Gulstonian Lectures

ON

FEVER AND INFLAMMATION.

DELIVERED BEFORE THE
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LECTURE III.

XIV.—CONTINUED FEVER.

In the sixth volume of the *Transactions of the Medical and Physical Society of Calcutta*, there is a paper by Mr. Leslie, On the Diseases of Gowhattee, the capital of Lower Assam.

"The poorer inhabitants of the town," says Mr. Leslie, "are badly lodged, clothed, and fed. They sleep on a thin mat, spread upon the ground; their food is chiefly rice, and fever is often introduced by an intractable form of bowel complaint. The disease consists in inflammation and ulceration of the large intestines; and so insidious is it that in many cases emaciation has advanced to a great degree, and ulceration of the colic mucous membrane has taken place, before the patient applies for assistance. In such circumstances, he has no pain, or prominent or urgent complaint to make; scarcely allows he is ill, or has loose stools; he merely feels weak and wastes slowly. But, when fever comes on, the patient wastes rapidly, with thirst, loss of appetite, smooth red tongue, hot skin and frequent pulse. (Edema of the extremities appears, and the disease generally proceeds to a fatal termination amidst the most extreme degree of debility."

Mr. Leslie gives a tabular view of forty-seven fatal cases of the disease, with the appearances on dissection, from which it results that every variety of lesion of the mucous membrane of the colon was observed; from inflammation and purulent secretion, lining the membrane, to abrasion and ulceration, various in extent and depth, or even to mortification.

We contrast this form of fever observed by Mr. Leslie, with fever reported on by Dr. Craigie, which appeared in Edinburgh, in 1834 and 1835. One hundred and seventy-four cases were treated; and of these, in one hundred and twenty-six, or seventy-three per cent., the head was the principal part affected. Of twenty-four examinations, after death, brain affections were found in twenty-two. Speaking of these results, Dr. Craigie says, emphatically:—

"We have had several examples of fatal fever, with lesions of the mucous membrane of the stomach, and sometimes enlargement of the intestinal follicles; but we have almost none of *dothineritis*, which have been so commonly observed elsewhere. In the whole of the cases treated by myself, there was only one in which the follicles were so much diseased as to justify particular importance being attached to it, and in this case the ulcerations observed must have existed prior to the fever."

Dr. Robert Perry, from the year 1831 to 1835, made careful observations in upwards of four thousand cases of fever, in Glasgow. Three hundred necroscopic examinations were made; and he dwells particularly on the necessity of distinguishing true typhus from *dothineritis*, or typhoid fever.

"Contagious typhus," he says, "is an exanthematous fever, solely produced by the introduction into the system of a specific poison, generated in the human body. It runs a certain course, which may be modified, but cannot be stopped. It is most contagious when the patient is convalescent, the poison being spread abroad by the desquamation of the cuticle. *Dothineritis*, or enlargement of the mucous follicles of the smaller intestine, and enlargement and ulceration of the aggregated glands of the lower third of the ileum, is a disease *per se*; and, though it occurs in combination with contagious typhus, it is a different disease, of different origin. It begins with bowel complaint—sometimes so slight at first as scarcely to attract the patient's attention. Afterwards, fever arises. This disease," Dr. Perry goes on to say, "may exist in every degree of mildness or severity; it has no regular period of termination. The fever may run on for two, three, or four weeks, and terminate in gradual restoration to health without any sensible crisis; or the patient may sink under it from exhaustion, or by hemorrhage from the bowels; or it may end by some of the ulcers of

the aggregated glands of the lower third of the ileum penetrating the coats of the intestine."

It is well known, from various afflicting causes—unwholesomeness and insufficiency of food, cold, wet, fatigue, and exposure—that the British and French armies on the heights before Sebastopol suffered an extraordinary amount of sickness: the British army chiefly in the winter of 1854 and 1855; the French army principally in the winter of 1855 and 1856. The former, numbering twenty-three thousand soldiers on its muster roll, had upwards of twelve thousand at one time in hospital; the latter, in January, 1856, had thirteen thousand; in February, twenty-one thousand; and in March, eighteen thousand sick and wounded men, distributed in various hospitals, and in other places that could be hastily obtained for their accommodation and treatment. The chief diseases from which these men suffered were, frost-bites, scurvy, chronic dysentery, diarrhoea, and fevers.

"Contagious typhus, scurvy, dysentery, frost-bites, and hospital gangrene," says Dr. Bryce, speaking of the French hospitals on the Bosphorus, in the winter of 1855 and 1856, "abound; but the first-mentioned disease, by its virulence, extent, and type, is more deadly than all the others taken together." The very large development of scurvy, and the outbreak of contagious typhus, exhausted the sanitary means of the French at Constantinople; and Dr. Bryce noted with astonishment the crowding and filthiness of the patients, the foulness of the bed and body clothes, the unwholesome and ill-ventilated state of the wards, and the stenches arising from various sources. The picture drawn by this gentleman, from personal observation whilst rendering his valuable services to the sick, is one of the most painful and heartrending to be found in the medical records of camps and hospitals.

"I could have no difficulty," says the Doctor, "in pointing out the fallacy of confounding, under one denomination, *two fevers* essentially distinct in respect of symptoms, course, morbid lesions, and etiology. . . . In the contagious typhus, studied in the French hospitals, as elsewhere, there are present the characteristic maculæ and petechiæ, very distinguishable from the rose-coloured papulæ of typhoid fever. In the former there are absent the abdominal symptoms so prominent and almost pathognomonic of the latter. Equally absent are the anatomic lesions, which constitute the morbid state of typhoid fever, namely, morbid state of the intestinal follicles, mesenteric ganglions, and spleen. . . . The number of surgeons who have fallen as sacrifices to their duty is almost without parallel. Forty-six died from typhus alone; scarcely one escaped an attack. There was fear lest the sick should be left utterly without skilled help. Sisters of charity, clergymen, orderlies, and all whose duties compel them to pass several hours daily in the service of the wards, have been, with few exceptions, attacked. But worse even than this is the deplorable fact that patients, labouring under scurvy and bowel diseases, when their progress to recovery is established, are seized with contagious typhus.

The vast proportion of the patients, the soldiery, showed, by their attenuated limbs and sunken countenance, a by-gone period of privation of proper nutriment; and the resemblance, in external aspect, of these patients to those suffering from fever during the famine years in Ireland, was very striking. On the other hand, "I have seen," says Dr. Bryce, "in the orderlies, and in others attending upon the sick in previous good health, the sudden invasion of typhus, marked by rigors, intense heat, headache, and delirium; and oftentimes the termination was as rapid and unexpected as the onset. These circumstances are very different from the slowness and incertitude of the same nominal state in typhoid fever."

If we note the series or order of events as related by these several observers, it is, in Mr. Leslie's report, poor diet, hardships, bowel complaint, dysentery, emaciation, and lastly, fever. In Dr. Craigie's cases, it was first fever, headache, and then cerebral and pulmonary affection.

Dr. Perry expressly says that he had to treat two fevers; one beginning with bowel complaint, sometimes so slight at first as scarcely to attract the patient's attention; the other was the contagious typhus. In the hospitals at Constantinople, we have the testimony of Dr. Bryce to the same effect. He had no difficulty in pointing out the fallacy of treating, under one denomination, two fevers, distinct in their etiology; the one supervening on previous forms of ill health, on bygone periods of hardship and suffering; the other attacking the orderlies and attendants on the sick—persons in good health and comfortable circumstances until prostrated by fever. The facts place before us two fevers, the one, contagious typhus, striking

down the healthy; the other, typhoid fever; and the question, as regards the latter form of fever, is: Whether or not anatomical lesions, from which morbid matter may be absorbed into the blood, exist before the fever, as they do in hectic fever?

Now in the case of the sailors we have before mentioned, the men transacted the duties of the ship with ulcers on their legs. In many other instances, persons walk about with extensive ulcerations on the legs and elsewhere. Persons in consumption pursue their daily avocations with suppuration and ulceration in the lungs. In the cases of fever observed by Mr. Leslie, emaciation was apparent, and ulceration of the colic mucous membrane had taken place before the patient applied for assistance—before symptoms of fever appeared. The history of perforating ulcers of the stomach proves that, in many cases, persons do not complain of illness with ulceration of the mucous membrane of that organ. The anatomical lesion is not known to exist, little or no complaint being made until perforation of the coats of the stomach has occurred. In the case of fever, expressly noted by Dr. Craigie as associated with disease of the mucous membrane of the bowel, he says that the local disease existed before the fever.

In the armies before Sebastopol, thousands of men with scurvy, diarrhoea, and dysentery, faced and did their duty. In the overcrowded and poorest parts of cities and towns, where hardships must be endured, sickness abounds: scrofula, scurvy, diarrhoea, dysentery, typhoid fever, and typhus. Under such circumstances, numerous poor persons certainly continue their avocations, with bowel-complaint, diarrhoea, and chronic dysentery. The person may have no pain, or prominent, or urgent complaint to make, may scarcely allow that he is ill, or has loose stools; he merely feels weak and wastes slowly. Chronic ulcerations are preliminary conditions of hectic fever.

The inference is, that the anatomical lesions of diarrhoea and dysentery exist before; but are sometimes latent, until symptoms of fever appear. The fact cannot be demonstrated, neither can it be denied; and, in the absence of direct proof to the contrary, collateral circumstances are in favour of the inference. Could it be demonstrated, hectic and typhoid would be essentially the same kind of fever; both occasioned by debasement of the plasma, from absorption of morbid matter through places of chronic ulceration or anatomical lesion. The differences between them would arise from differences in the situation of the anatomical lesions, and from difference in the qualities of the matter absorbed.

If it should be inquired why ulceration of the mucous membrane of the bowel (the ileum, or colon)—anatomical lesions of diarrhoea and dysentery—occasion typhoid, when chronic ulcerations elsewhere in the body occasion hectic fever, we should reply: Because the special function of the part affected gives speciality to the fever. The mucous membrane of the bowel is eminently an absorbing surface. Myriads of groups of cellular bodies naturally exist here, the contents of which are all normally tending inwards, towards the fluid of the blood, which is, indeed, their destination. And Peyer's patches in the small intestine are especially rich in absorbent vessels. Therefore morbid elements, from ulceration of these parts, are the more readily indraughted into the blood. Moreover, excretions of the alimentary canal are naturally offensive; these must mingle with the matter of the ulcerations; and, on that account, spoiled and offensive material, abnormally ebbing back into the circulation from places of ulceration or disease in the mucous membrane of the bowel, will more speedily and thoroughly debase the plasma than from ulcerations elsewhere in the body.

"Typhus fever," says Dr. William Fergusson, "may be called the endemic of the British Isles, and of the same parallels of latitude on the continent of Europe. But, besides the endemic, or aerial, origin of this fever, there appears to be another source of the typhoid poison; I mean that which arises in crowded hospitals, prisons, barracks, and other habitations. I acknowledge it to be unphilosophical and incongruous to imagine that two fevers, springing out of sources so distinct, should yet so entirely resemble each other that they have been treated, classed, and acknowledged for the same; nor can I afford any satisfactory explanation of this phenomenon. But the fact is certain that they do so arise; for in the contagious ulcer, or hospital gangrene, we possess a demonstrable, tangible, and visible proof of its existence. This ulcer is a local form—a visible personification, if I may use the term—of the typhoid poison. It never occurs but under the most distressful crowding of the sick and wounded, and it is then so highly contagious that all other ulcers, or even abrasions of the skin, are speedily

involved in its destructive course. The contagion is capable of inducing typhous fever upon the sound, healthy, inmates; but in the wounded, where the poison finds a *nidus* and a vent, instead of affecting the constitution generally, it commits its ravages upon the wounded limb. So strong is the predisposition to that form of pyrexia, called typhoid, that it is prone to become an aggravation and superaddition to other forms of fever. All the remittent types and degrees, as well as the catarrhal and peripneumonic fevers are apt, when long continued or improperly treated, to glide into it."

Now not only is the typhoid pyrexia thus apt to become, as Dr. Fergusson says, an aggravation to other forms of fever; but also it is apt to appear in cases of large, surgical wounds, in other wounds, and in puerperal women, where there is lesion of the mucous membrane of the womb, and an offensive discharge. And, generally, of anatomical lesions with offensive discharges, the typhoid pyrexia is apt to become an aggravation.

From all the foregoing considerations, we set down the anatomical and casual distinctions between typhoid fever and typhus, as follows:—

TYPHOID FEVER.	TYPHUS.
Previous, and perhaps present, hardships and privations.	No previous hardships.
Chronic lesions of the mucous membrane of the bowel:	No chronic lesion of the mucous membrane of the bowel, or elsewhere.
Absorption of morbid matter from the anatomical lesions; and lastly—	No absorption of morbid matter to change the qualities of the fluid of the blood; but, first—
Fever, or disorder of the corpuscles of the blood, from debasement of the fluid in which they swim.	Fever, or disorder of the blood-corpuscles from an aerial poison introduced through the lungs; the corpuscles of the blood being the first elements of the body disordered.

The points of distinction, as they relate to our argument, being that:—In typhoid fever the blood-corpuscles are disordered in consequence of previous debasement of the fluid in which they swim;—whereas in typhus they are disordered by a poison acting directly on them in their passage through the lungs.

From the contrast above shewn, it is evident that the condition of the patient is more complicated in typhoid fever than in typhus; for in a given case of each fever, the consequences of the fever may be the same, or equal; but the previous anatomical lesions, which occasion typhoid fever, introduce a most material element as respects the history, treatment, and termination of that form of continued fever.

But it has been concluded that disease of the blood-corpuscles may generate a contagious virus. In the inoculated small-pox, in the case of the physician before related, and in other contagious fevers, the quantity of morbid matter introduced into the blood is exceedingly small; but the magnitude of the effect is very great. The reason we have assigned is because the morbid matter disorders by contagion, or by a contact-action, the whole of the corpuscles of the blood. There are no reasons for excluding, in any arbitrary manner, a similar contact-action amongst the blood-corpuscles from morbid matter introduced into the blood through anatomical lesions in the bowel; especially in cases where the matter absorbed may happen to be particularly offensive; therefore, a severe form of typhoid fever may introduce the virus or poison of typhus.

We say it may do so; because, although the history of hectic fever shows that it is not every form of reactionary fever that gives origin to a contagious virus, still, inasmuch as the generation of a contagious virus in the blood and symptoms of fever go together, so, on the other hand, we apprehend we are justified in saying that the graver forms of typhoid fever do, or may, issue in the production of a contagious matter; thereby, persons in health—attendants on the sick—are struck down with fever; a fever, be it observed—in the persons who may have been attacked by fever in this way—of very different beginnings from the fever of the person communicating it; occasioned, not through debasement of the fluid of the blood from preexisting anatomical lesions, but through a virus generated in the blood of the first patient, and attacking the second and healthy person through the lungs.

The history or sequence of the sickness which abounds in times of hardship or famine, substantiates the argument; for the order usually is:—first, forms of inflammation without

fever, ulcerations, boils, and eruptions; then follow bowel-complaints, chronic dysentery, and diarrhoea; and, lastly, fevers—the typhoid and typhus. This sequence obtains, because hardships in diet disorder the bowels; and this disorder is comprised in the terms diarrhoea and dysentery. The anatomical lesions of chronic diarrhoea and dysentery occasion typhoid fever; and typhoid fever may beget the poison of typhus. Our own experience accords with the conclusion that the typhoid poison will sometimes beget fever in the healthy attendants on the sick.

Let us examine how far the facts observed in puerperal fever bear out the validity of our argument in this respect.

XV.—PUERPERAL FEVER.

GESTATION and parturition are physiological acts; but the condition of the puerperal woman, immediately after her delivery, is one of a *quasi* pathological character in the following respects:—

The blood abounds in plasma elements, and forms, on withdrawal by venesection, a buffed coat. The uterus, just relieved of its contents, may be likened to an injured organ proceeding to recovery. The condition of its blood-vessels is one favourable to the ebbing back of morbid matter into the circulation, and there are offensive discharges from the uterus. Cruveilhier has seized this analogy in its minutest details. Dr. Ferguson too, dwells upon it. "The puerperal woman," he says, "is in a condition analogous to that of a person who has undergone a serious surgical operation. All the uterine vessels from which the placenta has been detached, form part of a large wound, and are bathed in the secretions which take place while this wound is healing." Such being the conditions of the puerperal woman, her medical treatment has become a matter of routine for the first three days, lest a chill, an emotion, or an error in diet, should change reparative reactions into forms of inflammation. And the words of Mr. Hunter, which we quoted in our first lecture, are applicable here. "Granulations may all at once fade away and lose their life; and pus of a very different quality is discharged when granulations are fading away, than when a sore is granulating freely."

The analogy, or rather perfect similarity, between the condition of the womb in the puerperal woman, when, from a chill, an emotion, an error in diet, or any other accident, granulations have all at once lost their life, and the condition of the mucous membrane of the bowel in cases of chronic dysentery, as respects their both being sources of specially offensive matter, can scarcely be denied; and if it be not denied, then the same course of reasoning which has been employed in tracing the relation between ulceration of the mucous membrane of the bowel and typhoid fever, and between typhoid fever and typhus, is equally available in explanation of the relation of inflammation of the womb in the puerperal woman, to two forms of puerperal fever. That is to say:—In the puerperal woman the conditions upon which inflammation of the womb supervenes are favourable to a debasement of the plasma, because there are anatomical lesions, and because, from the state of the uterine vessels, morbid matter is specially liable to ebb back into the circulation; and should this absorption take place to a degree sufficient to disorder the corpuscles of the blood, symptoms of fever, from deuteropathy of the plasma, would arise; that is, fever, from the same kind of antecedents as hectic and typhoid fever. But it has been concluded that disorder of the blood-corpuscles may issue in the generation of a contagious poison; consequently, in a lying-in hospital, a puerperal woman, in an adjoining bed, or in an adjacent ward, may become affected with fever from the illness of the first patient;—a fever, be it observed, in this second case, of very different beginnings from the first; occasioned, not through anatomical lesions and debasement of the plasma; but by a poison generated in the body of the first patient; affecting the second woman from the air and through the lungs.

On referring to the literature of puerperal fever, it is seen that physicians have been divided in their views concerning the pathology of that disease; some holding the opinion that puerperal fever is an idiopathic fever; others regarding it as a local inflammation, taking the form of peritonitis, metritis, or uterine phlebitis. These two views, there seems to us no necessity for placing in antagonism. In all cases of puerperal fever there are forms of inflammation and fever; but, if there be truth in our doctrine of fever, it is of the utmost importance in any given case of puerperal fever, to determine whether inflammation has, or has not, preceded, and been a cause of fever. If it has, the fever is a reactionary, or plasma fever, *i.e.*, fever from debasement of the plasma, and anatomical lesions precede the

fever; if it has not, the fever is a primary or aerial fever, and independent of any inflammation or anatomical lesion, except what may follow from it.

Upon the subject discussed in this section, it has been suggested that we have offered no proof of the existence of *granulations* in the interior of the puerperal womb. But, as we have said in the first lecture, granulations are simple cellular growths; their shape and colour are not essential to their definition; and certainly "the large wound from which the placenta has been detached" can heal only through the intervention of new cellular growths, which may, from unsuitable conditions, "all at once lose their life and fade away;" and should they do so, then reparative reactions are changed to forms of inflammation—a granulating wound is "all at once" changed into an ulcerative one.

[To be continued.]

Transactions of Branches.

BATH AND BRISTOL BRANCH.

NYCTALOPIA.

By AUGUSTIN PRICHARD, Esq., Surgeon, Bristol.

[Read April 21st, 1859.]

THERE are two sets of symptoms, representing two very different conditions of the powers of vision, which are expressed in English by the terms *night-blindness* and *day-blindness*; and two technical words derived from the Greek, viz., *nyctalopia* and *hemeralopia*, have been used to designate them.

There is the very great advantage in the use of Latin and Greek technical words, that they are the same in all languages, and, whether we refer to a French or German, or any other work, we find them there; but, in this particular instance, and in the use of these two, great confusion has occurred.

It is, of course, important that all such doubt should be removed; and it is inconvenient not to know the meaning assigned by the author you are reading to the particular word he uses; and I bring the subject before the Society more with the hope that, by a definite and reasonable expression of opinion, something may be done towards setting this question at rest, than with any expectation of saying much that is new on the subject of the diseases themselves; neither do I claim originality in what I have to say respecting the derivation of the words; but it is probable that they have been used hitherto thus promiscuously, and, as I think, incorrectly, because many writers have not considered it necessary to enter into the subject of the origin of terms.

By almost all ophthalmic writers, *night-blindness* has been called *hemeralopia*. Mr. Mackenzie and one or two others have renounced the difficulty, and the former avoids it by using only the English words; and Dr. Little calls night blindness *nyctalopia*. With these few exceptions, also, day-blindness is called by most writers *nyctalopia*; and the terms thus used are supposed to be derived in the following way; viz., *hemeralopia*, from *ἡμέρα*, a day, and *ὤψ*, an eye, or a sight by day; and *nyctalopia*, from *νύξ*, night, and *ὤψ*, or a sight by night. But this explanation is anything but satisfactory, even without considering the syllable *al*, which occurs in both words, and which, by this method of interpretation, is unaccounted for; for we can hardly imagine diseases of the eye named from such symptoms as that the patient could see by daylight, or that he could see by night; for these are no causes of complaint: it is rather that the patient is blind by day, or blind by night; and the real derivation bears out this statement.

There is a Greek word, *ἀλάομαι*, I wander or grope about; and another derived from it, and compounded with *ὤψ*, namely, *ἀλάωψ*, or *ἀλαῶπις*, which means blind. *Nyctalopia* is, therefore, night-blindness, derived from *νύξ* and *ἀλαῶπις*, being the disease in which patients can see by day, but are blind by night; and *hemeralopia* is day-blindness, from *ἡμέρα* and *ἀλαῶπις*, being the disease in which patients can see by night, but are blind by day.

Of these two diseases, *nyctalopia*, or night-blindness, is most marked in its symptoms; and, although better known in brighter climates than our own, we not unfrequently meet with cases of it, occurring here and there, without any connexion with one another.