has lately performed the operation of laminectomy at the suggested spot for traumatic injury; that he found little difficulty, and that although the flow of cerebro-spinal fluid amounted to 8 ounces a day for three weeks, the patient recovered. For a time during the great flow he was headachy and uneasy, but no other more serious symptoms presented themselves. The history of Mr. Duncan's case shows that although the flesh wound is deep, it only requires great care to avoid sepsis. There is no difficulty in opening the arachnoid; over the bulbus spinalis it is loose, and, as I found in an experimental operation on the cadaver, can be easily reached by forceps and knife. Experience of the treatment of spina bifida also shows that a very considerable drain of the cerebro-spinal fluid can be maintained without necessarily serious consequences; and it further shows that irritation of the serous sac can be applied with good results. It is not unreasonable to anticipate that the temporary improvement which has followed on the imperfect operation of simple trephining of the skull may become continuous under prolonged drainage. So convinced am I of the justifiable nature of laminectomy, that I shall perform it in the first early case that comes under my observation, after, of course, explaining its experimental character to the relatives of the patient, and obtaining their consent.

The most important pathological feature of the operation in this early case was the absolute demonstration of the inflamed condition of the pia. It was evident to all present. With an inflamed serous membrane we have a right to expect effusion. Effusion is a recognised consequence of inflammation of such membranes, and there is no reason for refusing the inference that it occurs in connection with an inflamed pia. Dr. Claye Shaw seems more to regard it as a secondary accumulation, by which I presume he means compensatory. If that is so, whence the pressure? and if there is no pressure, why the necessity of tapping a passive accumulation of serum? I believe the fluid is the result of an active inflammatory process, and is the immediate cause of the headache and many other symptoms of "general paralysis"; that its removal is the cause of the temporary mitigation of symptoms which has been observed in all cases treated by trephining. So soon as the wound heals and the fluid is again confined, the original manifestations return. The history of all such cases points in the direction of a search for a more perfectly relieving operation. Against the justifiability of any procedure I cannot understand how any moral objection can be raised. The condition is known to be hopeless if allowed to run its course. Are we to sit down and fold our hands before the subjects of diseases which have as yet baffled all attempts to cure?

Two objections have been raised to the "inflammatory theory" of "general paralysis": (1) that cases occur in which headache has not been noted; (2) that optic neuritis does not appear amongst its victims. I cannot, after search of my private records, find a case in which headache was not present, and reference to authorities shows headache to be a very prominent symptom. Still it cannot be doubted that cases do occur in which the indication is really apparently absent. It is probable that in such the effusion is slight, and easily carried off, no obstruction to its downward flow being offered by pathological products. But it must be remembered that general paralytics are not prone to complain; that their answers are influenced by immediate conditions; that memory is very defective, and that they are very stupid. Were I to see such a patient, who could not be induced to admit headache, rubbing the back and top of his head, this action would override all his denials. When well into the second stage (the period when the physician, as a rule, first sees him), little or no weight can be attached to his statements.

Optic neuritis is by no means an infrequent symptom in "general paralysis" (Clifford Allbutt and Mickle). It is not the result of mechanical pressure. If we agree with Gowers that it is a descending inflammation, its appearance or non-appearance may be accounted for on the theory that the inflammatory process has not extended downwards and forwards. As a rule in "general paralysis" the heart is free from indications of disease. It is not a basal meningitis, in which condition optic neuritis is not uncommon. If we accept Leber and Deutschmann's views, the absence of this

symptom may be held to depend on the failure of the irritating fluid to reach the nerve.

I have placed the words "general paralysis" in inverted commas to indicate the opinion that it is really a generic term applied to very various and varied morbid conditions resulting in brain paralysis. These have not as yet been discriminated. The case related in this paper affords a typical instance of the congeries of symptoms warranting operation.

REMARKS

ON THE

CONDITIONS OF CURE IN CONSUMPTION.¹

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ABOUT a year ago the medical profession throughout the whole world were excited beyond measure by the authoritative publication of a statement that a cure for consumption had been discovered. Since then the question of the discovery of a cure for consumption has been the subject of frequent debate in nearly every city in the civilised world. This, then, seems an opportune moment to inquire, What are the conditions of cure in consumption?

The curability of consumption is universally admitted, yet, on the other hand, there is a widespread belief, founded on an overwhelming weight of evidence, that consumption is a very fatal disease, rarely cured, almost incurable. Morbid anatomists report numerous instances of the discovery, in the lungs of persons dying of other diseases, anatomical evidence of arrested and cured pulmonary tuberculosis, whereas it is undoubtedly difficult, even for those who have had the largest clinical experience in the observation of cases of consumption, to point definitely to many cases of the undoubted permanent cure of undoubted phthisis.

These are propositions which will command general assent, which are certainly true, although somewhat opposed to one another. We all admit the curability of pulmonary consumption, but we are all also compelled to admit that phthisis, as we encounter it in its clinical forms, is rarely cured.

It is almost impossible to trace out the past clinical histories of those persons who, on *post-mortem* examination, are found to have had, at some period of their lives, pulmonary tubercle which has been arrested and cured. Many probably had no clinical manifestations of phthisis; their tuberculous affection gave rise to no notable symptoms, was wholly latent, and disappeared, leaving only an anatomical record of its existence. They were never consumptives or phthisical in the clinical sense of the word, and it would be more correct to call them cases of cured or arrested pulmonary tuberculosis than cases of cured phthisis. Quite recently—since, indeed, this paper was written—Dr. Coats, Dr. Fowler, and Dr. Sidney Martin have described the anatomical appearances presented by some of those so-called obsolete or cured tubercles, and they are thus described by Hérard and Cornil.²

"A few pigmented granulations, which are the vestige of a very localised and unimportant tuberculosis, which is extinct, if not altogether cured. The fibrous tissue, and the giant cells which it encloses, appear to be tolerated without of themselves giving rise to any injury. That is a form of tuberculosis which may pass as curable or cured. It is sometimes met with in the necropsies of individuals who have died accidentally of some quite different cause..... These fibrous or calcified tubercles contain very few or no bacilli; bacilli have, however, been occasionally found in calcified tubercle..... Nothing is more common than to find at the apices of the lungs of old men, which are almost always indurated, these hard nodules or cysts filled with whitish or yellowish chalky substance; but it would be an error to refer all those changes indiscriminately to cured cavities, for they may quite as well be simply bronchi, somewhat dilated, which have become isolated by an interstitial pneumonia, or cured abscesses resulting from a simple pneumonia or gangrenous foci, or productions of a syphilitic nature. All lesions which have nothing characteristic in themselves in the stage of fatty or cretaceous change in which they are found;" but they admit that "a great number of these cases may in reality be cured phthisis."

¹ Read before the Medical Society of London.

² *La Phtisie Pulmonaire*, 2nd edition, p. 227.

Professor Brouardel, the eminent medical legist, states that he has found evidence of cured tubercle, cretaceous, fibrous, or cicatricial, in the apex of the lungs of 60 per cent. of those over 30 years of age whom he has had to examine *post mortem* on account of their having died a violent death. "Yet," adds Professor Grancher, who quotes these statistics, "we are powerless to cure the tuberculous who have become phthisical," the exceptional instances only proving the rule. Thus we have put before us two propositions, in appearance irreconcilable. According to the first, pulmonary tubercle is often cured; according to the second, it is incurable. The explanation lies in the fact that these cases of spontaneous cure of tubercle have never been cases of phthisis. "In almost all these cases the tubercles are small and separate, incapable, in the state in which they have been found, as well as in the course of their development, of modifying the respiration sounds or vibrations. They are generally small masses of the size of a pea, at the extreme apex of the lung, and surrounded by healthy, crepitant lung tissue, or they are isolated, fibrous tubercles scattered in small number in the centre of the lung."³

Morbid anatomists appear by no means agreed amongst themselves as to the frequency with which these evidences of cured pulmonary tubercle occur in the lungs of persons dying of other causes than phthisis. I have just quoted Brouardel's estimate; Dr. Coats estimates it at 25 per cent., Dr. Fowler at 9 per cent., Dr. Sidney Martin at 9½, and the Vienna statistics quoted by Dr. Fowler at 4 per cent. only. Now, with such very wide differences in the estimates of different morbid anatomists, it would seem probable that some accept as instances of cured tubercle cases that would not be accepted by others. It must, however, I think, be admitted (1) that pulmonary tuberculosis in certain forms and under certain conditions is commonly and spontaneously cured; (2) that phthisis is rarely cured, meaning by phthisis pulmonary tuberculosis that has reached such a degree of development as to seriously affect the general health, and to give rise to easily recognised physical signs. Still, cases of the latter kind are occasionally, if exceptionally, cured. It is, then, a problem of great practical importance to ascertain what are the conditions which determine the cure of pulmonary tuberculosis in the pre-phthisical stage, as well as those which lead to the less frequent but occasional arrest and cure of the phthisical state itself. Now, it is an obvious fact, yet one too commonly lost of, that the cure of all disease is conditioned. So, in applying tests to proposed remedies, we should not be forgetful of the fact that no remedy can cure a disease unless the conditions of its cure exist.

Not long ago I took occasion to remark in one of the medical societies of London, only a few weeks before Koch's announcement of his discovery of a cure for consumption, that if a perfectly certain cure for tuberculosis were at any moment to be discovered, it would leave the majority of the then existing cases of consumption incurable. Why? Because the conditions of cure no longer exist.

Yet whenever a new method of treatment or a new remedy for consumption is announced, it is tested—seriously tested—not only in cases in which cure is possible and conceivable, but in a far greater number of cases in which cure is impossible and inconceivable; in which the conditions of cure have long ceased to exist. I say "seriously tested" because those hopeless cases are brought into the statistics published, and are used to discredit the remedy or mode of treatment. It is then, I repeat, an important practical consideration to ascertain what are the conditions which favour the cure or arrest of tuberculous disease of the lungs, or of consumption.

In the first place, every one is agreed that early recognition of the disease is one of the chief conditions which render a cure possible. If we are able to treat the patient before his pulmonary tuberculosis has developed into phthisis, we may hope to contribute to bringing about the same arrest and cure as Brouardel and other morbid anatomists assert to be so common.

The evolution of phthisis is, in most of the common chronic forms, exceedingly slow; and months, and even years, may pass before the isolated tuberculous lesions mass together or "conglomerate," and become easily detectable by physical signs.

Laennec said that a patient does not die of his first attack of tuberculosis, and Bayle recognised a pre-phthisical period which he termed "occult phthisis," or "the germ of phthisis." "In many instances," he says,⁴ "before the manifestations of the first symptoms, there is an interval during which the patient, whose lung is already profoundly injured, appears still to enjoy the best of health." The purely arbitrary and somewhat unnatural division of pulmonary tuberculosis into first, second, and third stages, with their respective physical signs, has been to some extent responsible for the prevalent neglect to recognise this earlier stage of the disease.

As the recognition of this early period of pulmonary tuberculosis is one of the chief conditions of its cure, I may, perhaps, be permitted to dwell briefly on this "occult stage," or "stage of germination" of consumption, as it has been called.

"From the first appearance in the pulmonary parenchyma of the first embryonic cells (the result of bacillary influence) up to the production of the adult miliary tubercle, there is a whole series of stages which together constitute a period of formation or germination. If during this period a section be made of the apex of the lung we encounter some tubercles in the follicular stage (microscopic) and a few others still less advanced, scattered through certain lobules, the surrounding lung being healthy or slightly congested."⁵

This is the anatomical condition. Is there a recognisable clinical condition corresponding to it?

"In an individual," says Professor Grancher, "suspected or not of tuberculosis, a few tubercles begin to develop slowly; embryonic cells and giant cells form and group themselves together, so as to constitute the follicular tubercle—that process lasts a long time and is silent—and nothing appears changed in the health of the man doomed to phthisis; sometimes a little anæmia, a little debility, a slight cough, a little quickened respiration—nothing more."

Yet it is to the diagnosis of this period that all our efforts should be directed. Is such a diagnosis possible? Yes: to the extent of probability, not to the extent of certainty. Certainty is only reached when the bacillus can be detected in the expectoration, and the bacillus cannot be detected in the expectoration until there is destructive ulceration of the lung and a small cavity formed communicating with a bronchial tube; in short, not until the phthisical process is established and somewhat advanced. We have to be content, then, with a probable diagnosis, and we may now consider how such a probable diagnosis can be established. We must notice closely and carefully any slight modification or abnormality in the respiratory sounds, particularly when such abnormality, however slight, is localised and fixed. Harsh, low-pitched respiration, and especially inspiration, is the most important; feeble, incomplete respiration when combined with inspiratory harshness, and jerky or interrupted inspiration are often also important indications of early tuberculous changes in the apex of the lung. It is to the fixity and localisation of these slight anomalies of respiration that weight must be attached. When such modifications of the respiratory sounds are accompanied by some evidences of disturbance of the general health, the diagnosis of an early stage of pulmonary tuberculosis becomes extremely probable.

The early occurrence of hæmoptysis is a condition I am disposed to consider favourable to the cure of phthisis. It is so I believe because it calls attention, in a striking and impressive manner, to this early stage of the tuberculous affection, when otherwise it might pass unobserved and undiagnosed.

On the other hand, there is, I believe, another condition of the lung, attended with well-marked physical signs, often erroneously diagnosed as the first stage of phthisis, and which goes to swell the number of cases of cured phthisis. I refer to cases of apical, dry pleurisy of rheumatic origin. In such cases you will often meet with a troublesome, dry cough, difficult of cure, and on physical examination you will usually encounter at one or other apex some loss of resonance on percussion, diminished respiratory movement, not infrequently a little retraction of the subclavicular region, a creaking friction sound with the inspiration in the supra-spinous fossa, which disappears after a few very deep inspirations, and either enfeebled breath-sound or occasionally a faint subcrepitant *râle*. Vocal fremitus is usually diminished, and sometimes absent.

Why, you will ask, should not such cases be regarded as cases

⁴ Bayle, *Phthisie Pulmonaire*, Paris, 1810.

⁵ Grancher, *Op. cit.*, p. 136.

³ Grancher, *Maladies de l'Appareil Respiratoire*, p. 140.

of early pulmonary tuberculosis with secondary involvement of the pleura? The reasons are these: In the first place, these cases occur in persons of the rheumatic diathesis, and are often accompanied by other rheumatic articular manifestations; they are usually traceable very distinctly to exposure to chill; there is constantly a history of pain in the region affected at the onset of the attack; and moreover the physical signs would indicate a much more advanced and serious condition of tuberculosis, were they due to that disease, than we have any other evidence of; for there is an absence of fever, of wasting, and of the general features of phthisis; and finally, these cases are cured by suitable treatment, such as we should apply to rheumatic affections of other parts, although the physical signs of adherent or thickened pleura in many instances remain.

It is true that such cases as I have described require to be carefully protected from the possibility of tuberculous infection, for if neglected or placed under unfavourable conditions the physical changes about the apex of the lung render it vulnerable to bacillary infection. The comparative immobility of the subjacent lung and the consequent inactivity of the respiratory currents and the tendency to congestive and catarrhal conditions which the proneness to blood and air stasis must provoke naturally lead to a susceptibility to the acquisition of tuberculosis.

Another condition which favours the cure or arrest of consumption in the more advanced stage—that is, in the stage of “conglomeration” of tubercles—is a natural tendency in the evolution of the tubercle to fibrous change. Professor Grancher⁶ vigorously protests against Virchow's definition of tubercle as a neoplasm incapable of organisation. He contends that it has, on the contrary, a natural tendency to fibrous organisation.

“Always formed,” he says, “of two concentric zones, a central caseous and a peripheral of embryonic cells, the tubercle, whatever may be its anatomical form, advances either to sclerosis or caseation, according as the cellular zone or the caseous zone develops with greatest rapidity. That is why so many tubercles are cured spontaneously and by the vigour of the organism alone, which would be impossible if the tubercle did not contain in itself the germ of its cure. The embryonic zone, always present, can repair the destruction and fill up small cavities by cicatricial vegetations; but if from the beginning the tendency to fibrous evolution is greater than that of caseation, a cure may take place without loss of substance by connective vegetation even to the centre of the tubercle, which becomes fibrous or encysted. But if all tubercle may be cured by sclerosis certain anatomical forms are much more prone to it than others. Compare the ‘pneumonic tubercle,’ so easily and rapidly caseified, with the tubercles of the slow phthisis of old age, fibrous from the commencement.”

Whatever, then, favours the sclerotic or fibrous evolution of tubercle promotes the natural condition of cure.

The next condition of cure I would mention is probably closely related to the preceding one. I refer to the absence of tissue sensitiveness or irritability—the absence of that tendency to acute inflammatory reaction to the bacillary infection, the presence of which is so unfavourable a prognostic and usually leads to a rapid extension of the local infection and to a diffuse ulcerative destruction of lung tissue. It must have occurred to every experienced physician to see cases of phthisis in quite the early stage, in which the tissue sensitiveness and constitutional reaction were so marked that an unfavourable prognosis is at once forced on the mind. “The organism” (says Grancher) “far from reacting in a uniform manner to the presence of the tubercle bacillus, may in one case yield and break down rapidly, and in another struggle and triumph.” It has seemed to me that individuals who show vascular irritability, who flush readily, and in whom the vasomotor control would seem to be weak, or possibly the vascular walls thin, offer a comparatively feeble resistance to tuberculous infection. The pneumonic form of pulmonary tuberculosis, although one of the most serious, and often rapidly fatal, is not, however, necessarily incurable. There is a benign form, as pointed out by Grancher, in which the pneumonic process is neither very violent nor very extensive, and if the organism retains some vigour and if suitable and early treatment comes to its aid, the softening may be circumscribed and the tuberculation localised and subsequently cured.

Another condition favourable to cure is the absence of marked hereditary predisposition, the possession of a sound, vigorous constitution which has become accidentally infected

by the tubercle bacillus. Another possible condition is a mitigated virulence of the bacillary infecting agent, and the small quantity or number that originally gain access to the lungs. The channels, also, through which the bacilli gain access to the lungs influences the conditions of cure; if they reach the lung through the blood vessels or the lymphatics the conditions will be unfavourable, owing to the probability of a wide diffusion of the infective agent; their entrance with the respired air is a more favourable condition.

So in studying the effect and influence of parasitic agents in producing pulmonary lesions, we must take into account not only the irritability of the tissues attacked, but also the energy of the irritant. It is by no means certain that all tubercle bacilli are of equal energy, and it is quite possible that the condition of cure in one individual as distinguished from another may be that he has been infected by a parasite much less energetic, much less virulent than the other. This would certainly seem to be the case in some other infective maladies; in the case of the scarlet fever microbe, the remarkable variations in its virulence or energy has long been a recognised fact. But in the case of the tubercle bacillus, it would appear to be more probable that it is in the relative irritability of the tissues of the various individuals attacked that the greatest differences are to be observed. This consideration points to a probable mode in which the efficacy of therapeutic agents may be exerted, namely, by lessening the irritability of the tissues, and so diminishing the rate of progress of the disease, thereby gaining the time necessary for the natural arrest of the morbid process through the evolution of sclerotic changes.

There is yet another most essential condition of cure, and without it most of our therapeutic efforts will end in failure, and that is a sound organic state, and a sustained functional activity of the organs of digestion and assimilation. The phthisical patient who cannot digest and assimilate nourishment is in the greatest peril.

I will in the next place refer briefly to a few of the therapeutic conditions which I believe favour the cure of phthisis. First in order I would place the administration of suitable food, in suitable quantity, and given in such forms and in such methods as shall ensure its digestion and assimilation. Scarcely sufficient attention in detail is given in this country to this very important condition of cure. It is otherwise in France; there the methodic alimentation of phthisical patients enters as a principal factor in their therapeutic management. There the principle of excessive feeding (*sur-alimentation*) in the treatment of phthisis has been pushed to an extent which it would probably be difficult to make acceptable to English patients; for I fear very few of our patients of the better class would consent to have large quantities of concentrated food pumped into their stomachs through a tube. Yet it is insisted upon by very competent authorities in France that, in order to maintain the prolonged and continued labour of cicatrization on which the arrest and cure of tubercle depends, the necessary cellular activity can only be obtained by hyper-nutrition, which can only be procured by hyper-alimentation. “Without,” says Professor Grancher,⁷ “an altogether special alimentation you are powerless; in short, alimentation is the first factor in the promotion of curative sclerosis.”

The success attending the application of the Weir-Mitchell system of feeding has shown how great an excess of food the most unwilling patients may, by systematic management, be induced to consume and assimilate; and a somewhat similar method has been applied to the treatment of pulmonary tuberculosis, with great success, by some of the most eminent physicians in France. Grancher reports the case of a lady with somewhat advanced phthisis who had so great a distaste for food that for several days she had refused to take any, yet by the diligent and persevering application of a rigorous method they finally succeeded in getting her to take large quantities of concentrated food and stimulants; so that she arrived at the point of consuming at least twice as much food as her sister and husband together; and without reckoning six teaspoonfuls of cod-liver oil, which she took in a glass of beer, she absorbed a relatively large quantity of champagne, malaga, and cognac. This patient increased in weight in less than six months from 70 to 105 lbs. She recovered from

⁶ *Op. cit.*, p. 244.

⁷ *Op. cit.*, p. 379.

her phthisis, and died a few years after of cancer of the uterus.

Another condition of cure is the possibility of living a life much in the open air of the country or of the sea; and, if possible, in a climate where there is much sunshine, and where the air is relatively dry and unirritating. A dry aseptic atmosphere especially favours the arrest of pulmonary tuberculosis, and promotes curative changes in the tuberculous deposits. A dry, pure atmosphere—not necessarily a cold one, unless for exceptional organisations. In western Europe it is difficult to find a dry, pure, sunny atmosphere, except in high mountain valleys; and hence we have, erroneously I think, been led to add “cold” to the other qualities of the climate best suited for the tuberculous.

I am satisfied that the sanatoria in the Swiss Alps but very imperfectly supply the ideal climatic requirements of the phthisical, and scarcely present the best conditions for the cure of phthisis generally. I say generally because I know they suit a certain special class of consumptives extremely well.

In the first place, the atmosphere of these sanatoria is by no means always unirritating. On the contrary, it can be at times excessively irritating. The extreme variability of different seasons and of climatic and meteorological conditions, even in the same season, are distinctly injurious to many cases, and have certainly proved fatal to some who would not have succumbed in a less rigorous and irritating climate. Attacks of acute pleurisy, pneumonia, and bronchitis are in some seasons of not infrequent occurrence. My own personal experience may be exceptional, but I have not seen such good results from a residence in the Swiss Alps, especially in serious, well-characterised cases, as I have from the climate of South Africa or that of South California; or in more advanced cases from Madeira or the Canaries; and I could, at this moment, put my hand on cases that show better results from residence in some of our own south coast resorts than I could from residence in Switzerland.

I believe, however, that the quite early pre-phthisical tuberculous cases, and even more advanced cases in vigorous organisms, do well in these resorts. Certain neurotic cases seem also to do extremely well in the Swiss Alps, mountain air appearing to have a sort of fascination for them.

But I have tested these climates with cases of decided and well-developed disease, and of such cases I can point to very few survivors, and I know this has been the experience also of non-medical and non-phthisical frequenters of these resorts. Of the phthisical acquaintances they have made there, few, they tell me, survive. I have seen much more remarkable results in the way of prolonging life in serious cases from the climate of Madeira, where living in the open air is possible for many more days in the year and many more hours in the day, and the air is soothing and not irritating.

Next to life in the open air—or better, associated with it—there is another important condition of cure, and that is continuous and strict attention to minute details of daily life and hygiene. With such a condition rigorously carried out even an indifferent climate may be turned to good account.

Im Kleinen grosse—great in small things—such is the device of Dr. Dettweiler, who has conducted his now well-known sanatorium for phthisical patients at Falkenstein with so much success. It is situated close to Frankfort-on-Maine, in the cold damp climate of the Taunus hills—by no means such as we should think well-suited to the treatment of phthisis. But minute attention to the smallest details—for nothing is too small or insignificant for Dr. Dettweiler’s personal direction—and absolute obedience to instructions are rigorously insisted on. Air, food, exercise; not, however, excluding medicinal treatment—these are the curative agents on which he mainly relies.

Out of 1,022 cases of undoubted phthisis, treated at Falkenstein between 1876 and 1886, 132 left quite cured and 110 relatively cured. These are the results obtained in what might be called a bad climate.

There is another therapeutic agent which is almost universally esteemed as influential in promoting curative changes in tuberculous deposits in the lungs in the early stages, and that is counter-irritation—repeated and continuous counter-irritation.

With regard to the use of chemical and pharmaceutical agents I have not much to say. The great divergence of

opinion that exists, and has existed, with respect to the value of the various agents of this kind that have, from time to time, been advocated as curative of phthisis may, to some extent, be explained by reference to the varying conditions under which they have been applied. It has seemed to me, after many years of careful observation, that the tissues of one individual will react to a remedy in a very different manner to the tissues of another; just, indeed, as they differ in their reactions to the infective morbid agent itself. And the results are different because the conditions, though undiscoverable, are different. So a particular agent or remedy may confer upon a particular tissue a resisting power it would fail to confer on another. This is the way in which I have explained to myself the remarkable differences in the action of different remedial agents on different individuals.

I have, like others, from time to time, gained some excellent results from the hypophosphite of lime, and at one time I used it very largely in a great number of cases of phthisis. I use it less now, and with more discrimination, because in many cases it has seemed to me to be utterly useless. It is far more useful in the cases of children and young people than in adults, and in old people I believe it to be inert. It is far more effective in florid fair people than in dark sallow ones. The latter, by the way—the very dark, sallow, tuberculous subject—is the most difficult of all to produce any remedial effect upon by drugs or, for that matter, by any other therapeutic process.

The introduction a year or two ago of the Bergeon method of treating phthisis—the introduction of sulphuretted hydrogen gas into the large intestine—will be remembered. It is rarely or never used now, and yet I saw some excellent results from its application in a limited number of cases; and I remember that my friend Dr. Coghill, with his quite exceptional opportunities at Ventnor of observing the effects of this and other methods in the treatment of phthisis, spoke of it as the most promising he had ever tried. I wonder if he ever uses it now. Dr. Henry Bennet, of Mentone, spoke also enthusiastically of its curative effects.

I had also some good results from the use of tuberculin, and except in one case I have personally encountered no unfavourable results—that was one of those dark, swarthy, extremely cachectic subjects—a type of consumption I have never known to respond favourably to any kind of treatment. One small injection developed in this case the signs of a widely diffused pulmonary infiltration, which we suspected but had not been able to clearly ascertain before the injection of tuberculin. I no longer use it because the alarmist reports in the newspapers and the private denunciation of so many medical men have made patients indisposed to submit to it. Certainly the manner in which this remedy was introduced was deplorable, and the irritation it excited amongst members of the profession in this country and elsewhere was perhaps not to be wondered at. Still it would have been better if less feeling had been shown in its denunciation. I think it will survive in a modified form the temporary opposition to it.

Certain antiseptic agents I believe to be of great value in influencing favourably the course of pulmonary phthisis. I have hardly seen a phthisical patient who has diligently and adequately used antiseptic inhalations who has not derived considerable, and in many cases lasting, benefit from their use. But in this as in so many other things, it is remarkable how few patients can be induced to persevere regularly and adequately with inhalations; and, again, their beneficial influence is much more remarkable in some cases than in others. I find, however, in phthisical patients that I have lost sight of for years, when they return they almost invariably refer the improvement they have experienced to the persevering use of antiseptic inhalations.

Of antiseptics given internally I have seen none so uniformly beneficial as creasote or guaiacol. It has held its ground better than any other antiseptic agent that has been applied to the treatment of phthisis; it has been in use for many years, and may, indeed, be looked upon as a descendant of the very old tar treatment. It has steadily gained in favour, and it is now, perhaps, more widely used, in every country in the world, than any other remedy for phthisis. Quite recently a method of administering it in large doses by the bowel has been warmly advocated.

But in the use of any remedy for consumption, in order that it may cure or contribute to the cure of this disease, the conditions of cure must exist. No remedy can cure incurable conditions. And I repeat now what I have already said, that if we knew at this moment of a certain cure for tuberculosis the majority of cases of pulmonary consumption as they now exist would remain incurable, because the conditions of cure, although they may have existed at one time, exist no longer.

FORTY YEARS' EXPERIENCE IN THE USE OF CHLOROFORM.

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THE controversy as to the physiological action and safety of chloroform and ether respectively is being carried on as actively as ever; indeed, the Report of the Second Hyderabad Commission—appointed mainly with the view of settling these points, and which affirms distinctly that death from the inhalation of chloroform is due to asphyxia, and which came to the conclusion that chloroform, if carefully administered, was as safe as ether—has only served to intensify the controversy, and stimulate those who hold contrary views to denounce its conclusions, and to affirm more positively than ever that failure of the heart's action is the primary cause of death when such occurs. Where scientists of such eminence are ranged on opposite sides there seems to me little hope of a definite conclusion being arrived at, and it would be presumptuous in me to attempt to offer an opinion on this disputed point, but as I am one of the few of the Dublin practitioners—if, indeed, not the only one—who has persistently adhered to the use of chloroform, and as my experience in its use during the long period of forty years, in private as well as hospital practice, is considerable, I think a statement of the results of the use of chloroform in my hands may not at the present juncture be uninteresting.

I commenced to administer chloroform in the summer of 1851, when I was appointed assistant to the then Master of the Rotunda Hospital, and, with the exception of about three months in the course of my own Mastership of that institution, during which I tried ether, I have used no other anæsthetic—and in midwifery never any other.

During the three months alluded to I employed ether in all gynecological cases. Amongst these were two of laparotomy, both of whom died, and I attributed their deaths to the effects of the ether. One of them was a fairly healthy woman, the subject of ordinary ovarian cystic disease. She objected greatly to the ether, declared she was being smothered, and began to cough immediately; this distressed her very much, was nearly continuous, and greatly interfered with me during the operation. On her recovering consciousness the coughing became incessant. Bronchitis supervened, and ended fatally, a most unfortunate result to a promising case. In the other patient, who violently resisted the inhalation of the ether, vomiting set in before she was under its influence, recurred repeatedly during the operation, and on the withdrawal of the ether became incessant. Nothing was from the first retained on the stomach. She died on the fifth day. A necropsy showed that acute peritonitis existed. It is but fair to say that this woman was most obstreperous, and did everything she could to encourage the vomiting, even thrusting her fingers down her throat when not watched to produce it; this she did, she said, to relieve the intolerable nausea the ether had produced. From that date I ceased to use ether, and I have never once given it since, except towards the end of a few very protracted cases, in which I substituted it for the chloroform, as being less depressing, but to this point I shall refer by and by.

I regret I am unable to give any precise details as to the number of cases in which chloroform has been administered in my practice. I can only say that during my term of office, first as Assistant and then as Master of the Rotunda Hos-

pital, about 15,000 patients were delivered within its walls, and as chloroform was administered in every case of difficult or complex labour, as well as in many with the object of relieving suffering, it was in constant use, and if to these be added the numerous instances in which I employed it in my private midwifery practice, I am satisfied that it was used by me in midwifery upwards of 3,000 times. Indeed, I believe this estimate to be considerably under the mark, and amongst these there was never once cause of alarm, much less did a death occur.

I lay, however, little weight on those cases in which it was used merely to allay pain during normal parturition, for in such it was given intermittently, and complete anæsthesia was seldom produced; but where the forceps were used, or in cases demanding turning, etc., it was different, for in all those it was pushed to the extent of producing complete insensibility, and in many of them it was necessary to keep up this condition for a considerable time. In cases of puerperal convulsions, it was sometimes necessary to continue its administration for many hours. I am unable to say what was the maximum period during which insensibility was maintained, but I remember one case of eclampsia in which I administered it myself without intermission for eight hours. The moment I attempted to withdraw it convulsions recurred; this patient ultimately recovered. In this case, although the chloroform was not once withdrawn entirely, still its inhalation would be discontinued for a very brief period from time to time—about a minute was the usual interval during which it was discontinued.

Chloroform is admittedly nearly safe in midwifery practice, why it should be so when complete anæsthesia is so often produced during obstetric operations I am unable to say, possibly because in these cases the involuntary expulsive efforts seldom entirely cease, and as at the expiration of each of these comparatively deep inspiration follows it may tend to prevent asphyxia, but then the deeper the inspiration the more chloroform will be inhaled; and one would suppose the danger would be greater of an overdose being then taken. I can only state the fact that in the whole of my extended experience both in hospital and private obstetric practice, I have never once found it necessary to discontinue the inhalation of chloroform, and that in my obstetric practice it has proved absolutely safe.

I have again to regret my inability to make any accurate statement as to the number of cases in which I have administered chloroform in my gynecological practice, but certainly they have been over 2,000, that would be an average of only 50 cases for each year over which this retrospect extends, in truth I believe this estimate might be safely doubled.

The cases in which I have administered chloroform included every possible form of gynecological disease; amongst them were 125 cases of abdominal section. Some of these were necessarily very tedious. I made it a practice never to hurry over an operation, or to try to finish it within a stated time; in many cases I have kept patients under the influence of chloroform for considerably over two hours, but the longest time during which in any one patient complete anæsthesia was maintained by the use of chloroform alone was three hours and a-half. I think it unnecessary to classify the other operations: it is sufficient to say they all were purely gynecological. Whether chloroform is safer in operations on organs situated in the abdominal cavity than elsewhere I must leave to others to decide.

Now as to the result, I have had one death, but that I consider can hardly be laid to the door of chloroform; her life was lost through injudicious though well-intentioned treatment, adopted when respiration, perceived to fail, was being restored. The patient was the subject of an enormous ovarian tumour; it extended from the brim of the pelvis to the diaphragm, and was free from any adhesions. Chloroform was administered by Dr. Andrew Horne; the patient took it without making any objection, and had inhaled it only two or three times, when Dr. Horne exclaimed that respiration had ceased. He at once withdrew the chloroform, and commenced artificial respiration by extending the arms and drawing them upwards, and the patient immediately inspired deeply. At this moment one of the bystanders exclaimed "lower her head," and someone seized her legs and elevated the pelvis, while another pulled her shoulders off the table till her head