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"EGYPTIAN OPHTHALMIA"

BY

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FOR many decades an enthusiastic controversy has been waged over the answers to the twin questions "When and how did trachoma become a disease of considerable extent and importance in Europe?" and "What was the nature of the ophthalmia with which the European armies taking part in the Egyptian campaign of 1798 were stricken?" Anyone who is going deeply into the subject for the first time must be amazed at the mass of relevant literature demanding his attention; and a study of it reveals the fact that opinions differ so widely that, on the one hand, one is told that trachoma "arrived" in a recognisable and even typical form after the Napoleonic campaign, and on the other, that the ophthalmia from which the troops most assuredly suffered was a muco-purulent conjunctivitis of Koch-Weeks' or gonococcal type.

Let us examine a few opinions on this subject, both those of the authors of standard text books, and those of authorities on the particular disease.

"... the affection ... was termed 'Egyptian Ophthalmia' because it was disseminated by soldiers who had acquired it in that country."

TEACHER COLLINS.

"The disease (Trachoma) was not particularly brought to the notice of European surgeons and medical research until practically the entire French Army of 32,000, and to a less extent the British, fell a victim to it during the Napoleonic Campaign in Egypt in 1798-99, and immense numbers of them were sent home 'blind.' From that time dates its introduction to England."

DUKE-ELDER.

"En tout cas, bien que la chose ait été longuement discutée . . . il est plus que probable que les armées de Napoleon et celles des Anglais, à leur retour d'Egypte, aient contribué à propager la maladie, en particulier dans le nord-est de la France, en Belgique, et en Angleterre."

CUÉNOD ET NATAL.

"Although therefore, trachoma was well known in Europe before Napoleon's time, yet its extraordinary dissemination in the French, English and Italian armies must undoubtedly be attributed in great measure to their infection in Egypt. On the other hand, there is no doubt that the armies of other European nations remained almost entirely free from Egyptian Ophthalmia, in spite of their frequent intercourse with the French troops."

"From the description of the disease given by the authors during the first decade of the last century, there can be no doubt that Egyptian Ophthalmia included not only the trachoma of the present time, but several quite different diseases, such as simple catarrh, follicular swelling, and follicular catarrh, blenorhoea."

"These incontestable facts refute the view . . . that the transmission of trachoma into every army and country in Europe was entirely the result of infection from the French Army in Egypt. The latter, on the contrary . . . did not suffer to any appreciable extent after its return from Egypt, and within the next ten years it marched through almost the whole of Europe without producing demonstrable epidemics of trachoma anywhere."

BOLDT.

"Never within the memory of man was any army, even the French in Egypt, so terribly ravaged by this disease (trachoma) as the Prussian Army during the years from 1813 to 1820."

EBLE.

"The subsequent history of large numbers of British and European troops showed that after the acute conjunctivitis had subsided the chronic disease, trachoma, made its appearance. When these troops were disbanded they naturally propagated trachoma among their families, and by these means the disease is said to have become more widespread than before."

MACCALLAN.

"The ophthalmias affecting the French, Turkish and British Armies in Egypt during the campaigns from 1798 to 1802 and in 1807 were . . . the same as those which are still prevalent in Egypt. That is, a combination of Koch-Weeks', gonorrhoeal and post-gonorrhoeal conjunctivitis with trachoma."

MEYERHOF.

" . . . trachoma first obtained particularly *wide prevalence in Europe* in the beginning of the nineteenth century. The French and British armies in Egypt were taken down with it, so that a very large proportion of the soldiers were affected, and when returned to their homes caused a rapid spread of the disease which was hence called ophthalmia militaris. Added to this in the case of the Russian, Prussian and Austrian armies was the enlistment of infected recruits from the eastern countries of Europe, where the disease had always

been prevalent (Boldt). So it happened that when in the Napoleonic wars the armies came repeatedly in contact with each other and with the civil population, the disease became more widely disseminated and occurred in epidemics. In some countries it became frightfully prevalent. In the English army, during the year 1818, there were more than 5,000 on the invalid list who had been rendered blind as a consequence of trachoma. In the Prussian army, from 1813 to 1817, 20,000 to 30,000 men were attacked with it; in the Russian army from 1816 to 1839, 76,811 men were subjects of the disease. In Belgium, in 1840, one out of every five soldiers was affected with trachoma. The French army, which was formerly supposed to form the starting-point of the disease, was just the one that, relatively speaking, was least attacked. The armies disseminated trachoma among the civil population through the discharge of soldiers affected with eye diseases, through the quartering of troops, etc. When they had so many trachomatous soldiers in the Belgian army that they did not know what to do, the Government applied to Jungken, who had then great repute as an ophthalmologist in Berlin. He recommended them to dismiss the trachomatous soldiers to their homes. By this fatal measure trachoma soon became diffused in Belgium to an extent observed in no other European state."

"According to the descriptions of that time, trachoma then ran a very acute course, and was attended with profuse secretion, circumstances which explain the rapidity with which the disease spread and the frequency with which it ended in blindness due to suppuration of the cornea. Now that epidemics have ceased, these acute cases are rare, and the disease has become comparatively benign."

"Trachoma, therefore, not only appears under a varying aspect, sometimes acute and threatening, sometimes chronic and mild, but it also seems to have *changed its character in the course of time*. The explanation of the way in which this has occurred was afforded by the study of trachoma in its native land, Egypt, where ophthalmia *Ægyptiaca* still rages as in the olden time."

"... many of the natives are attacked during the hot season by an acute inflammation of the eyes, in the secretion from which there is found one of the germs causing acute conjunctivitis, and most often the Koch-Weeks' bacillus. It is cases of the former kind that by causing suppuration of the cornea produce the blindness that is so prevalent in Egypt. Now all these different inflammations of the eyes were lumped together under the name of Egyptian ophthalmia and were regarded as identical with trachoma, while as a matter of fact, only the chronic cases are pure trachoma and most of the acute cases are mixed infections. A knowledge of this fact leads us to suppose that in Europe, too, during the great trachoma epidemics, with their cases that ran such an acute and dangerous course, it was generally a question of *mixed infections*, being so either from the outset or from the subsequent super-addition of a second infection (Morax)."

FUCHS.

"If the disease existed at all in England, it seems to have been entirely overlooked till the summer of 1804, when it appeared with alarming violence, in the second battalion of the fifty-second regiment, at that time stationed with the light infantry division in barracks near Hythe in Kent. Not a man of this battalion ever had been in Egypt, and it was entirely composed of a body of volunteers received in one draft from the Irish militia, and very shortly after their arrival at Hythe the disease made its appearance."

"I have reason to believe that a purulent ophthalmia is by no means unfrequent among the peasantry of Ireland... It is a curious coincidence that such a disease should be more peculiar to that country than to this, and that in Ireland also the germ of the Egyptian affection should have been preserved and fostered into action, when little or no appearance of it had taken place in this country. . . . had I not, by frequent opportunities afforded me of examining the disease imported from Egypt by the second expedition, been able to establish its identity with that consequent on the first, I should have attributed the dreadful prevalence which ophthalmia has had in the Army to the communication of a disease of Irish extraction."

VETCH.

There are probably many factors which combine to account for this extreme diversity of opinion. Perhaps the most important of these is the fact that, in considering the problem, one is tempted to discuss a disease or diseases described over a hundred years ago in the light of experience which has been acquired in the interim, which experience has brought its inevitable increase in knowledge, refinement in diagnosis, and accuracy in terminology. Many contemporary writers applied the term "ophthalmia" to the disease or diseases which they were describing, and many later writers have discussed such disease—whatever its true nature has been—as being identical with one particular clinical entity of the present day. Such an assumption is bound to lead to confusion and even to actual error.

Before considering the question of the actual nature of this post-bellum ophthalmia, it is reasonable to turn one's attention to another possible factor in the production of ophthalmic casualties—that of factitious ophthalmia. This aspect of the question was brought to the notice of the present writer by Mr. H. L. Eason, who sent him a copy of a letter, written by Dr. William Fergusson (not Sir William Fergusson, the surgeon, as Mr. Eason states), then Inspector General of Military Hospitals. The original of this letter was lately presented to the Library of Epsom College by Mr. A. W. Ormond; the present writer is indebted to the Librarian of Epsom College for his courtesy in allowing him to examine this original, of the authenticity of which there is no reasonable doubt.

The letter is of absorbing interest from many points of view, but especially for our present purpose; and since it appeared to be very little known, it seemed a pity to allow it to languish in relative obscurity. It is accordingly reproduced below in full, unaltered except for some minor corrections and additions in the matter of punctuation.

PORTSMOUTH, November 25th, 1809.

Sir,

I have read with great attention the Plan offered by Staff Surgeon Vetch for the prevention and extirpation of Ophthalmia throughout the Army. I acknowledge Dr. Vetch's talents, and feel much respect for the zeal and assiduity which he has manifested during so long a period in the investigation and treatment of this new malady. I confess, however, that all my views of the Disease, founded on perhaps a wider field of experience, but I own of far less minute investigation, differ decidedly from those of

my ingenious friend. I shall endeavour to illustrate these by submitting a short narrative of what I have actually seen, and from thence deduce some inference and offer some observations.

In the year 1806, I first saw this disease in its new form at Plymouth; about 60 Patients from the Armament under Sir Samuel Achmuty having been brought into Hospital with it, where they continued under my inspection for several months. I had then no doubt of the disease being real, tho' I had the disgusting conviction that imposture was also attempted, several men having actually been detected in injuring their eyes by corrosive application, and punished accordingly. The sufferers were mostly young men, nearly without exception recruits from the Irish Militia, and, I need not say, had never been in Egypt; they remained under my inspection about five months. Few of them got well, and several were discharged totally blind, and in that time I had ample opportunities of knowing that the Disease could not possibly be contagious thro' the medium of the atmosphere; I had even reason to believe that it was not infectious from actual Contact or inoculation.

In the year following, I was removed to Kent, the nurse and parent of Ophthalmia. I was still a believer in the real unfeigned nature of the Disease, but could not help there remarking that its victims were for the most part the newly enlisted Irish, that it broke out in an unaccountable manner amongst men marching down to embark, and adhered with particular obstinacy to Regiments such as the 43rd and 52nd, where the system of Drill to the Soldier was severe and incessant.

Early in the following year I embarked with Sir John Moore for Gottenburgh, where the 79th Regiment, on the occasion of Night Watches and Guards being enforced, relapsed into Ophthalmia, and produced some alarming cases; these were speedily cured, not by Medical treatment, but by the determination of Brigdr. General Cameron in directing a system of ridicule and punishment by which their watches and guards were doubled and their indulgencies of grog etc., abridged. He adopted this system with the greater confidence, because that Regiment when at Wheely in Essex, had suffered very severely from Ophthalmia, and had even been deemed incurably affected till a discovery was made of the men having purchased all the corrosive sublimate of the place, under pretence (as they informed the Apothecary) of mixing it with their heel ball.

My next experience in Ophthalmia was of a very different and much more interesting nature. Major General Pagut became my patient, when we returned to Portsmouth, for an affection of one of his eyes which he had contracted in Egypt; it was most painful and intractable, became rather worse during the passage to

Portugal so as to cause serious apprehensions of the eye being lost. When we came to land, however, at Maccira's Bay, he threw aside his shades and washes and encountered in that Climate the heat and dust of a painful march. I considered him as ruined, but to my utter astonishment he was perfectly cured, and I believe has remained well ever since. The Division which he commanded (the 1st Batton. of the 52nd and 2nd Batt : 3rd and 95th) had long been Ophthalmically affected. The hint was not lost; all the patients were set a marching and medicaments were discontinued with an effect precisely similar.

I heard no more of Ophthalmia till about the beginning of December in the same year, when the 2nd Batt; of the 31st Regmt. came to Lisbon from Corunna with about 200 patients, all similarly affected as those I had formerly seen in Kent. The alarm at Lisbon was naturally great; at first they were kept in a state of separation from the rest of the Garrison on board ships; but the disease did not abate, and afterwards they were landed on the opposite shore of the Tagus, apart from all other troops where it even increased. In this Regiment the imposture was more impudent and glaring than I had ever before even suspected. A man for instance would be ordered for guard or for Drill, and while supposed to be preparing his accoutrements would come back with his eyes highly inflamed and thereby be sent to Hospital, where the supposed disease ran its course of inflamed eyelids, ruptured cornea, etc. The Regiment was expected to march up the Country, and the trick was pertinaciously persisted in, so that all the Ophthalmics were left behind; but on the return of the Regiment to Lisbon, I was enabled, having made some discoveries, to convince the Officers of the cowardice and villany of these malingerers. Instead of medicaments, ridicule, shame and punishment were resorted to, and the whole, with the exception of 6 or 7 who had irreparably injured their eyes, were brought back in the course of a few days to the ranks. In about two months thereafter, this Regiment was again ordered to take the field with Sir John Cradock, when the Ophthalmics relapsed; about 100 were presently taken ill. A vigorous system of Drill in heavy marching order, while their Comrades were living at ease in cantonements, was resorted to; they were then shut up, not thro' fear of spreading the infection, but that they might more effectually be deprived of the indulgencies of Wine and animal food, of which the rest had a full ration, and an order was issued that no Ophthalmic, even the totally blind, was on any account to be left behind when the Army marched forward. The Ophthalmia disappeared as if by enchantment and the Regiment remained in the Field perfectly healthy. In the course of the Summer, a few trifling attempts were made to revive the imposture, by putting

pipe clay and urine into the eyes; this took place at Caldas and was detected both in the 31st and 27th Regiments, composed of similar materials, but they were visited by the prompt and disgraceful punishment of flogging on the breech, after which Ophthalmia was no longer heard of in the Army of Portugal and Spain.

From all the foregoing, in opposition to my former preconceived opinions, I am irresistibly led to the conclusion that the whole is an imposture of the most flagitious kind; and if it be true, as I have seen, that the Disease is almost entirely confined to one Class of people (viz; the newly enlisted Irish), that it shows itself amongst that class at particular times and under the suspicious circumstances of embarkations, hard Drills, etc., that the class alluded to have never been in Egypt, in a degree that should entitle them to a preference and predisposition to the Disease before other Soldiers, supposing it to be infectious or contagious, and lastly that the trick has been most completely exposed and detected not only by myself in the 31st Regiment, but by a regularly constituted Court in the 28th Regiment, my opinion may be entitled to some weight.

On other grounds, it may not appear improbable; everyone knows how universally the conspiracy for counterfeiting diseased legs obtained amongst our Soldiers; many more procured their discharge from the successful practice of this deception than have lately done for being blinded by Ophthalmia. The trick of the sore legs came however to be so well understood that it was disgraceful for any Surgeon of a Regiment to be imposed on by it. It therefore, entirely ceased throughout the Army, but on the occasion of our Troops returning from Egypt with numerous invalids from Ophthalmia, the conspiracy revived to new and more successful speculation on this recently imported disease. Let it however be supposed that all my views as here stated are erroneous, and that the disease is real and unfeigned; still I must revert to facts, where, from being an eye witness, I cannot possibly be mistaken, viz: the inefficacy or rather hurtful tendency of confinement, separation and medicaments and the immediate beneficial effects of free exposure to the open air and active exercise. Hence the plan of Dr. Vetch, which goes to perpetuate confinement and to preclude the benefit of free air and extended exercise, does not seem to me to be well adopted to the extermination of Ophthalmia. In other points of view I must also hold it to be objectionable. If the Disease be contagious (yet this contagion has never spread from the Barrack Room of the Soldier to the contagious dwelling of the inhabitant, nor affected in its aggravated form the soldiers of the English Militia, tho' living

under the same roof) we have learnt from the melancholy experience of all great general Hospitals in every service that, to bring an enormous mass of the infected under one roof is not the way to eradicate its seeds, but on the contrary to give invincible activity to its power of destruction. The means of separation are to be had at every Regimental Hospital, and it should depend on the Medical Officer there to enforce them. If infectious, the same rule is applicable, for the means of separation are equally in the Surgeons power, and Patients will have a better chance of being cured, or at least escaping reinoculation at the quarters of their own healthy Regiment than in a community completely contaminated with the infectious disease; or lastly, if it be feigned, an Ophthalmic General Hospital or Depot can serve no purpose that I see but that of a receptacle for conspiracy, where the Villains of the Army may have freer opportunities of maturing their Plans of imposture and rendering detection more impracticable. I would on the contrary propose that the present establishment be broken up, and the patients remanded to their Corps, there to be cured or discharged, *but without pensions*, under the responsibility of their respective Surgeons. To have ever taken them away unless totally blind under any circumstances (that of foreign service certainly not excepted) I consider to be wrong. It must have acted as a prohibition to investigation, a proclamation of idleness and freedom from responsibility to that class of Medical Officers, who would have had it in their power fully to investigate the Disease, and whose activity might have been depended upon, because their interest and character would both have been at stake. This good effect may still be partially obtained by sending back these patients to their Regiments; and hereafter, in fresh cases, the Commanding Officer may probably prove the best Inspector, the Adjutant the best Surgeon, and the Drummon the most proper Dispenser of cures—the Medical Officer, however, always attending to verify and Warrant the quantum time and fitness of the dose. It is to be lamented, I must farther think, that the proceedings of the Court which sat on the Conspirators of the 28th Regiment and sentenced a considerable number to transportation should have been withheld from the public; had these been promulgated, as they have not even been heard of by a great majority of the Army, every Medical Officer would have been on his guard against the imposture and understood the means of detecting it; its circulation now would in all probability deter others from such attempts, and if read at the Ophthalmic Depot might even shame the more practised adepts of that establishment.

Before I conclude, it belongs to my place in the Medical Department of the Army, and I owe it to my profession, to consider

more fully the pathology of this new Disease, and state my reasons why I pronounce it to be fraudulently and fictitiously made. Everyone knows that Ophthalmia may spread epidemically in this, or any other country, and that the symptoms may run so high as to impair or destroy vision, but there have been hitherto rare and sporadic instances, certainly not exceeding one case in the 100, and never occurred before without some constitutional disturbance, or sympathy from so dreadful a local attack of acute Disease.

We may suppose that local deposition indicative and critical of constitutional indisposition may be formed upon the eye as we see it on other parts of the body in Gout, Piles, Phlegmon, etc., but these last are even preceded or accompanied by strongly marked constitutional disturbance. In these respects, therefore, the present Ophthalmia, which is characteristically free from local pain and general disturbance, differs from all other diseases, and is an exception to the established laws of the animal economy. It has been said to be a new form of contagion imported from Egypt; but where and why did this contagion lie so long dormant (upwards of four years) till it appeared so suddenly on the 28th Regiment, where it was detected to be an imposture?—and why have its ravages been since confined almost exclusively to the newly enlisted Irish, who cannot have held more communication with the Army of Egypt than other Soldiers. Besides, the French who lived in Egypt never heard or dreamt of their endemic Ophthalmia; (if we are to believe Assalini) the produce of the soil and climate of Egypt possessing either an infectious or contagious quality, and I can declare for myself that I never saw an instance of its communication where there was not much occasion to suspect collusion in trick, and I have seen other instances and made experiments, where, if contagion or infection had in any degree existed, it is perfectly impossible, but that it must have been communicated to the healthy but honest subjects who were purposely exposed to its influence.

But on this very interesting point it behoves us to examine still more closely. It is recorded, and I have known a man seized, while on guard, with the new Ophthalmia which would run a course so rapid and dreadful as to destroy the organ of sight within 48 hours or even less; yet under this tremendous visitation the patient's general health was in no way disturbed, the circulation in no degree hurried, nor the appearance of the tongue changed, altho' the whiteness of this last uniformly characterises every inflammatory disease from a Whitloe of the finger to an inflammation of any of the great vital organs. Here then is at once a decided exception to the laws of nature, and a nullification of those hitherto unerring signs and warnings with which we are

endowed by the Wisdom of the Creator for our preservation. How can this have happened?—for such appearances were never before seen, either in the Ophthalmia of this country nor of Egypt. I say with confidence, by the application of some caustic substance to the eye, of sufficient potency to destroy at once the fine nerves of its external coats; those are the seat of its exquisite sensibility, which is great in proportion to the importance of the organ to which they are the outpost and the Guard. Thro' them all natural disease must make its inroads, and the warning which they give to the patient is not to be mistaken; but if these are suddenly destroyed by a potential cautery, and the cord or key, on which the higher ranges of sensation in their connecting series depend, is unstrung or demolished, the whole organ, being thus put without the pale of the constitution, tumbles at once into anarchy and annihilation, before the unopposed action of the artificial agent.

To illustrate this, and that I may not be suspected of using wild theoretical language, I shall take a familiar instance from the improved surgery of the present day. In the guarded application of a caustic to the inner surface of the urethra for a few seconds, we have an illustration of what must happen to the eye, when the same substance is used for hours together to produce the appearance of disease. The nerves of the strictured urethra are endued with an acute and morbid sensibility that can scarcely bear the contact of a blunt innoxious instrument, and thro' them diseased impressions are conveyed which more or less affect the general frame; yet the application of a caustic gives only a momentary pain, and by destroying the small nerves which are the seat of sensation and conductors of irritation never failingly gives a respite to the present symptoms of the disease, and deadens the future sensibility of the passage.

To indulge this disquisition further would be foreign to the purpose. But before I conclude, I wish to vindicate myself from even the appearance of illiberality on two points of the foregoing, when, to do justice to my subject, I was obliged to give free licence to my pen. In speaking of the Irish Soldiers as being commonly the Manufacturers of spurious Ophthalmia, I need only in explanation advert to the politically unsettled state of that country inducing habits of mind little favourable to the principles of steady and regular service; and when I talked of discharging the blind without pensions, I could not presume to throw any general imputation on that most wise and benevolent regulation, for I should be worse than blind myself if I did not see that if the service were converted into a Slavery, without end and without recompense, a better and more virtuous description of men would in all probability be induced to conspire the means of redemption

than the present Ophthalmics. I may believe in the conspiracy even if I had not particular and positive proofs, because I see that men desert notwithstanding all the risks and penalties. It is not therefore to be wondered at, that many of them would run the risk of blindness to effect their emancipation and obtain a pension for life besides. After all, tho' I cannot be mistaken with regard to what I have actually seen and detected in different services, the present patients at the Ophthalmic depot may be of a very different description from those I have been treating; I wish therefore that my opinion thus officially given may invite further enquiry, so that the fullest elucidation may be obtained. Dr. Vetch's opportunities of investigation have been infinitely superior to mine, and from his acknowledged zeal, talents and impartiality, there cannot be a doubt he has fully used them. I do not therefore pretend to give the history of his patients, but only of my own. From his writings I have reaped both satisfaction and instruction, and in whatever relates to the true pathology of the eye I freely acknowledge him my Master.

I have the honour to be with the greatest respect

Sir,

Your most obedient and humble servant,

(Signed) Wm. Fergusson.

To

Francis Knight Esq.,

Inspector General. Etc. Etc. Etc.

What a very illuminating sidelight do the contents of this letter throw upon army life, and the incidence of ophthalmia in the British Army, one hundred and thirty years ago. More than that, it is pleasant to ponder over the revelations of the mentalities of the writer of the letter and of the surgeon whom he is criticising. One cannot but be struck, on perusing the writings of Staff Surgeon Vetch, with the thoughtful dignified approach to his subject which he always adopts. One appreciates that one is dealing with medicine well over a century old; none the less here, manifestly, is a quiet-minded scientific gentleman pursuing his subject in sincerity, treating his patients with kindness, and answering his critics—and they were many—with reasoned argument and dignified reproof. It is impossible not to contrast the attitude of Dr. Fergusson with that of Staff Surgeon Vetch, for in the former's letter the dominant note is one of truculent superiority, made all the more obvious by his unctuous apologies, and his insincere admission of the greater experience and knowledge of the surgeon whom he is criticising. That his thesis was

the outcome of his experience one has no right to doubt, and it may well be that factitious ophthalmia was prevalent at the time at which he writes; but it is absurd on his part to suggest that his rough and ready methods would constitute adequate treatment for the military pandemic which Staff Surgeon Vetch was endeavouring to combat. Vetch may have been deceived on occasions; Fergusson may have met more than his share of artefacts, but one cannot but feel that he shows himself to be the bluff, blustering regimental officer, and that the broad generalisations and drastic suggestions of this letter compare unfavourably with the thoughtful utterances of the man he criticises.

So much for that side of the question. If it is considered that it has been dwelt upon at too great a length, and that it is nothing more than a digression, the writer apologises, and pleads in extenuation that it was this letter, and the side of the question which it represents, which turned his attention particularly to the subject of the nature of "Egyptian Ophthalmia" and prompted the writing of this article. Let us return to the main subject.

Those who hold that it was not trachoma which affected the troops in the Napoleonic campaign base their opinion mainly upon two considerations: firstly, that the disease and its sequelae as described at the time differ fundamentally from trachoma as we know it to-day, and secondly, that the epidemic of trachoma in Europe followed some months or even years after the return of the armies to their native countries. Neither of these considerations can be said really to back their opinion—or at any rate to disprove the opposite contention.

The clinical objection is the weaker of the two. Trachoma is in its early stages quite typically complicated by inflammatory manifestations, even in this country and at this time; it is probable that such complication was even more likely one hundred and forty years ago. Larrey, Napoleon's surgeon-in-chief on the Egyptian campaign, is often quoted in an attempt to disprove the thesis that the troops were affected by trachoma; the following is the relevant passage:

"Swelling of the lids and of the conjunctiva, and sometimes of the coats of the eye; extreme local pain, attributed by the patient to the presence of grains of sand (these are dilated vessels); diminution of vision and inability to stand a bright light. To these first symptoms soon succeeded violent headaches, giddiness and insomnia. The few tears which are secreted are bitter and irritate the lids and puncta lachrymalia. All these symptoms are aggravated and are frequently followed by fever, sometimes even by delirium. The disease reaches its crisis on the third or fourth day, sooner with some individuals, later with others. The

termination varies. When it is inflammatory and is left solely to the resources of nature, there form ordinarily towards the sixth or seventh day points of suppuration on the edges of the lids, on the external surface and at the angles. The ulcers spread by degrees on to the conjunctiva, attack the cornea and often perforate it. Sometimes the cornea gives way suddenly, without ulceration; I have seen several such cases. The rupture occurred within the first 24 hours, when the conjunctiva was hardly red, and it is difficult to understand the cause of this rapid and spontaneous rupture. We content ourselves with observing the phenomena which have occurred in Egypt, and the effects which have been produced. The opening which resulted is round and of a diameter almost the same in all the patients who have been attacked. It allows the passage of a portion of Descemet's membrane or of the iris, and forms a hernia, known by the name of staphyloma. The swelling formed by Descemet's membrane is a dull grey (*gris terne*), that of the iris of a darker colour. This swelling is painful to the lightest touch of outside objects, and to the rubbing of the lids. The vision during the early days is more or less diminished, according as the pupil is partly or entirely obscured; but generally the staphyloma shrinks by degrees, goes back into the anterior chamber, and the membranes resume their previous positions. Sometimes there remains a small portion outside, which is strangled by the closing of the aperture, loses its sensitiveness, and acquires a certain toughness, or else it swells and divides into several globules and takes on a carcinomatous character, especially if there is any complication of venereal disease."

His further description of the shrunken globes which followed supports the opinion that a purulent ophthalmia was the cause; his statement that the right eye was affected more often than the left, and that nearly all lost eyes were right eyes (though this occurrence was attributed by him to the fact that since most men sleep on their right side the humidity of the earth affected the right side more) would appear to indicate an infection of gonorrhoeal origin. None of these facts disproves the contention that the troops were infected with trachoma at the same time; nor by any means does Larrey's specific statement that "the tarsal cartilages were rarely affected," for it is extremely unlikely that this manifestation of trachoma would be evident so short a time after infection. The fact that Larrey mentioned the "tarsal cartilages" at all is of interest in that it indicates that the possibility of trachoma was present in his mind.

The clinical objection would therefore appear to be far from insuperable. The second objection may be countered with equal weight. If trachoma breaks out in a community it is a matter of common knowledge that, on making a routine examination,

one may find numbers of the community to be suffering from well-established trachoma which has caused little or no discomfort to the affected individuals. Again, other members of the community may have admittedly suffered from an acute ophthalmia which, in spite of their subsequent belief that they were rid of all their eye trouble, has been the starting point of a chronic trachomatous infection which has not made itself evident until after a latent period of maybe considerable duration. Therefore one may fairly assume that, although there were numerous cases of trachoma in the armies while on campaign, and also immediately afterwards (and this is admitted on all hands) there is nothing inconsistent with our experience of the disease in the fact that a generalised outbreak of trachoma, caused by infection of one soldier from another, should be delayed until some months or years after the return of the armies to their native lands. Many other factors might combine to determine the time of onset of this outbreak, the sole necessary factor being an existing nucleus of infected units in the armies.

There is no doubt that trachoma was known in most, if not all, of the countries concerned, before the time of the Napoleonic campaign. That the troops were also heavily infected with gonorrhoeal ophthalmia is also fairly evident—and in this connection one must similarly consider the fact that the manifestations of the Egyptian form of this disease may differ profoundly from those which we are accustomed to seeing in this country. The coccus is in a modified state and behaves in a very different manner in the two countries; the clinical course in Egypt may be much less acute, and transmission appears to take place in a fashion similar to that of a Koch-Weeks' infection. Indeed, the disease may almost be described as "non-venereal" in nature. Similarly, as Fuchs says, trachoma has probably changed its nature profoundly in the course of time, and this may well be, in part, the cause of the diversity of opinion upon the subject.

To one, therefore, who, while not pretending for one moment to be anything in the nature of an authority on the question, has at least given the matter some particular attention, it has become apparent that the Napoleonic campaign may fairly be blamed for the epidemic nature of trachoma in Europe in the years immediately following the campaign. Factitious ophthalmia may have been rife, as Fergusson declares; the original infection may have been complicated by a purulent ophthalmia; there is no doubt that trachoma was well known in Western Europe before the Egyptian Campaign, nor that the Irish recruits were heavily infected at the time of their enlistment; none the less a consideration of the history of the disease leads one to the conclusion that it was from Egypt that the infection was brought

which was to prove in later years such a wide-spread and sight-destroying scourge.

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OCULAR CHANGES ASSOCIATED WITH NÆVUS FLAMMEUS

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THE influence of maldevelopment of the orbital vessels upon the optic nerve has been widely discussed in recent years. Many types of malformation, localised to various sites in the globe and orbit, have been described, and their existence in association with intra-cranial and facial lesions noted (notably by Lindau,⁹ Lawford,⁸ Cushing³ and Knapp⁶). The question of whether optic atrophy, with cupping, so often found in such cases, is the result of true glaucoma with tension or, maybe, a primary atrophy due to a disturbance of the nutrition of the nerve, and in which the intra-ocular tension is not, of itself, a factor of importance, is still undecided. It may be recalled that Schnabel¹³ strongly advocated the view that, even in true glaucoma with increased tension, the cupping of the optic disc was independent of the state of the intra-ocular tension and was due to an essential lacunar atrophy of the optic nerve. In association with haemangiomas, and other malformations of the vessels of the eye and orbit, Löwenstein,¹⁰ Bär,¹ McRae,¹¹ and O'Brien and Porter¹² report instances where there has been no demonstrable rise of tension: on the other hand the majority of cases of this type of lesion have been associated with an increased intra-ocular tension and, bearing in mind