suffering from small-pox, rather tend to make me doubt the propriety of vaccinating *in the presence* of the disease, lest the patient may unknowingly be undergoing the preliminary stage of incubation for an attack of small-pox, and by vaccination I should only add to his danger.

In considering questions with regard to the treatment of small-pox, I may be saved from repeating the remark often made by others, that the results of the treatment of vaccinated cases must be received with the greatest caution, as vaccination modifies in so many and so various degrees, that we can scarcely form a prognosis concerning a vaccinated case until it is rather far advanced. We find the disease setting in most favourably in vaccinated cases, and suddenly subsiding, leaving the patient convalescent in a week from the commencement of an apparently severe attack.

NOTES ON CONSUMPTION.

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III.—CONSUMPTION AND CONTAGION.

THERE is no question in connexion with phthisis of more practical interest and importance than that of contagion; and there is none other perhaps about which there exists so great a diversity of opinion. It is well known that throughout Italy consumption is classed not only by the public, but also by most physicians, amongst the diseases propagated by contagion; and so greatly dreaded is this supposed character of the disease, that in many parts of Italy the clothes of consumptives are quite as carefully subjected either to destruction or disinfection, as if they had belonged to patients who had been affected with small-pox or scarlet fever. In Germany, the opinions on contagion as regards phthisis are divided; and in France there is an equal want of unanimity upon the point. In our own country, both the medical and general opinions upon the subject are very far from being settled; and whilst some are quite Italian in their views, others—and probably the great majority—believe quite as fully in the non-contagiousness of the disease. We may possibly explain this wide difference of opinion by the recollection that phthisis, notwithstanding all we know of it, is nevertheless so obscure a malady, and arises under such a multitude of very different and apparently opposite conditions, that it must of necessity be frequently associated with circumstances not merely suspicious, but to some minds sufficiently conclusive of a contagious origin.

If the contagion doctrine be correct, not only must it completely revolutionise both the medical and social treatment of phthisis, by rendering the poor consumptive sufferer a being quite as much to be dreaded as was the leper of old, but it must at once crush every hope of our lessening the ravages of so terrible a scourge, by the manifest impossibility of our ever being able to “stamp out” so universally prevalent a morbid element as the tubercular poison. If phthisis be contagious, it is obvious that every consumption hospital must be nothing less than a pest-house; and, instead of lessening disease and suffering, must tend only to their aggravation.

Numerous as have been the believers in the contagiousness of phthisis, no one had fully developed and openly advocated such a doctrine until Dr. William Budd published his startling, but clearly expressed and evidently well matured views upon the subject. In this paper, Dr. Budd expressed his conviction that consumption is a zymotic disease of specific and highly contagious nature, closely allied in such respect to the most contagious diseases with which we are acquainted—viz., scarlatina, typhus, and syphilis, the tubercular material itself being the specific and morbid poison in which the malady originates, and by which it is disseminated through society.

Notwithstanding the high authority under which this view of phthisis is propounded, I most unhesitatingly declare my conviction of its fallacy. Consumption I believe to be a purely constitutional disease, which may be either inherited or acquired, but which, from its very nature, is incapable of being conveyed from one person to another in the ordinary sense of the word contagion. I have, indeed, never met with a case of pulmonary phthisis, however apparently due to a contagious origin, which could not be much more easily and rationally accounted for by generally recognised causes, than by the doctrine of specific and contagious influences. It is quite true that persons previously in fair health are sometimes seen to succumb to phthisis after having attended the last illness of some consumptive relative or friend; but when it is remembered that anything which lowers the physical and nervous powers and depresses the general health is of itself sufficient either to originate phthisis or to develop some hitherto latent tendency to it, we have, I consider, a sufficient explanation of very many such cases, and might

even wonder that they are not more frequently happening. In all instances of phthisis originating under such circumstances, it has long been my habit to make, as far as possible, a complete inquiry into their general, and more especially their family, histories; and I have invariably been led to the conclusion that the long nursing and the close connexion with the disease was at most the *exciting* cause of its subsequent development, the predisposing one having been, for the most part, sufficiently apparent, either in a previously existing hereditary taint, or in some other cause far removed from the idea of contagion. If consumption were “caught” like a zymotic disease, how few in comparison must be the instances of escape to those of infection after contact with it; whilst it must be in the experience of us all that cases, arising even under the most suspicious circumstances as regards contagion, are by no means common, and bear a very small proportion to those in which, after the closest contact with the malady, no ill effects have resulted.

It must nevertheless be admitted that cases now and then occur in which consumption has become developed in the widowers or widows of those who have died of the disease, and under circumstances apparently favouring the doctrine of contagion. I have met with several such instances; but from notes taken at the time, I find the very curious fact that they have chiefly occurred amongst women. Such cases, however, do not, in my opinion, give the least support to the doctrine of contagion, but may be explained in a very different way. The union of husband and wife is not only a religious and social, but also a *physiological* one, as may be easily shown by our daily experience. It has often been remarked, for example, that after a variable period of married intercourse, the one person is seen to resemble the other not merely in manner and habit, but in feature and expression. The offspring, too, of second marriages has been frequently known to resemble both in feature and character the husband of the previous union. So well established, indeed, is this corresponding physiological fact with respect to the lower animals, that it has to be ever borne in mind in their breeding and rearing. If, therefore, certain natural and healthy peculiarities can be imparted from husband to wife, or *vice versa*, there is every reason for concluding that morbid diseases, peculiarities, and tendencies may equally be imparted. But there is another and a less mystical way in which it may fairly be concluded that phthisis may be conveyed from husband to wife. A phthisical father may communicate to the *fetus in utero* a consumptive taint, which may thus be indirectly transmitted to the mother, just as we well know is often the case with secondary syphilis. And it may be due to this circumstance that, as I have already observed, phthisis arising under such apparently contagious conditions is much more frequently met with in women than in men. I believe, therefore, that in one or other of these ways—either by a transmission through the offspring, or by a mysterious and inexplicable connexion between husband and wife—phthisis may sometimes be developed in either of them; and that we need not resort to zymotic influences in explanation of such an occurrence.

Upon the question of contagion, however, practical evidence is of far more value than anything speculative; and as a great experiment upon the zymotic character of phthisis has long been going on at the Consumption Hospital, I shall briefly give the results.

The Consumption Hospital was opened in the year 1846, with ninety beds. Ten years later, it was completed; and since that time, two hundred beds have been constantly occupied. We have lost, during this long period, only one nurse from phthisis; and this was a poor creature whose husband had deserted her, and who had long endured, from other causes also, considerable mental anxiety and physical exhaustion. On the other hand, the services of the nurses generally have been unusually prolonged; and I can myself testify to their general health being, as a rule, remarkably good. Of those *now resident*, two have been at duty in the hospital seventeen years; one has resided thirteen years; one, eleven years; two, ten years; two, nine years; one, seven years; one, four years; two, three years; and four, two years. The two oldest nurses have lately died of old age and general decay, after having long been superannuated; each of these had resided in the hospital for upwards of twenty years.

Of the gallery maids, whose duty it is to be much within the wards in sweeping and scrubbing the floors, only one has been known to have been affected with phthisis; whilst it is obvious that, during so long a period, the numbers of persons thus employed must have been considerable.

Our engineer has seen eighteen years' duty within the hospital, and he is now in good health.

We have had, at different times, three attendants in the *post mortem* room. The first of these is still living, but in infirm health, the result of intemperance; the second left with spinal disease; the third has been in his office for nearly four years, and is in good health.

Of the dispensers, one who kept to his post for above ten years is

living, and well; three who have held office in the dispensary since the year 1867 are also well; and the present senior dispenser has been with us for ten years. Many others have been in this department since the opening of the hospital, but only one has been known to have been consumptive.

The resident clinical assistants, of whom we are able to obtain reliable information, amount to seventy-eight in number. Three of these are said to be phthisical; but only one has been known to have died of phthisis. This gentleman I knew intimately; he was always of consumptive appearance, and one of his sisters had died of phthisis.

Our resident medical officer, Mr. Edwards, to whom I am indebted for the statistics I am now giving, has held office for more than twenty-one years; and all those who know him can testify both to his continued health and his undiminished energy and usefulness. The present matron has also been in her office for more than twenty-one years, during which long period her health has been excellent.

The present secretary has been at his post for fifteen years; and his only predecessor, who is still alive and well, had held the same office for sixteen years. The assistant-secretary has been at his duties within the hospital for eighteen years; and a clerk—whose office it is to register the out-patients, and who must, on that account, be exposed to an unusually great extent to phthisical contagion, did such exist—has been at his work for five years. I am happy to add that all of the above are now in excellent health.

The present chaplain has been with us for twenty-two years; and his two predecessors are still living. Happily all of them are well.

Of the staff of physicians and assistant-physicians—nineteen in number—one only has been affected with phthisis; and he was a young man of delicate and decidedly consumptive aspect. The period of office which some of us have had is unusually long. Of the present physicians, two have been upon the staff twenty-four years each; one for seventeen years; one for thirteen years; one for nine years; and one for five years. The late senior physician, who resigned only three years ago, had been attached to the hospital, and in constant work there, from its very foundation. Two of the former physicians who resigned their appointments, and subsequently died of disease quite distinct from phthisis, had held office in the hospital for fifteen and nineteen years respectively.

I have elsewhere given my experience of the statistics of phthisis, in one of our chief metropolitan general hospitals; and the subsequent observation which I have had only tends to convince me the more that the evidence in this respect is greatly in favour of the Hospital for Consumption.

With the above facts before us, must it not appear to all believers in the doctrine of phthisis originating in a special and contagious poison, that a residence in the Consumption Hospital, and long-continued working in its wards, is a very good way indeed *not to catch the disease?*

THE TREATMENT OF PUERPERAL ECLAMPSIA.*

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THERE is no complication of labour which causes so much terror to bystanders, or demands greater calmness and self-possession on the part of the practitioner, or requires more prompt, decisive, and discriminating treatment, than an attack of convulsions; and yet there are few of the accidents of childbirth, the appropriate management of which is the subject of such diverse and conflicting opinions. Until a comparatively recent period, there was almost an universal agreement as to the necessity of free general depletion in all the severe forms of this affection. Latterly, however, the necessity and even the propriety of the use of the lancet in this disease has been called in question. Chloroform, which undoubtedly has considerable control in many instances over the paroxysms, has been considered by some to be a specific remedy, while others have advocated, in all cases of puerperal eclampsia, manual dilatation of the os uteri and speedy delivery; others, again, have found perforation of the membranes and the evacuation of the liquor amnii, where that fluid has been in excess, sufficient to diminish and ultimately to arrest entirely the convulsions. It is probable that these differences of opinion are to a great extent apparent only, and that theoretical disagreement as to principles would frequently find a solution in a much greater uniformity in actual practice than might be supposed. To paraphrase an expression of Dr. Billing, in his *Principles of Medicine*, "Because it is right for me to bleed my

patient in convulsions, it does not follow that it would be right for you to bleed your patient in the same disease". In fact, this formidable affection is not to be managed according to any fixed or undeviating formula, but requires for its successful treatment a pure system of eclecticism.

The rule laid down by a large number of high authorities, that copious blood-letting is the first and great remedy, the extent to which it is to be carried being regulated chiefly by the violence and frequency of the fits, is founded upon a twofold fallacy: first, an entire repudiation of widely differing types and phases which the disease assumes; and secondly, a misapprehension of its true nature and of the effects of blood-letting upon it. Convulsions have been attributed to an overloaded state of the cerebral vessels, as in apoplexy, to relieve which copious evacuation is necessary, when in truth, as was shown by Marshall Hall, eclampsia is a disease not of the brain at all, but of the true spinal system; and Trousseau and Niemeyer have also maintained that congestion of the brain in convulsions is an effect rather than a cause.

The propriety and extent of blood-letting must be estimated not by the violence of the disease, but by the state of the circulation in the intervals of the paroxysms. In an overloaded condition of the vascular system, blood-letting acts as a direct sedative to the spinal cord; in the opposite condition, that of anæmia, or when carried too far, it only adds to the mischief, by increasing the already irritable condition of the spinal centres resulting from their anæmic condition; the pathology of the remedy, as Dr. Tyler Smith has quaintly said, thus closely trenching upon its therapeutic effect. There is, however, one condition in which blood-letting acts directly through its influence on the cerebral vessels—namely, when serous or sanguineous effusion or over-distention of the brain itself causes counter-pressure on the medulla oblongata, and thus indirectly gives rise to convulsions by spinal irritation.

There is yet a further most important effect of blood-letting not generally recognised—namely, its preservative influence in lessening the turgidity of the vessels of the head caused by recurring paroxysms, and which may lead to fatal cerebral congestion or effusion. Thus blood-letting in plethoric states of the circulation is curative in its action on the spinal marrow, preservative in its action upon the brain.

There is a common belief that in the uræmic form of convulsions blood-letting is less effective, or altogether inadmissible: this I believe to be a mistake. Where the other indications for depletion are present, the fact that the blood is charged with a poisonous element is an additional reason in favour of lessening the amount of the circulating fluid, and thus at once eliminating an appreciable quantity of the deleterious matter. Dr. Richardson has recorded the beneficial effects of blood-letting in the convulsions which occur in albuminuria, which he explains on the ground just stated.

The necessity for bleeding more copiously in this than in most other diseases, depends upon the special condition of the vascular system in the parturient female. We know that loss of blood produces little or no effect upon the maternal pulse until it is carried beyond the point which exhausts the surplus blood, so to speak, required for the maintenance of the uterine and fetal circulation.

Chloroform is unquestionably a valuable remedy in convulsions; but it is neither a specific, nor can it supersede the necessity for blood-letting in plethoric conditions of the system. Nor do I believe that it will, as has been asserted, invariably lessen the violence or frequency of the paroxysms. These being truly reflex in their character, and the influence of chloroform over reflex action being limited, after free depletion, or in cases where depletion is contraindicated, it is most useful. Early and speedy delivery is undoubtedly the best treatment in certain conditions—namely, when, by the eliminative process of reasoning, we arrive at the conclusion that distension of the uterus or the presence of the ovum is the exciting cause of the fits; but the view that it should be adopted as an universal rule is shown to be a fallacy by the following facts. Convulsions in some cases do not occur until after delivery; more often they persist and even increase in intensity after delivery. This practice has been recommended on the ground that the uræmic condition speedily proves fatal, first to the child and then to the mother. But many cases are on record where convulsions exist when there is no evidence of uræmia at all; and again, even when convulsions have lasted for many hours, the case has terminated favourably both to mother and child. I believe that the death of the fœtus, when it occurs, is in most instances to be attributed to asphyxia, from interruption of the placental circulation, from the violence and frequency of the paroxysms, and not to uræmia.

Against indiscriminate and hasty interference with the natural course of labour in convulsions there are strong grounds, both theoretical and practical. Any additional source of reflex irritation may frequently

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