are attributed, cannot exist in the solution, as it is decomposed by some of the others, and the parts of which it was composed, are withdrawn from the solution, by forming insoluble compounds with other substances. Many collyria represented as specifics, come precisely under this description. In the course of my observation on the treatment of this disease by others, I found that many of the persons who set the most value on collyria, and who boasted of the knowledge of particular formulæ of them, which, according to their accounts, surpassed all others in utility, knew little of their composition. It is true these gentlemen might give up the question of the composition of their collyria, and stick to the fact of utility; but this, to say nothing worse of it, is a very unchemical way of proceeding.

The best way of using collyria is with an eye cup; but an utensil of this kind cannot be procured in Egypt, nor even in Sicily. I directed each

of my patients to be provided with a cup of earthen ware capable of containing about a pint, which served to hold his wash. He was also provided with a piece of fine sponge, with which he was directed to apply the wash to his eyes. The cups and sponges were washed in warm water by the orderly men of the hospital every morning. I may observe here, that as it was necessary to prevent the communication of the morbid matter of the eye from one patient to another, each man was provided with a washing basin and towel, and was strictly enjoined not to touch those belonging to others.

The watering or excessive flow of tears is most effectually removed by astringent or stimulant collyria, and by dropping some tincture of opium into the eye two or three times a day. I can recommend the latter remedy with much confidence. I do not know what share the opium has in the good produced, but I am certain that tincture of opium is vastly superior in efficacy to the spirit with which the tincture is made. On being dropped into the eye it produces a good deal of pain; but this is soon succeeded by a pleasant sensation. I have been sometimes obliged to continue the use of it for several days. When it does not however produce the desired effect in the space of a week, it is advisable to discontinue its use for a few days, and then commence it again. In some cases, in which both collyria and the tincture of opium

failed, I have made an eschar with caustic over the eye-brow, and down along the outer angle of the eye. This certainly diminished the weeping in many of the cases in which I used it; and it appears to me to act by producing some change in the action of the lachrymal gland. I must acknowledge a fact, however, which militates strongly against this supposition, which is, that the weeping is very often increased by the irritation of a blister applied to the temple. When the patient's general health is much reduced, and the watering comes on in paroxysms in the evening, it will be necessary to bring into the assistance of the remedies just mentioned, bark, wine, and a generous diet. Opium is admirably calculated to palliate almost all the symptoms of chronic ophthalmia; but it is particularly beneficial in cases in which the overflowing of tears comes on in paroxysms. So difficult, however, is it to remove this symptom in some cases, that it resists all means as long as the patients are confined to an hospital; and we are often under the necessity of committing the cure of it to the effect of time, to change of air, exercise, and the re-establishment of the general health.

If the red vessels passing over the cornea be few in number, and do not extend to the part before the pupil, we may trust to astringent collyria and the effect of time for their removal. But if they be more numerous, and pass in all directions over

it, and more especially, if they be so large and lye so thick as to destroy its transparency, it will be necessary to divide them with the shoulder of a lancet, or by cutting out a circular portion of the conjunctiva. As the object here is to cut off all communication between the vessels on the cornea and those of the other coats of the eye, it will be advisable to divide them as near the cornea as possible. The most effectual way of doing this is by cutting out a circular portion of the conjunctiva, which may be done in the way already pointed out. As to the red vessels which run, as I surmise, in the substance, or along the inner surface of the cornea, they are beyond our reach. Astringent collyria may be used after the operation of cutting out a portion of the conjunctiva.

The purulent discharge from the conjunctiva is in general dried up by the ordinary astringent collyria. I have often succeeded in removing this symptom with a collyrium of lime water. It will be necessary to bathe the eyes repeatedly in cold water for a great length of time after the disappearance of this symptom, in order to restore the lost tone to the conjunctiva and other coats of the eye.

I have employed various ointments to heal the ulcerations of the tarsi; I cannot say that I found any of them of much use. Caustic, if it be delicately and dexterously applied to the ulcerated point, is a good application; but, perhaps, the

most convenient, and at the same time the most certain mode of healing them, is to touch them morning and evening with a crystal of the sulphate of copper.

With respect to opacity of the cornea, whether confined to a part, or extending over the whole of it, arising from the deposition of albuminous matter in its substance, and the other causes already assigned, it may be diminished, and its total removal forwarded, by keeping down inflammation, and by dividing the red vessels of the conjunctiva by scarifications, or by cutting out a circular portion of that membrane. If the opacity be confined to one spot, it will be sufficient to divide the vessels which are found running to it; but if it be general over the cornea, the shortest and most effectual method is to cut out a circular portion of the conjunctiva as near the lucid cornea as possible. The clearing of the cornea appears to be accelerated in some cases by the effect of mercury. I have not found any topical application to the cornea of use in removing this symptom. Its removal is to be looked for from cutting off the red vessels that supply the opaque matter, and by promoting absorption. Sometimes when the patient's health is much reduced, the opacity resists every measure used to remove it, as long as the patient is confined in an hospital; while it gradually yields to change of air, regular exercise, good diet, and other means conducing to the re-establishment of the general

health. It will be often necessary, however, to use in conjunction with this plan, the means already recommended for the removal of the opacity.

Partial erosions or suppurations of the cornea may be prevented by keeping off active inflammation. When these affections take place, as they are always accompanied by more or less inflammation, it will be necessary to remove this by a small bleeding from the temporal artery, or by the application of leeches, and by blisters. The inflammation being subdued, the red vessels that are seen running to the ulcer, are to be divided, and astringent collyria are to be used. I have applied caustic in many cases to the ulcers occurring in this variety of ophthalmia, and it appears to me that the practice is much better suited to ulcers in this state of the disease than to those occurring in its acute forms. This remedy is admissible on no account until the active inflammation is subdued. When this is accomplished, the ulcers may be gently touched with caustic with advantage. It is quite sufficient to touch it once with the caustic. All that is required is to make a small eschar. This soon falls off, and the ulcer fills up in time to a level with the cornea. Sometimes in applying the caustic to the ulcer, the tears decompose it, and no impression is made on the ulcer. When this is discovered, it is in general deemed necessary to apply the caustic more freely, in order to secure its

effect. I have sometimes seen the ulcer much enlarged by this mode of using the caustic. To secure, therefore, against these accidents, it will be necessary to dry the cornea first with a piece of fine sponge, and then to touch the ulcer gently with a piece of caustic, shaped so as to cover the whole of the ulcerated surface. It may be necessary to inject some tepid water into the eye after the operation.

The mode of treating excrescences in the site of ulcers of the cornea is obvious. It consists in cutting off the communication between them and the red vessels of the conjunctiva, and in destroying them with caustic to a level with the cornea. I must say, however, that I have not found any benefit result from this practice, but that of merely removing the excrescence. The opacity always penetrates very deep into the cornea. Films, or membranes growing over and obscuring the cornea, are enumerated among the diseased appearances of the eye. No case has come before me, in which I conceive I could be justified in taking a scalpel and dissecting off, or in corroding with caustic, a membranous growth over the cornea. I have already given my opinion as to the causes of opacity of this kind in the cornea; and I have much reason to suspect that when a membrane is said to be dissected off, it is the thickened conjunctiva which passes over the cornea that is removed. It is unnecessary, I suppose, to mention that the

cornea never can recover its transparency after being stripped of this covering. The disease of the eye, known by the name of pterygium, exists sometimes to such a degree as to render the whole cornea impenetrable to the rays of light; but even in this case it cannot be said that blindness is produced by a film, as it is owing to the thickening and vascularity of the conjunctiva reflected over the cornea. I wish it here, however, to be clearly understood, that I do not confound pterygium with what have been called films of the cornea.

When the affection of the eye is accompanied by rheumatism, lues venerea, or any other disease, it will be necessary, in conjunction with the means calculated to remove these disorders, to have recourse to many of the remedies already recommended for the affections of the eye. In some cases of this kind, the injury threatened to the eye is so considerable, that if the method of cure of the other complaint do not conduce to the removal of the disease of the eye, it will be necessary to discontinue it and attend to the disease of the eye solely. This necessity frequently occurs in cases of a complication of syphilis and rheumatism with ophthalmia.

In cases in which the muddiness of the cornea, and other symptoms of chronic ophthalmia are connected with lues, the patients are to be put immediately on the use of mercury. As the object is to eradicate the venereal affection from the system,

the mode of using the mercury, and the extent to which it is to be carried, must be regulated by circumstances. Mercurial frictions will, I believe, be found to answer better in warm climates than any other mode of using that medicine. If the muddiness of the cornea be accompanied with venereal blotches on the skin, it is found to diminish and at last disappear totally on the skin being cleared of the eruption. I cannot say that I have observed the opacity of the lens or its capsule to be diminished in the smallest degree by the use of mercury, though continued for a great length of time and pushed to a great extent. It is somewhat remarkable that the cornea is not cleared in any perceptible manner by making a circular incision in the conjunctiva, in cases attended with this species of opacity of the cornea.

I have not found it necessary, or even useful, to confine patients, labouring under this species of ophthalmia, to dark apartments. It is certainly improper to allow them to expose themselves to a vivid or strong light, or to use their eyes in exercises which fatigue them much. I have every reason, however, to think, that a moderate light is by no means hurtful, as long as there is no active inflammation present. When a patient is shut up for a length of time in a dark room, his eyes are necessarily irritated every time he comes into the light, but if he be allowed to walk about the hospital with a green shade over his eyes, he can keep

clear of too strong a light; and the eye, by being always exposed to an impression of the same strength, is not irritated by sudden transitions from a feeble to a vivid light. Besides, it often happens in the best constructed hospitals at home, but more especially in the buildings employed as temporary hospitals on foreign service, that the means which are used to exclude the light, will exclude also the fresh air; and hence patients, shut up in the darkened wards of an hospital, are placed under the necessity of living in a confined and contaminated atmosphere. As the recovery of patients in this disease is, in general, very slow, a long confinement in hospital is inevitable; and if this time be spent in inactivity, and in the impure air of a gloomy cell of an hospital, nothing is more likely to impair the general health. Indeed, it is not unusual to find the health of many patients so much reduced by long confinement in hospital by this disease, that the cure of it is protracted and rendered difficult by this circumstance. Hence it becomes a matter of great importance to protect the general health in cases in which there is no general infirmity or constitutional disease; and if it be necessary to observe these precautions in instances of this kind, how much more urgently are they called for when the disease is to be treated in persons who are naturally weak and delicate, or in those who are enfeebled by other complaints? Finding that exposure to a moderate light did not

injure the eye, and that every other consideration of the subject was in its favour, I directed my patients to walk about with a green shade over the eyes, for a great part of the day, in the long and spacious gallery of the convent converted into an ophthalmic hospital in Sicily. I doubt much, if an hospital was constructed on purpose for ophthalmic patients, that it would by any means answer the proposed end so well as this convent. The only change that was necessary to make in it was, to give the walls a grey colour, as the reflection of light would be too strong were they allowed to remain white. In the absence of the patients from the wards, the doors and windows were thrown open, and the wards were cleaned out. Notwithstanding these precautions, the health of some patients was much impaired by the confinement, and the disease of their eyes seemed to continue stationary as long as they remained in hospital.

When chronic ophthalmia occurs in persons of a scrofulous habit, and proves obstinate and tedious, it will be often necessary, in addition to the remedies used directly for the eyes, to have recourse to tonic medicines, generous diet, and sea-bathing. Even this plan of treatment is not always successful as long as the patient remains in hospital; but it often proves successful when seconded by exercise and change of air.

All topical applications to the eye prove frequently of no use in cases of patients convalescent

from other diseases. The great object in all such is, first, to re-establish the general health, and the cure of the ophthalmia is afterwards, in general, easily effected.

Cases seldom occur which require the application of all the means suggested in the preceding observations. When such, however, present themselves, the period of the disease, adapted to the use of each remedy, and the order of succession in which the various means are to be brought into use, must be selected according to the judgment and experience of the person who orders them.

I have now to observe that time alone often effects in chronic ophthalmia what cannot be accomplished by the utmost exertions of human art. I fear that we sometimes carry our assiduousness in the application of remedies to a culpable degree. I am led to believe that too much interference with the eye, and especially the too frequent use of scarifications, and the too free application of caustic, or the use of too strong stimulant or astringent collyria, have often kept up the redness, watering, and other marks of chronic inflammation of the eye, and that the disease has been rendered more obstinate and unmanageable by the too free use of these means. When, therefore, we find that our remedies, after a trial for a certain length of time, do not produce the desired effect, it will be advisable to desist from their use for some time, and to trust, during the interval, to the cleanliness

and repose of the eye. The subsequent effect of stimulant or astringent collyria, and, in fact, the effect of every remedy calculated to remove the disease, is much increased by a cessation of this kind. I candidly confess, that I have been obliged, from downright want of success, to desist altogether in some cases from interfering with the eye, and to commit the chance of recovery of the patients to the effect of time, and to their own precautions in guarding against every thing likely to aggravate their disease. The result was often much more favourable than could have been well expected in such unpromising cases. I have often, with much satisfaction, observed that ulcers on the cornea which appeared stationary, red vessels of the cornea which could not be obliterated, and opacities of the cornea to a greater or less extent and density, which resisted every means, have all come to a happy termination in time when the patient was committed to the efforts of nature. The appearance of the eye improved, with the re-establishment of the general health, without the aid of any one topical application to the eye. It will be often, however, necessary to give seasonable assistance to the efforts of nature, in order both to accelerate and perfect the cure. Even cicatrices of the cornea which threatened at first to cause permanent blindness, have diminished in extent and density by time, and as much sight as been regained as enabled the person to perform many of

the active duties of a soldier. These fortunate results were always accompanied, I might say, brought about, by the re-establishment of the general health.

One useful lesson may be taken from a knowledge of these facts, which is, that soldiers apparently incapacitated for service by ophthalmia, ought not to be hastily discharged. This rule is strictly applicable to cases in which the obstruction to vision arises from an opacity of the cornea produced by a number of red vessels shooting over it, or by the deposition of albuminous matter on its substance. The total destruction of the cornea, large dense cicatrices seated before the pupil, the obliteration of a great part of the pupil, and opacity of the lens or its capsule, are all evils of so great magnitude, and most of them so far beyond the assistance of art, that soldiers afflicted with these calamities may be fairly and safely pronounced as unfit for service.

It may be easily deduced from what has been said on the origin, symptoms, and treatment of this species of ophthalmia, that the atmosphere and inactivity of an hospital life, are extremely unfavourable to the cure of it. A disadvantage in the cure and management of military patients, which seldom occurs in practice in private life, arises out of this circumstance. The soldier, if he be not confined in an hospital, must reside in his tent or quarters, where, with the best intentions

possible, admitting that he is exempted from duty, he can do but little for the recovery of his eyes; but if he be obliged to do his duty, even this little becomes impracticable, and he is exposed to fatigue, want of rest, vicissitudes of weather, in short, to every cause likely to aggravate the diseased state of his eyes. On the other hand, if he be exempted from duty, unless he be a prudent and correct man, the probability is, that he indulges in intemperance, and thus adds to his disease; or, at best, takes none of the precautions suggested by a just notion of the nature and danger of his situation. Army medical men are often compelled, by considerations of this kind, to detain ophthalmic patients in hospital much longer than they would otherwise do could they rely on their prudence and care. Even when every thing has been done to cure the disease, and every precaution taken to secure against a relapse, such is the thoughtlessness of soldiers, and so strong is their love of wine, that they often do away, in one fit of intemperance on the very day on which they join their regiment, all the advantages resulting from months of previous care and attention. I have seen, to my great annnoyance, many a relapse produced in this way in persons who had not a single symptom of the disease for six months before.

PART II.

OF THE CONSEQUENCES OF OPHTHALMIA.

It sometimes happens, after the inflammation of the eye is totally subdued, that a disease or derangement of the eye-lids remains, which produces deformity, or keeps up a diseased action of the coats of the eye, and, in that way, lays the foundation of injury to the sight. It also occasionally happens that an affection of the globe of the eye itself remains which impedes vision.

But, before entering on the consideration of any of the above diseases of the eye, it may not be amiss to say a few words on the subject of relapses of ophthalmia, (though they cannot perhaps in strict propriety of language, be admitted as consequences of that disease,) with the view of tracing their most prevailing causes, and of suggesting the most probable means of preventing their occurrence.

CHAPTER I.

Of Relapses.

THE tone and action of the vessels and coats of the eye are deranged by the inflammation which always forms a symptom of ophthalmia, and the action of the lachrymal glands is much increased by the sympathy existing between them, the retina, and other parts of the eye. Hence it arises, that when the eye has once suffered from inflammation, it remains tender and watery for a length of time; and it acquires a susceptibility of being inflamed by a very slight degree of action of any of the exciting causes of ophthalmia. It is difficult to say when this susceptibility ceases. It is evidently much stronger, and lasts much longer, in some persons than in others. I have observed that several of the patients who have been attacked with ophthalmia within the last three years in Sicily, had suffered from the disease in Egypt in the year 1801. What I wish, however, to be understood by a relapse is, a second attack of inflammation of the eye occurring within a few months after the disappearance of the first. I have every reason to think that the eye remains tender and

weak for a much longer time in some cases; but, I am sure, that when it is once weakened by inflammation, a relapse may be brought about at any time within six months from the period of the first attack, by causes that would not inflame it were it not rendered highly susceptible of inflammation by the antecedent disease.

The susceptibility of the eye to a relapse of the inflammation is much stronger in irritable, delicate, and scrofulous constitutions than in others. It seems also to be increased by a natural local debility of the coats and vessels of the eye, and by the defects in the cornea and iris, which are sometimes produced by a violent inflammation. It is much stronger after repeated attacks of inflammation than after a first one; and it prevails in a much higher degree and lasts much longer after an attack of the virulent species of ophthalmia than after that of the milder form of the disease. Thus, unfortunately, the inflammation lays the foundation of its own return, and the permanency and obstinacy of its symptoms being, in general, proportionate to the number and violence of the attacks, it often happens that one relapse speedily succeeds to another until the eye is ultimately destroyed, or the disease assumes the chronic state. The soldier is often, under the best management, incapacitated for the service in this way, or he is brought to that state in which he is rendered unfit for the active duties of his station for a great length of time.

Hence it follows, that when ophthalmia has once made its appearance to a considerable extent in a regiment, its tendency to relapse and to pass into the chronic state keep up its prevalence in that corps for a great length of time, independently of the circumstance of its spreading by contagion. It appears, from this view of the subject, that the eradication of the disease is not to be effected in a short time by any plan hitherto adopted, and that it is in vain to look for this solely from changing the quarters of regiments, or moving them from one place to another, a very favourite measure with military men. This certainly has its advantages, as, by a proper selection of quarters, the men may be placed in situations in which the causes of the disease exist in less force and abundance than in others; but the final extinction of it is not to be accomplished without judicious arrangements as to the quarters and duties of the men, and much patience and perseverance on the part of the military and medical officers in their efforts both to prevent and cure the disease. This opinion is not founded on speculation; it rests on the solid basis of experience. I have witnessed what I here relate in many regiments in Sicily, but the history of the 21st Regiment of Foot furnishes the strongest confirmation of it. Ophthalmia, in all its forms, was very prevalent in this corps in Egypt, and for some time after its return to Sicily. A case of the disease now rarely occurs in it. This, though

it is highly flattering to the medical men of that regiment, is not entirely owing to their exertions. Medical men in the army have little more to do than undertake the cure of such diseases as come under their care, and many valuable lives are, no doubt, saved to the army and to society by superior professional abilities; but let these abilities be ever so transcendant, and the exertions of medical men ever so indefatigable, they will be unavailing and insufficient to eradicate a prevailing disease from an army or regiment unless they are seconded by equally judicious and strenuous exertions on the part of the persons in whose hands are placed the direction and management of every thing relating to the prevention of disease and to the maintenance of the general health of the army. The eradication of ophthalmia from the 21st Regiment is to be attributed to the judicious and energetic measures of the intelligent and active officer commanding that corps, and to the great attention paid by all the officers of the regiment to every thing connected with the health and conduct of the men.

Relapses sometimes occur in hospital without ever being able to trace them to any cause. They are often accompanied by catarrhal symptoms, and, consequently, may be fairly referred to the action of cold. I have frequently observed relapses take place in patients in hospital who slept near a window, or between a door and window;

and on board ship when they slept near port-holes or hatchways. I concluded, from these circumstances, that a current of night air over the head was the cause of the relapse. The same cause will necessarily affect soldiers when they sleep in their barracks or tents, as they are more exposed to it than when they are in hospital. By far the greatest proportion of relapses is brought about in soldiers by putting them too soon to duty, by intemperance, and by a total indifference and inattention, on their part, to all the existing causes of the disease. All that I have said on the effect of intemperance, in producing and aggravating ophthalmia, will apply, with double force, to the subject of relapses. It is painful to be obliged to recur so frequently to this cause, but I fear it would be altogether impossible to give an adequate description of ophthalmia without taking it into account.

Perhaps it is now incumbent on me, after having railed so much at the predominant, if not the only failing of our soldiers, to endeavour to point out the source from which this evil arises, with the view of saving the poor soldier's character from a heavier imputation than it merits, and of lightening the censure which, no doubt, many persons, as well civil as military, will pour out very freely on myself for bringing the subject before the public. I found the justification of my conduct, on this occasion, on the motives which led to it, and I hope to establish no small extenuation of the offences

with which I charge the soldier by taking a view of the circumstances under which he is placed.

It need not be said, I suppose, that the private soldier, in Great Britain, is taken from the lower class of society, and generally from the most indolent, dissipated, and thoughtless of that class. The observance of nice rules of conduct, or much reflection on the advantages or disadvantages of particular lines of conduct, are not to be expected under any circumstances from such an individual. As soon as he enters the army he engages in a mode of life proverbially unfavourable to care and thought. The few objects on which he was accustomed to exercise his feeble mind no more present themselves, and the only thing that forces itself on his attention is the necessity of implicit obedience to military laws. As he has, ready furnished to his hand, every thing in the limited scale of his wants, he no longer sees the necessity of accommodating his manner of living to a standard set up by others, or to trouble his mind or body about the affairs which formed before the daily objects of his care and thoughts. His situation, independently of all this, is, in itself, extremely unfavourable to reflection, and holds out little inducement to pursue the steady and sedate line of conduct which brings such advantages with it in civil life. The soldier is always on the move or in a bustle, and either in actual danger or expecting to be so every moment. Thus seldom disposed, and often

prevented by the tumultuous and precarious life he leads, to extend his views beyond the present day, and having no taste for refined pleasures or amusements, he runs into excess in his hours of relaxation from duty, and considers the temporary exhilaration produced by wine as one of the great comforts of his life. Unfortunately, the too frequent recurrence to this practice leads to the most distressing consequences; but we all must allow that it is, at most, but a failing which arises out of the levity, *nonchalance*, and dangers of a military life. I have no reason to think that the British soldier sins more in this respect than the soldier of any other nation, but even if he does, he makes more than ample amends for it by surpassing the soldier of every other country in a high national spirit, intrepidity, and every other valuable military quality. The evil of which I here complain, as it arises out of the peculiarity of a purely military mode of life, must exist to a greater or less degree in every army in Europe; and I believe it is known to be as prevalent in the French army as in any other. I cannot say how far the suppression of the practice in our army would tend to elevate its military reputation, but I have no doubt of its contributing much to the health, and, consequently, to the efficiency of the army. As it appears to be so intimately connected with a military mode of life, it will require, in the person who undertakes the arduous task of reforming it, much

perseverance and firmness of mind, and a familiar acquaintance with the habits and frame of mind, and feeling of soldiers.

The susceptibility of the eye to inflame from the slightest cause, for a long time after an attack of ophthalmia, suggests the propriety of not putting convalescents from the disease hastily to military duties, and the negligence and thoughtlessness of soldiers point out the necessity of placing convalescents under the controul and care of persons capable of forwarding their recovery and regulating their conduct.

The plan followed with the convalescents from the disease in Sicily has, perhaps, as much to recommend it as any other which has been hitherto adopted.

The convalescent, on being discharged from hospital, is removed to a spacious well ventilated building, fitted up on purpose for the reception of such persons. Here he is given in charge to a military and a medical officer, and he is in every respect as well accommodated and attended as he was in hospital. He is allowed his full ration of bread, meat, and wine, unless the medical officer see something in his case which will justify him in withholding the wine. As soon as he appears likely to be benefited by exercise, he is obliged to walk out in the open air, with a shade over his eyes, for such length of time as may be thought useful to him, under the command of a commissioned

officer. The moment a relapse is discovered, and from the vigilance observed, such an event can exist only a short time without being detected, the patient is immediately sent back to the ophthalmic hospital, which, I may observe, is distant only a few hundred yards from the building occupied by the convalescents. But if all things go on well with the convalescent, and his eyes gain strength, he is selected out by a medical officer and transferred to another convalescent establishment which is some miles distant from the former. Here he is also comfortably accommodated and placed under the care and controul of a military and medical officer; but he is allowed to walk about a great part of the day at his own discretion, and he is occasionally exercised in marching, and other military employments. In this way his general health is improved, his eyes regain strength, and he is gradually habituated to exercise in the open air, and to the occupations in which he is to be afterwards employed. It is, among other things, the duty of the medical officer to see that the military discipline to which the convalescent is subjected be suited to the state of his eyes and general health. The convalescent is sent from this latter establishment to join his regiment, but not without being previously selected by a medical officer as a fit subject to be discharged.

The advantages resulting from this plan might be predicted from a knowledge of the disease and

the habits of soldiers; and I have no hesitation in saying that they will more than equal a reasonable expectation. Its good effects were not confined to patients purely convalescent. The same mode of management adopted with many patients in whom the disease had assumed the chronic state, and for whom little or nothing could be done in hospital, was found to be attended with manifest advantages, without the assistance of any topical remedy to the eye, or internal medicine. It will be often necessary, however, to contribute to the improvement of the eye by the ordinary remedies on such occasions, and to attend also to the means calculated to accelerate the re-establishment of the general health.

It may appear, from a superficial view of this mode of managing convalescents from ophthalmia, that it is attended with the disadvantage of keeping soldiers too long from their duties. An objection of this kind can never present itself to a medical man, and can arise only in the minds of military men, who, as may be expected, can be but little acquainted with the nature and danger of the disease and its tendency to return. One would suppose, however, that it required no extraordinary sagacity in a military man to discover the means by which he might satisfy himself as to the advantages of the measure; or, failing in that, it might reasonably be expected that he would be guided in his conduct by the opinions of his medi-

cal advisers. Two things are implied here, one a mind capable of inquiry, and the other, deference to the opinion of a person who is supposed to know nothing of military affairs, which are not always met in military characters, and which are to be found only in persons accustomed to the investigation of truth, and in those possessing a well disciplined and cultivated mind. For my part I have ascertained to my satisfaction, that the number of relapses was diminished in proportion to the strictness with which the preceding rules were observed; and that from the day on which they were first carried into effect to the present time, the number of recent cases of attack diminished gradually; from which it may be fairly concluded that the strength of the army has been increased, and the number of men lost to the service, very considerably diminished by them.

The establishment of an hospital for opthalmic patients solely, and a system of arrangement for convalescents, such I have just described, answer all the purposes of cure, and many of those of prevention. If the disease be contagious, it is prevented from spreading, by the patient being instantly removed from his regiment, and confined in an hospital set apart for his disease, and by not being allowed to return to his corps, or to engage in the duties of a soldier, until he is perfectly recovered. If it be propagated by the contact of infectious matter, the source of this is cut off by

the separation of the patient from his regiment, and from all persons (the medical and other attendants excepted) not labouring under the same disease as himself: And lastly, the treatment of the patient is better conducted, by giving him in charge to persons whose sole business it is to attend to him; and the cure is confirmed, and security against relapses gained by confining him to a proper system of diet and exercise, and keeping him at the same time out of the sphere of action of many of the exciting causes.

CHAPTER II.

Of Ectropium, or Eversion of the Eye-lids.

An eversion of the eye-lids, as I have already mentioned in another place, sometimes occurs in the inflammatory stage of the virulent ophthalmia. This symptom generally disappears with the resolution of the inflammation. The eversion of the eye-lids, which I propose taking into consideration in this place, is that which remains after all the inflammatory symptoms have disappeared. This affection, as far as has fallen under my observation, is by no means frequent among soldiers; and when it does occur in persons of this description, it takes place generally in the under eye-lid only; and it is a consequence of a violent inflammation of the eye and palpebræ. It is occasioned at first by an effusion of fluid into the cellular substance under the conjunctiva, and by a thickening of the conjunctiva itself, and the subjacent cellular substance. All these circumstances, together with the eversion of the eye-lid, take place during the inflammatory stage of the disorder; and by continuing after the inflammation, and being aided by

the relaxation of the muscles, they constitute the disease of which we are here treating.

Some persons are much more liable to an eversion of this kind than others. This appears to be owing to a natural flaccidity of the eye-lids, or to the palpebræ being more liable in some individuals than in others to be weakened and relaxed by repeated attacks of inflammation. Persons who have suffered from excoriations of the edges of the eye-lids, or ulcerations of the tarsi, or those with the characteristic marks of scrofula in the eye-lids, are particularly liable to it. It is also much more likely to happen to persons who have suffered from repeated attacks of ophthalmia, than to those who have had the disease more rarely.

An eversion of the under eye-lid, the only one I consider here, causes much deformity, is productive of much inconvenience, and is a fertile source of danger and irritation to the ball of the eye. It occurs in various degrees from a slight inclination outwards of a portion only of the tarsus, to a total eversion of a part or the whole of it. Sometimes the eye-lid is turned out only so much as to remove the tarsus to a certain distance from the ball of the eye; while in others the tarsus is turned completely downwards, and the everted conjunctiva forms an arch, the center of which is much elevated.

If the eversion be considerable, a large portion of the conjunctiva is necessarily exposed to the air,

and its surface becomes villous, and acquires an unusual hardness and roughness. Sometimes purulent matter is secreted on the surface of the conjunctiva, or small ulcerations are formed on it. As the tears cannot make their way to the punctum lachrymale of the everted eye-lid, they flow over the cheek, and by being copious and mixed with the purulent matter, they irritate the skin of the parts over which they pass. The ball of the eye by being deprived of so much of its natural covering, is preternaturally exposed to the impression of air and light, and to the irritation occasioned by dust and the friction of the villous and indurated conjunctiva. Hence this affection of the eye-lid keeps up a tenderness and watering of the eye, and thus independantly of the deformity and inconvenience it occasions, claims attention on the grounds of preventing further mischief to so valuable an organ.

TREATMENT.

Astringent applications, bathing the eye repeatedly in cold water for a length of time, and supporting the eye-lid with a compress and bandage, are sometimes adequate to restore to the relaxed and distended parts their lost tone and position. This will be found to be often the case when the eversion is only partial, and not of long standing; but a similar event cannot be expected from the

same means, when the eversion of the eye-lid is complete, and the diseased state of the conjunctiva considerable and of long duration. I have sometimes succeeded in cases of this description, by making two or three deep longitudinal scarifications, parallel to one another, between the edge of the everted tarsus and the ball of the eye, and by eliciting as much blood as possible from the incisions by bathing them with tepid water. As soon as the bleeding ceases, the everted eye-lid is to be turned up, and being restored to its natural position, and placed in contact with the other, the palpebræ are to be covered with the cataplasma aluminis, and secured by a bandage properly applied. It will be necessary to renew the cataplasm every three or four hours, and to attend to the just opposition of the eye-lids at the time of each change. There is seldom any necessity of repeating the scarifications, but the other parts of the practice must be steadily persisted in for five or six days, at the expiration of which time it is often found successful. It is by no means, however, so expeditious or certain as that of destroying the diseased portion of the conjunctiva by caustic. I should therefore recommend having recourse to this latter measure in all cases of eversion of long duration, and especially in those in which the thickening and induration of the conjunctiva and cellular substance are considerable. When this mode of treatment, then, is determined on, the

everted eye-lid is to be turned out as much as possible, and the whole of the diseased portion of the conjunctiva (carefully avoiding the punctum lachrymale) is to be freely touched with caustic. After this is done, the surface of the conjunctiva is to be carefully dried with a piece of fine sponge, which by absorbing the tears, and the dissolved caustic, prevents injury to the other parts of the eye. The use of the caustic is to be persevered in, with an interval of a day or two between each application, until the diseased portion of conjunctiva is destroyed, and the eye-lid regains its natural position. It will contribute much to complete and accelerate the cure to support the eye-lid with a compress and bandage for some time after the caustic is discontinued; and to bathe the eye repeatedly in cold water, or a weak solution of alum. This method of treating the disease, though apparently rough, and likely to produce pain and inflammation of the ball of the eye, is not attended by as much pain as might be expected, and very rarely causes any considerable inflammation of the eye. It is seldom necessary to use any wash, but a weak solution of cerussa acetata, or simple water, during the intervals of the application of the caustic.

No case has fallen under my observation, in which one or other of the means which I have now proposed, did not answer fully the purpose to be expected from it. I have therefore never found it

necessary to dissect off the diseased portion of conjunctiva.

I may observe here, however, though somewhat out of place, that I have occasionally met with cases of ophthalmia, in which I discovered small, hard and rough tumours in the conjunctiva lining the eye-lids, which by pressing against the ball of the eye, and riding on it in the motion of the eye-lids, caused much pain, and kept up the inflammation of the eye. I have never hesitated in removing them by dissection, and I have uniformly found a diminution of all the symptoms of the affection of the eye to follow the measure.

CHAPTER III.

Of Entropium, or Inversion of the Eye-lids.*

I CANNOT say that I have ever seen this affection of the eye-lids attend a violent inflammation of the eye, or come on as a consequence of it. I have often, however, found the tarsi turned inwards on the ball of the eye to a greater or less extent, in persons who have suffered much from ulcerations of the tarsi, or repeated attacks of chronic ophthalmia. The flaccidity of the eye-lids accompanying old age seems to favour their inversion very much. In some of these cases, the eye-lids of one or both eyes are inverted in their whole length; in others the inversion is confined to a portion only of the tarsus of one or both eye-lids. I believe inversions partial or general of the under eye-

* I use the term *entropium*, and not *trichiasis*, because the former signifies simply inversion; and the latter implies hair, and by common consent, an inversion of the cilia, which though necessarily following an inversion of the tarsus, may take place without any derangement in its position. Now in every case that has occurred to me the tarsus was turned inwards on the ball of the eye.

lids are much more common than those of the upper.

I have had patients in ophthalmia occasionally under my care, who had an inversion of the under eye-lid of one eye previously to the attack of inflammation; and as might be expected, I found the inflammatory symptoms considerably aggravated by this circumstance. The inversion in these cases was produced by a cicatrix of the conjunctiva lining the under eye-lid, occasioned by the destruction of a portion of that membrane by lime that fell accidentally into the eye.

In all cases of inversion of the eye-lid, the whole or a portion of the tarsus loses its horizontal position, and is turned in on the ball of the eye. The pain, inflammation, and watering of the eye, produced by the riding of the cilia on its coats, in every motion of the eye-lid or ball of the eye, must keep the patient in a constant state of distress and annoyance.

TREATMENT.

If a small portion only of the tarsus be inverted, and the patient be advanced in life, and more especially if he be liable to suffer from ulceration of the tarsi and disease in the roots of the cilia, and chronic inflammation of the eye, perhaps it will be advisable to decline an operation, and to trust to topical astringents healing the ulcers of the tarsi, and other means of a palliative cure. I have seen

considerable relief given in some cases of this kind by a similar mode of treatment. The tarsus was brought nearly to its natural position, and as long as the patient remained free from inflammation, and congestion of the edges of the eye-lids, he suffered little or no inconvenience; but as soon as these symptoms appeared, the eye-lid lost its tone, and the tarsus turned into a greater or less extent on the ball of the eye.

In cases, however, in which the inversion of the tarsus is more extensive, whether brought about by the preceding causes, or a cicatrix of the conjunctiva, in consequence of the destruction of a portion of that membrane by lime or any other corrosive substance, it will be necessary to perform an operation on the eye-lid in order to effect a radical cure. I may observe that all attempts at remedying an affection of this kind, by confining the eye-lids to their natural position by adhesive plaster, are totally useless; and that all endeavours to palliate the sufferings of the patient by destroying the eye-lashes, are both cruel and ineffectual.

When, then, an operation is determined on with the view of remedying the inversion of a part or the whole of the tarsus, a longitudinal portion of the skin of the eye-lid is to be cut out, in a line parallel with the inverted tarsus, from one end of the inversion to the other. By seizing the skin with a forceps, or between the thumb and fore-finger, exactly at

the center of the inversion, and raising it up, the inverted tarsus will be brought to its natural position, and the quantity of skin necessary to be removed will be thus clearly ascertained. If the incision be now made in the skin raised in this way, a larger portion of the integuments will be removed from the point corresponding with the center of the inverted tarsus, than at the extremities of the incision, by which we follow what is pointed out by the folding of the skin in a healthy state of the eye-lid. The best instruments for performing this operation are a forceps and a pair of curved scissars. In cases of inversion of the eye-lid from cicatrices of the conjunctiva, it will be necessary, before touching the external part of the eye-lid, to divide the cicatrix freely with a scalpel, or the shoulder of a lancet.

As soon as the bleeding from the wound in the eye-lid has ceased, its edges are to be brought into contact, and if the incision has been properly made, the tarsus will be found restored to its natural position. As the cure depends entirely on the proper union of the sides of the wound, I think it advisable to secure their close approximation by one or two stitches, according as the length of the ncision may require. Adhesive plaster is not always sufficient to keep the sides of the wound in close contact; and in many cases the tears get under it, and prevent its adhering to the skin. Even when adhesive plaster is assisted by the pres-

sure of a compress on the eye-lids, it does not always answer; for it is extremely difficult to keep the eye-lids motionless for any length of time: and if the eye-lid on which the operation has been performed be allowed to move to any extent, the tarsus turns in as before, the sides of the wound are necessarily separated, and the operation is not productive of the smallest benefit. When stitches are used, a piece of lint covered with any mild dressing is to be laid over the wound, the eye-lids are to be closed, and a compress of lint laid over them, and the whole is to be secured by a bandage applied round the head and face. If one eye only be operated upon, will be necessary to keep the other closed with a compress placed over it for two or three days. By adopting this precaution, we contribute to the composure of the eye-lid on which the operation is performed, as the motion of one eye is accompanied by a corresponding one of the other. On removing the dressing on the second or third day, the wound is in general found united, and the tarsus restored to its natural position. In some cases there may be a little swelling of the part, which gives an appearance of the cure not being complete; but this disappears in a few days, and the eye-lid presents no mark of disease but a small scar on the site of the incision, and even this diminishes so much by time as to produce scarcely any deformity. After the dressings are removed it will be necessary to use an astrin-

gent wash for some time, and to avoid every cause likely to inflame or irritate the eye. The conjunctiva continues red for a few days, but this is oftener owing to the previous rubbing of the cilia on the ball of the eye, than to the operation on the eye-lid. I have never observed much inflammation or pain of the eye, or much tension or swelling of the eye-lid, or in fact any dangerous or unpleasant consequence result from the operation when performed in the way I have just described.

CHAPTER IV.

Of Pterygium.

THE nature of this affection of the eye is now pretty clearly understood. It consists of a plexus of vessels running from the white part of the eye under a thickened portion of the conjunctiva to the cornea, and occupying a greater or less portion of its surface. It is somewhat extraordinary, that when it has advanced any way on the cornea, it has always a distinctly marked triangular shape, the apex of which points to the cornea. This is even perceptible in its incipient state, when it appears just beyond the confines of the sclerotica. I have met with many incipient cases of pterygium in soldiers, but with only one in which the opaque membrane had advanced so far over the cornea as to obscure one half of the pupil. The incipient cases were evidently brought on by chronic ophthalmia; but I could get no satisfactory account of the formation of the other. The patient said it was of a number of years standing.

This disease in its incipient state is not of itself productive of any pain, inconvenience, or loss of

sight; but in many such cases I believe it will be found to be accompanied by a chronic inflammation of the globe of the eye. It is only when it reaches before the pupil, and impedes vision, that serious inconvenience is felt from it.

I cannot say that I found any peculiarity of constitution to favour the formation of this disease, or any circumstance to conduce to it but a chronic inflammation of the eye. I observed, however, in some cases, a small yellow or buffy prominence on the sclerotica at the internal angle of the eye, before the pterygium manifested itself in its regular form on the cornea. If it be hereafter proved that this prominence indicates a beginning pterygium, it may be advisable to cut it out, and thus arrest the disease *in limine*.

Pterygia are described as approaching the cornea from various points of the globe of the eye. I have never seen any in cases of soldiers coming from any part but the internal angle of the eye. They are also said to be sometimes of a carcinomatous nature. I have never witnessed any thing of this kind among military patients.

TREATMENT.

As soon as a pterygium appears regularly formed on the cornea, let it have advanced ever so short a way on its surface, there can be no doubt of the propriety of destroying it. If the operation be performed at this early stage of the disease, the

cicatrix that remains from the loss of the portion of conjunctiva, will be very trifling, and the sight will be secured against any future injury from this cause.

The instruments required for this operation are a small forceps and a pair of scissars. The pterygium is found to corrugate by the motion of the eye and eye-lids, so that a portion of it may be easily seized by the forceps. This being done, the whole of the opaque substance is to be removed by a cut of the scissars from the cornea, and the incision is to terminate at the junction of the cornea with the sclerotica. There is no use in removing the diseased portion of the conjunctiva from the sclerotica, as it cannot impede vision at that part, and there is no danger of the disease returning. A small cicatrix of the cornea remains, and if it be not seated before the pupil, it does not affect vision in the smallest degree. It will be necessary to keep the eye covered with compresses, wet with a solution of sugar of lead for one or two days after the operation. I have never observed a violent inflammation of the ball of the eye, or any one unpleasant or dangerous consequence follow this operation.

FINIS.

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