

bone might be hitched against a muscle from which change of position might liberate it, I flexed the thigh on the pelvis and adducted the limb gently; total change of position suddenly took place, so much as to make me hope that reduction had taken place. One of the gentlemen to whom I have alluded, in examining the limb in its new position, repeated the manipulation, when luxation into the sciatic notch followed, from whence it was reduced with comparative facility with the assistance of pulleys.

The accident would occur if the thigh were too much flexed on the pelvis, and at the same time brought too much across the opposite limb. I believe the proper way to avoid it is to follow the course employed in the reduction of the case detailed above, viz., to keep the thigh well backwards, and to avoid bringing it across the middle line. Repeating both forms of manipulation by means of a pelvis and femur, will, explain the reason better than a written description.

I am happy to be able to confirm Dr. Walker's views by these cases, which I hope may contain some practical points, while they will at all events illustrate the kind of cases which occur not unfrequently in the practice of iron-works surgeons.

ON CHOLERA: ITS DIAGNOSIS AND TREATMENT.

By C. W. BELL, M.D., K.L.S., late Physician to H.M. Embassy in Persia, etc., Buxton, Derbyshire.

[Concluded from page 87.]

HAVING now sufficiently considered the nature and symptoms of those complaints which most predispose the system to an attack of cholera, and which have most frequently been mistaken for that disease, we may proceed to examine more minutely what symptoms, etc., specially belong to it, in its true congestive form. These are, first, blueness of the nails and contracted veins of the extremities, which appear like dark narrow lines, in consequence of their retaining in them a small quantity of blood adhering to their interior by capillary attraction; for though this force is not exercised between the coats of the vessel and its contained blood during health (but appears, on the contrary, to be exchanged for electrical repulsion), it certainly is operative during the blue stage of cholera; the features are sunk, the eyes look hollow, the lips are bloodless, the tongue is as clean and bloodless as if it had been macerated in water for days, and as cold; the breath is cold, the voice is without tone—all these symptoms occur in a more or less marked degree before any rice water stools are voided. In slight cases, a sudden fluid dejection, unexpectedly copious, but without pain, now takes place, and is perhaps followed by cramp in the legs. At this stage a sharp stimulant, such as brandy or sal volatile, will often cure at once; for it is remarkable how completely the tendency of this formidable disease to return seems to be broken, if the incipient congestion be arrested by any means. This is the only stage of true cholera in which stimulants do not do more harm than good. The blood has been forced into the interior veins by the contraction of the capillaries of the extremities; the passage of the blood through the lungs is just beginning to become arrested by the same cause; but the congestion thus produced has been greatly relieved by the rapid fluid exudation into the bowels. A stimulus to the stomach, acting through the sympathetic, gives a fillip to the heart's action, the failing vital activity of the capillaries is restored, and all goes on well again; the circle of morbid action thus broken has little tendency to recommence, and the attack is cured. The case is very different, however, if there be no natural relief at this stage of the disease by purging. The most anxious oppression of the heart then comes on, and it may be heard in violent and convulsive action, as if churning the blood within it. There is no want of stimulus to its action here; on the contrary, at each repetition of a stimulant the tumultuous noise increases, and along with it the agony of the patient, who, bathed in ice cold perspiration, is tossing restlessly from side to side, and throwing up his arms. To open a vein now, while yet the congestive stage is on the increase, and succeed in getting the blood to flow until it changes from its first dark tarry condition that requires to be squeezed out, and regains the red fluid state that belongs to health, spouting freely from the orifice, is to achieve a triumph for medicine that has no parallel; for the cure is as perfect as it is immediate.

Supposing, however, that the patient has not been bled and saved at this critical period, the struggle continues, and very

often in the course of eight hours the powers of life fail; the feet, hitherto intensely cold, become warm, and the patient dies. But this is an extreme case; for, in the majority, about the eighth hour after the commencement of the attack, the symptoms begin to become somewhat mitigated, and from the eighteenth to the twenty-fourth hour the patient, though not asleep, lies so tranquil as to appear to slumber. Suddenly, precisely at the expiration of the twenty-fourth hour, he sighs, tosses up his arms again, and in a few minutes is a second time in all the agony of suffocation. Now again an opportunity is offered to save the patient's life with the lancet; but it much more quickly passes away than in the first accession, and then bleeding will only hasten the end.

The great error in practising bleeding for the cure of cholera lies in waiting till the pulse becomes distinct. It has been observed that about eight hours after the commencement of the attack, symptoms begin to become mitigated, the pulse then becomes perceptible, and continues pretty steady. Let us mark the consequences of bleeding after this stage, which is that of attempted reaction, has recommenced. Twining unwittingly gives several examples of this, and also some cases in which he tried arteriotomy. These too well illustrate the effects of acting on a rule in ignorance of those principles of physiology on which the practice of bleeding in cholera and ague is founded. If, instead of bleeding while yet congestion is increasing, we draw blood about the twelfth hour when the pulse is somewhat steady, and the skin comparatively dry and warm, the consequences are most appalling; the blood flows, indeed, without any of the difficulty that would have been experienced in the first stage; but it does not do so long; it suddenly becomes black and tarry and stops, the ice-cold exudations again bathe the extremities and forehead, jactitation recommences, and nothing will then save the patient. In these cases of pure congestive cholera there can be no greater cruelty than to persist in employing stimulants and heat. It is remarkable that the congestive form which we have assumed to be the true type of algide cholera, when uncombined with any other malady, is now much less rarely met with in this country than was the case in 1832 and the four following years. In recapitulating its essential symptoms, it will be no departure from our expressed intention of confining ourselves in this paper to the endeavour to deduce the principles of treatment required in the various diseases classed under the head of cholera, if we venture somewhat dogmatically to lay down rules of practice in this case; for the *modus medendi* will no less illustrate the nature of the constitutional disturbance it is intended to remove or obviate than will the symptoms.

We recognise the case, then, by the peculiar colour and wet coldness of the extremities and brow, the cold breath, and the perfectly clean cold tongue; by the absence of odour in the dejections, if any, but more than all by that unmistakable symptom, the churning sound of the struggling heart, which once heard will never be forgotten. Our first duty in such a case is, with the utmost accuracy, to ascertain if possible the first moment of attack; and if it be *clearly ascertained* that not more than four hours have elapsed since the commencement, we should bleed at all hazards if the attack be severe; but if it be at all doubtful whether the attack have not lasted longer, we should not run the risk we have described as attendant on mistimed bleeding, but await a second opportunity some hours later, which we must endeavour to secure by the unremitting exhibition of quinine and sulphate of iron; say a grain of each dissolved in an ounce of water by the aid of sulphuric acid every quarter of an hour at first, and afterwards given at longer intervals. In the large majority of cases that set in with little or no purging, this treatment will cure always, provided that the feet have not become warm while the thighs and knees remain cold; for that is the invariable harbinger of death. If, however, a complete cure have not been effected, or at least such improvement as shows the danger to be past before the twentieth hour from the commencement of the attack, life or death will depend on the accuracy with which the hour of its first setting in has been estimated; for between the twentieth and the twenty-fourth hours is the period during which the lancet may be used with the greatest certainty of success. The blood will then flow more freely than it would have done in the first eight hours, or than it will do after the twenty-fourth hour, and there will be no danger of producing the collapse that attends phlebotomy between the eighth and eighteenth hour. It will sometimes bring on a regular shivering fit; but, if so, the patient is safe, for a full rigor is always evidence of commencing reaction. It ought to be a rule of practice to bleed only before the fourth hour or after the eighteenth in

congestive cholera.* In the other forms which set in with active diarrhoea, there is no object to be gained by bleeding—no congestion to relieve, and nothing but mischief can be caused by it.

To return now to the case in which purging accompanies the setting in of that derangement of the circulation which we called algide symptoms. The fluids passed or vomited are colourless and inodorous, like true rice-water; and the effect of these large liquid exudations from the vessels of the bowels is to effect a great reduction in the mass of blood driven in upon the abdominal viscera, and so to prevent those agonizing fits of dyspnoea, which are even more distressing than the cramps that often accompany the purging. It will be obvious to all who watch such a case attentively, that this kind of purging is very different from that which occurs in the kind of cholera that commences in putrid diarrhoea or dysentery; for it is an *exudation* of serum squeezed, as it were, out of the veins by the force of pressure, and is an effort of nature to afford relief to the congestion; whereas, in the other case, it is a wasting muco-serous *secretion*, with the production of which congestion has nothing to do. In these latter cases the cure of the purging is the cure of the disease, for that being effected, the algide symptoms disappear; but in the other the purging being the direct effect of the congestion, it can be cured only by overcoming that congestion. In short, the cure of pseudo, superimposed, or secondary cholera, is only effected by first curing the purging; whereas, in the true congestive or primary cholera, the cholera must be cured before the purging can be arrested. Space does not admit of the proof being gone into here, that cholera asphyxia is truly a quotidian intermittent; but an attentive study of the type of disease exhibited by the mass of patients at any of our larger Hospitals, will soon convince the most sceptical that every disease is in some degree altered in its symptoms when cholera is present or near, partaking more or less of a quotidian character. Our experience of many epidemics of cholera, both at home and abroad, has convinced us that its approach may always be predicted a considerable time before a "case" is reported, by the number of anomalous symptoms complained of by persons in a feeble state of health, all of which are referrible to derangement of the sympathetic system; and most of them present a quotidian intermittent type. The extreme prevalence of ticdouloureux in times when cholera appears is well known. Among the numerous out-patients of a Hospital for a week perhaps, the majority complain of unwonted constipation; next week perhaps all are purging. But one of the most frequent complaints at such a time is that at a certain hour the hand and foot of one side goes to sleep, and remain numb or paralyzed for hours. Very often for two or three days in succession complete coma comes on for an hour or two, most commonly at midnight; violent palpitations of the heart are frequent; sudden deaths from spasm of the heart are unwontedly numerous. Cases of decided quotidian ague, a most rare complaint in this country, are not unfrequently met with; and one of the most distressing and even dangerous effects of this epidemic influence when cholera is approaching is, when it gives rise to incessant dry vomiting. The symptoms of this latter affection are so like those of a bilious attack, that we have most frequently found them treated with calomel and opium, which only aggravates the mischief. The cause is congestion of the splenic and gastric veins; and the most immediate relief is afforded by a grain or two of quinine and of sulphate of iron in solution.

The diagnostic signs which unite in one category, all these and other anomalous attacks, such as are seldom or never met with when cholera is not epidemic, or about to become so, are remarkable. In all there is a certain lividity of lips and nails, the small veins of the extremities are dark and contracted; and when a portion of one of them is emptied by pressure, so as to leave the space between the part compressed and the next valve empty, the blood is seen to move sluggishly and slowly on when the pressure is removed, instead of springing actively forward to fill the vacant space as in health. The tongue is in all unusually clean and pale, and almost invariably there is pain on pressure over the spleen; but the most remarkable fact is that all these various symptoms are effectually relieved by a few doses of the same medicine, the solution of quinine and sulphate of iron.

When we see the functions of so many various organs thus affected by what we have no better term for than that given to

* See this subject more fully discussed in two lectures on "Cholera and Ague" by Dr. Bell. (Prov. Med. and Surg. Journal of November and December, 1848.)

it by Sydenham, "the epidemic constitution of the air;" the brain causing coma; the spinal marrow producing temporary paraplegia or hemiplegia; the heart affected by palpitation or spasm; the capillaries disturbed in their actions of secretion, nutrition, and the evolution of animal heat; the bowels by diarrhoea or constipation; the kidneys by suppression or altered secretion; the nerves of motion by spasm or partial paralysis, and those of sensation by neuralgia, it is impossible not to marvel how one and the same cause could produce all these various effects. This becomes more especially striking when we see the greater number of these symptoms combined in a severe attack of primary cholera, and at the same time witness each of them occurring separately in different individuals. It would appear inevitable to conclude that whatever the exciting cause may be, the sympathetic system of nerves presents the only means by which it is possible for such various effects to be produced; for a single case, cured as described by bleeding, of itself affords ample proof that the cause is not proximately in the blood. If antimony produce vomiting, strychnine convulsions, nicotine the opposite condition of the muscles; if croton induce catharsis, opium constipation, and digitalis or aconite cessation of the heart's action, etc., only through the agency of the sympathetic, why should we hesitate to believe that similar effects resulting from an epidemic cause are produced through the same agency? The bearing of epidemic influence on the incessant changes that take place from month to month, and year to year, in the character of our most familiar maladies, and the proneness of certain organs to succumb to that influence at one time, and of others at another, is a subject we can now only venture to glance at as a great field for investigation; and one of infinite interest, if taken in connection with the operation of such causes upon the sympathetic system. For the present, all that could have been hoped for in this paper will have been effected, if it have afforded some confidence to the reader that the mystery of cholera is not past finding out.

The preceding sentence was intended to have concluded this paper, but the writer has since received the whole of the reports published by the general Board of Health, respecting the cholera epidemic of 1854, together with the report of the cholera outbreak in the parish of St. James's, Westminster, during the autumn of the same year.

The latter pamphlet cannot be too strongly recommended to the profession for the ability with which it is drawn up, and the clearness of the proofs adduced, that water contaminated with intestinal mucus (in a state of peculiar decomposition) may become a source of fatal (putrid) diarrhoea to those who drink it. At the same time the strong desire for truth rather than effect that has actuated "the Enquiry Committee," who have the merit of its authorship, is manifested by the pointed manner in which cases are instanced which it was impossible to trace to impure water, and which are classed as belonging to the general epidemic. Perhaps we might have called these cases of (originally) bilious diarrhoea. Page 32 of the report also contains an important remark; for it is there stated as "certainly true that in the cases occurring at the commencement of the great outburst, premonitory diarrhoea was of short duration, or altogether absent;" that is to say of the true congestive type. In the reports of the Board of Health we look in vain for any information calculated to advance our knowledge of cholera as a disease. They contain papers of great research, detailing several series of valuable meteorological, chemical, and microscopical investigations of the atmosphere, water supplies, etc., of the metropolis, all which, if continued, will no doubt result in a very complete knowledge of the influences which combine in the production of that large class of diseases attributable to putrefactive elements in the air and water, which constitute the cachexia of large towns; but in so far as cholera is concerned, a very few words will express the whole of the information conveyed so scientifically, viz., that while the disease was at its worst, the weather was very close, and favourable to putrefaction. At page 18 of the report on the results of different methods of treatment pursued in the metropolis, it is stated that "in thirty-five cases the stages of simple and choleraic diarrhoea are reported as absent;" and in the supplemental report of treatment pursued in the provinces at page 10, ten cases are mentioned in which diarrhoea was reported to have been absent. This is the only notice which this remarkable and all-important fact receives throughout these volumes; and there does not appear to have existed in the minds of the medical council the shadow of a doubt that choleraic diarrhoea, without any algide symptoms, and algide symptoms without any diarrhoea, are the same disease, and to

be judged by the same rule as respects their treatment. So, also, putrid diarrhoea, communicable by water, and bilious diarrhoea (or English cholera), widely as their sources, etiology, and *ratio medendi* differ, are riddled through the same sieve of interrogation with unmixed algide cholera; and from the general success or non-success attending the medication of the heap, composed of all three without distinction, it is attempted to deduce a rule of treatment applicable to all. To say more on this subject might be deemed presumptuous; but we believe that this attempt of the "Treatment Committee" of the medical council, to deal statistically with the materials submitted to them, will only be remembered as a failure.

There is yet one point more we would shortly advert to in connection with these reports, viz., the desire expressed for more information respecting the treatment of the consecutive fever of cholera. We would suggest that it must needs be extremely difficult to collect statistics of any real value on such a subject, unless, along with the enquiries issued, certain principles be stated, which it is desirable to prove or disprove, by the investigation. If it be true as we have indicated, that cholera is in its essence a congestive disease of quotidian type, then is it only one degree removed from remittent fever; and of this type consequently will be its consecutive fever. Such has always been the case within our own observation; and from long and varied experience we may venture to assert, that wherever cholera is present, or in the neighbourhood, every kind of fever partakes more or less of the quotidian congestive type of remittent fever: witness especially the congestive scarlatina of late years, and the black-tongued typhoid. We would add that we have invariably found mercurials aggravate the congestive character of all these fevers; while salines, combined with minute doses of quinine and sulphate of iron, in general fulfil satisfactorily every indication.

Should the attempt to investigate statistically the best plan of treatment ever be renewed, we shall hope to see a decided line drawn between diarrhoea and cholera, and between those cases in which the algide symptoms are primary, and those in which they are consecutive or superimposed.

Lectures

ON CERTAIN VIEWS ON THE NATURE AND TREATMENT OF PHTHISIS PULMONALIS.

DELIVERED AT THE

BROMPTON HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, IN THE SUMMER OF 1856.

By EDWARD SMITH, M.D., LL.B., B.A., Licentiate of the Royal College of Physicians; Assistant-Physician to the Hospital, etc.

LECTURE III.

TREATMENT FOR THE ARREST OF THE DISEASE; DIRECTLY, BY VOLUNTARY DISTENSION OF THE AIR-VESELLES; AND INDIRECTLY THROUGH THE GENERAL SYSTEM. EFFECT OF SLEEP, FOOD, TEMPERATURE, TONICS, COLD BATHING, AND ATHLETIC EXERCISES.

In the last, and also in a part of the first lecture, we were occupied with the consideration of the two great processes whereby life and health are maintained, and with which both health and disease must be connected, viz., alimentation and aeration, as causative of phthisis. We arrived at the conclusion that alimentation is not at fault, since the quantity of food taken is equal to that in health; the digestion is good, and the waste of material is not greater than in health: and hence we believed that that subject might in future be altogether excluded from the inquiry. In reference to aeration, we found a marked diminution in that process as a condition both anterior and subsequent to the deposition of tubercle, and ascribed it essentially to a lessened action of the air-vesicles of the lung, originating in themselves, or conjoined with an atonic condition of the general nervous system; and we proved that all the circumstances considered as causative of phthisis are of a depressing nature. The influence of age and sex was shown to be rather that of the circumstances attending the patient, than any peculiarity of organisation dependent upon them. This condition, it was believed, was always anterior to the deposition of tubercle, and ought to be considered as the first stage of phthisis. The deposition of tubercle was accounted for by regarding the inactive cell as a proper nidus for diseased material, and the tubercle as

a degeneration of a natural occupant of the cell, or the epithelial scales. The extension of it was believed to be due both to the severity and extent of the first causes, and also to the pressure mechanically produced on the adjoining cells by the deposited tubercle. We now proceed to make some deductions from the preceding inquiry, in reference to the treatment of the disease.

The plan of treatment which I venture to recommend is based upon the view which I take of the essential nature of the disease; the latter being a diminution in the action of the air-vesicles of the lung, and the treatment consisting in the increase of that action. Whatever may be the various modes by which the disease is to be combated, it appears to me that this leading idea must be kept in view, and that all other objects are to be considered as second and subservient to it. It is not my plan to enter upon the whole subject of the treatment of phthisis, but to select such parts as have reference to this theory and to my own investigations. The treatment will naturally divide itself into two parts: 1. The arrest of the disease; and 2. The removal of the effects of the disease.

1. *Arrest of the Disease.* This treatment is applicable to every stage, but manifestly much more to the early than to the later stages. It is not too early to apply it before there is any evidence of tubercular deposition; for, as there is a condition anterior to the deposition, upon which the subsequent deposition depended, it is surely of the highest moment to direct our attention to that early period. I think it a serious mistake to so far limit our view of phthisis as to consider it to begin when tubercle is first deposited; for by so doing we have permitted a period to pass over when the difficulty of arresting the disease is comparatively little, and have allowed our patient to pass into a state which is so often irremediable. Whenever, then, there is lessened respiratory murmur at the apex of the lung, with shorter and more feeble inspiration, and, as a consequence, some degree of flattening above or directly below the clavicles, it is high time to apply our remedial measures. It is probable that even then, and before any tubercle is deposited, there will be found diminished resonance on percussion; but this will be due to the absence of the air which should cause the resonance, and not to the deposition of any substance foreign to, or of a denser nature than, the lung-tissue. This slightly lessened resonance may readily escape the notice of those whose ears have been practised only in the flat sounds which indicate the total absence of air and the presence of a dense material; and, moreover, as the term dullness is a relative one, it is necessary that the examiner should be able readily to appreciate the sound in health. This I conceive to be less frequently attained than we are led to imagine; for the pupil is taught auscultation almost exclusively on the diseased, and not on the healthy chest; and, further, of those patients who are not suffering from apparent chest-disease, a large proportion have the lessened vesicular murmur to which attention is now directed. Hence there are two sources of fallacy, viz., the frequency of lessened resonance in persons apparently healthy, and the inability to detect slight variations in the degree of resonance. To this may probably be added a physical incompetency in some persons; for nothing is more certain than that the keenness of all the senses, and consequently of hearing, varies much in different individuals. I have ventured to make these remarks, both because I have seen errors made, and because errors may easily be made; and it is of importance to give close and careful attention to the character of the resonance. Whenever, then, there is the slightest dullness on percussion, with lessened vesicular murmur, less forcible and deep inspiration, and flattening of the apex of the lung, there is probably the first condition of phthisis, and the stage anterior to the deposit of tubercle: and, since the only change existing is atrophy with lessened use of the air-vesicles, it is manifest that the arrest of the disease may be more readily effected, than when it is complicated by the addition of further adverse conditions.

It is, however, probable that the tendency to the filling up of the effete cells exists coincidentally with the diminution of vital action in those cells; but a period must elapse before the vesicles can be filled with any substance, and much more with so resisting a material as the tubercle which is evident to the naked eye; and still more so, as it is probable that the tubercle is a result of the degeneration of the accumulated natural product—the epithelial scales. How long this period may be, we cannot tell; but, from the length of time during which persons appear to be prone to, without actually falling into, phthisis, we may infer that it is commonly long. That must, however, depend much upon the intensity of the causes which