the condyles of the femur, was restored to perfect health by a six weeks' visit to Kreuznach, and a careful attention to the rules laid down by Dr. Prieger, junior. I have recently had occasion to recommend the use of the Kreuznach bitter in the case of a young lady in whom the ordinary exhibition of iodides externally and internally failed to remove a very sluggish glandular tumour of the neck. Its brief employment, however, and the subsequent removal to the sea side, does not enable me to quote the case as one of cure. I mention these cases rather with a view to proving that my remarks proceed from a conviction of the extreme value of the Kreuznach waters and the bitter, than for the purpose of strengthening the arguments of men of larger experience. It appears that the bitter has been employed somewhat extensively at an infirmary for scrofulous children, erected by Mr. Sidney Herbert in Wilton, Hants. If so, it would be desirable that the results of its effects should be made known to the profession, as we might thus be enabled to form a more conclusive estimate of its remedial powers apart from the effect produced by the change of scene and air when patients visit Kreuznach itself. If members of the Harveian Society should have acquired any experience on the employment of this remedial agent, I should be happy to find that these cursory observations succeed in eliciting their views on a subject which I have ventured to introduce to their notice perhaps with less completeness than it demands, but with an earnest conviction of its importance in a scientific and directly practical point of view.

3, Bentinck Street, Manchester Square, Nov. 18th, 1853.

ON THE VALUE OF NITROUS ACID IN THE TREATMENT OF CHOLERA AND CHOLERAIC DIARRHOEA.

By R. H. WHITEMAN, Esq.

Now that cholera has again invaded us, and members of the profession are everywhere considering the best tactics to be adopted to successfully grapple with the disease, it is impossible to value too highly any therapeutic measure that can be proved in the least degree serviceable in arresting the more formidable symptoms. In the valuable and interesting paper by Dr. Cormack, lately read before the Medical Society of London, and subsequently published in the *ASSOCIATION JOURNAL*, there occurs the following remark:—"Mr. Whiteman, of Putney, informs me he finds nitrous acid so prompt and so satisfactory a remedy in epidemic diarrhoea, that he trusts to it in preference to any other medicine." The following observations are intended to convey a somewhat more detailed account of my experience of a medicine, which I have now exhibited with the greatest possible success to many hundreds of persons, suffering under all stages of the choleroïd disease.

The way in which I became possessed of my knowledge of the remedy in question, is soon told. Upwards of twenty years ago, at the outbreak of cholera in 1832, my opinion was asked concerning the probable efficacy of an original prescription, which bore the signature of Mr. Thomas Hope, at that period a medical officer on board His Majesty's Ship *Canada*. I was then in my novitiate, and thinking the chief ingredient in the formula a somewhat extraordinary remedy for a disease which I had been taught to regard as one frequently produced by an excess of acid in the *primæ viæ*, I at once pronounced against it; but was, from the strong representations of its value, and notwithstanding my prejudice, induced to copy the prescription. Shortly after, a very severe and stubborn case of diarrhoea happening to fall under my care, I determined to give the remedy I had noted a trial. The result of its administration to my sinking patient was strikingly favourable—so favourable indeed as to induce me ever after to rely upon it for the arrest of the earlier symptoms of the epidemic, to the exclusion of almost every other medicine.

I may here observe, that both the formula of Mr. Hope,

and the directions with which it was accompanied, are identically the same as those at present used by myself, and of which I shall have occasion to speak more in detail in the course of this paper.

My own experience of nitrous acid, which, as I have shown, is by no means a remedy of yesterday, fully bears out the character given it by its originator; viz., that when exhibited before the stage of collapse has completely set in, it has seldom or ever failed to check the progress of the disease; and that even when collapse has existed for some time, reaction has been established through its agency in a large number of cases, in which it has been administered along with the external application of warmth, and other auxiliaries.

In the summer and autumn of 1849, apart from the cases which occurred in my private practice, I returned to the Board of Guardians, as medical officer of the district, as many as 544 patients who had suffered more or less from the then prevailing epidemic. My belief is, that none of the cases so returned were other than fully developed cholera—cholera in its incipient stage, or diarrhoea of a decided choleraic character; for I quite agree with Dr. Cormack in thinking that, during the height of the epidemic, the choleraic type is impressed upon most diseases, certainly upon all those in which diarrhoea is more or less an urgent symptom.

In quite 350 cases of the 544 returned in the Union books, nitrous acid was prescribed. A great many slight cases amongst the poor and others were administered to at the temporary Dispensary, of which no account was kept; but out of this large number of persons, I had the singular good fortune to lose but *eleven*, or about one in fifty of those attacked.

Had it not been for the assistant, granted me by the Board of Guardians, coming to me with a most decided predilection for the calomel treatment, I believe that many more patients than I have named above would have been placed under the influence of my cherished remedy. Desiring, however, an opportunity of judging of the comparative merits of the several popular modes of treatment that were then being employed, I made no objection to a few cases being fairly submitted to the medicine so warmly advocated by Dr. Ayre; but I cannot say that the general result was at all satisfactory to my mind. The prolonged convalescence of the very few who, in my hands, rallied under, or rather got better *after* the calomel treatment, certainly afforded no encouragement for its adoption in preference to the stimulating, saline, or any other of the many plans then in use.

In the present state of our knowledge of the disease, I have ever held it to be of the first importance to commence the treatment, if possible, before the premonitory stage has given place to the more fatal and dangerous symptoms. If, then, there belonged to nitrous acid but the one property of arresting in the most prompt manner the discharge from the bowels in that stage, I should not be easily persuaded to abandon the remedy for any of those in common use. The acid appears to me to possess, besides its astringent power, the properties of a stimulant in a remarkable degree; and it is a question whether, in addition to the peculiar action which I know it has of quieting the stomach, and of putting a stop to the violent retching, it does not also exert some influence on the palsied pneumogastric nerves in collapse, and by that influence tend in many cases to give the first impulse to reaction. I have recorded in my note-book a recent case of choleraic diarrhoea, in which the stage of collapse had set in some time before I was called upon to see the patient, but in which the administration of but two or three doses of the nitrous acid mixture proved sufficient to restore the natural warmth to the surface. Did space permit, I could transcribe from my notes very many cases of this kind, all tending to show in the clearest possible manner that the acid has some specific influence upon the system in causing an evolution of internal heat.

Whether the action of the mineral acids upon the eco-

nomy be of a chemical nature, or whether their effects in cholera are due to mechanical causes alone, I must leave to those to determine who have more leisure, and are better qualified than myself, to institute the necessary experiments. It is possible, nay, exceedingly probable, as Mr. W. J. Anderson has most ably shown (ASSOCIATION JOURNAL, Nov. 4th, 1853), that the introduction of a mineral acid into the system may supply a most important aliment (oxygen) to the impure blood in cholera; but I apprehend the astringent properties of such an agent must be referred, in part at least, to other than chemical changes. All sorts of purely speculative opinions as to the cause of cholera are being promulgated at the present time, which it would be worse than useless to discuss; but with reference to those theories which ascribe the disease to certain electrical conditions favourable to its propagation, or to an excess or deficiency of ozone in the atmosphere, all must allow that neither of these views are incompatible with the notion that the immediate cause of the inordinate and abnormal discharge from the bowels may be the irritation of some fungoid growth, or animalcular deposit, upon the mucous surfaces of the alimentary canal. Believing, then, the fungus theory, as advocated by Mr. Grove, to be as tenable as any other with which we have yet been made acquainted, I cannot help entertaining a rather strong impression that, like sulphur, the nitrous acid may possess a powerful detergent action, and by its caustic power tend to the destruction of the fungoid germs in the *primæ viæ*. Whether this be so or not, it is clear that the acid has the effect of controlling the discharge from the bowels in the most prompt and efficient manner, and that too with much less detriment to the subsequent health of the patient than when cretaceous powders, catechu, or opium, have been largely given with the same intention.

It was seldom, indeed, that I was called upon in 1849, to hasten convalescence by the after exhibition of tonics or other medicines; and this I consider one of the greatest recommendations of the acid treatment.

It is an interesting question whether or not the treatment of diarrhœa by acids was known to the ancients. The great father of physic, in one of his aphorisms, has said, that "Acid belchings supervening upon lieuterics, where they were not before, are a sign of mending." And again: "Whether this symptom come spontaneously, or be procured by art, it equally cures the distemper." An old author, who wrote at the latter part of the seventeenth century, in commenting upon these aphorisms, remarks: "From hence it may be inferred that Hippocrates supposed acids to contribute to the cure of loosenesses, because those signs of acidity in the stomach, whether they come spontaneously, or were artificially superinduced, generally signified, according to him, a solution of that disease which is attended with crude dejections." Other old authors have noticed a similar mode of treatment; and I believe the vegetable acids, such as the acetic and citric, have found a prominent place in the prescriptions of some of the ancient followers of the great philosopher of Cos.

Notwithstanding the successful issue of most of my cases in 1849, that were treated with nitrous acid, I do not pretend to say that this medicine is a specific against all kinds of choleraic disease; nor do I imagine that it will alone suffice in every case. Unquestionably, in both threatened and actual collapse, external warmth, stimulant cataplasms, enemata of acetate of lead, and other such auxiliaries, will be found most valuable in the majority of cases. Employed in this way, I think I am authorised by facts in viewing the nitrous acid as one of the most valuable remedial agents that the profession possesses; and I am the more confirmed in this opinion, since a number of patients treated by stimulants, calomels, salines, opium, and other popular medicines, either died, or experienced a most protracted convalescence in my hands; whilst those who were submitted to the influence of the nitrous acid, with but one or two exceptions only, recovered; and that, too, without the slightest apparent detriment to the general health.

In ordinary diarrhœa, or diarrhœa unaccompanied by any

of those symptoms which indicate great prostration of the vital powers, I usually precede the acid mixture by a dose of calomel and rhubarb, with the view of removing any scybala that may be retained in the colon.

The acid I have been in the habit of using is of a reddish brown colour, fuming, and of the spec. grav. 1.212. The manner in which I generally administer it is in the form of a mixture, containing, according to the severity of the symptoms, from 3ss. to ʒi of the undiluted acid, in from ʒiv to ʒvi of any of the aromatic waters; and to this I sometimes add, when there is much restlessness and pain, ʒxxl of tincture of opium, but I quite as frequently give the acid without the laudanum as with it. The dose of this mixture for an adult is a quarter part for every two, three, or four hours, according to the degree and urgency of the purging and vomiting. Should the first dose be rejected, as it sometimes will be, in spite of every effort of the patient to retain it, another must be given in about ten minutes after; and in this way it must be persevered in until it remains on the stomach, and the diarrhœa is restrained. The best vehicle for its administration is a cup of thin gruel, suffered to become almost cold. It is always advisable to direct the patient to abstain from taking either liquids or solids for at least half an hour after each dose of the mixture; at the expiration of that time, however, constant and small sippings of gruel or tapioca may be ordered with much advantage. Should there be excessive thirst, a grateful draught may be extemporised by adding a few drops of the acid mixture to a small tumbler of cold water. Experience has also taught me to look upon a dose of the mixture taken fasting every other day, as a most valuable prophylactic measure, by no means to be despised by those who may be constantly or only occasionally in attendance on the sick.

Hitherto I have contented myself with communicating my experience of this remedy to my professional friends; and I have much satisfaction in stating, that every one who has been induced to make use of the medicine has reported to me most favourably of it. My Union colleague, Mr. H. Bursey, of Wandsworth, has, amongst others, informed me that he has given it in a number of cases with the most satisfactory results, and adds, that in the choleraic diarrhœa of children he has found it especially valuable.

In concluding this communication, I must confess that the fear of sharing the discredit which deservedly attaches to those who are constantly abusing public credulity, by extolling, through the medium of the press, some wonderful nostrum, has long deterred me from venturing to publish my views upon the subject I have now, I fear, but very imperfectly handled: nor should I, perhaps, have ever penned this paper, had it not been from a wish expressed by many of my friends, that I should make more generally known my experience of a remedy I had found so valuable an auxiliary in the treatment of the formidable disease at present occupying such general attention.

Whilst I fully concur in the opinion of Dr. Cormack, that the advocacy of uniform and empirical methods of treatment may tend to obstruct, to a certain extent, the progress of rational inquiry, I am nevertheless quite content, in the present state of our knowledge of the disease, to have my cherished remedy placed in the category of empirical medicines, if by its agency I can continue to successfully combat the premonitory diarrhœa in almost every case brought under my notice. Let a case assume ever so formidable a character, I consider, that to be able promptly to arrest the serous discharge from the bowels is to gain almost the haven of a successful issue: and, I cannot help thinking, that if practitioners generally would avail themselves of every opportunity of impressing on those who are likely to become their patients, the danger there is in procrastination, and in neglecting to seek medical advice, whilst the disease is readily amenable to treatment, the greatest good would result, and many a valuable life be saved.

In the more advanced stages of the algide disease, and in cases in which collapse has long set in before medical aid is sought, I am free to confess, that the acid treatment is as

likely as any other to fail in causing reaction. Having no faith whatever in the existence of specifics in medicine, it would be empirical in me indeed to extol this remedy as a never-failing one in cholera. I have nevertheless just that faith in it to believe, that none will be found to repent having put it to the test when once they have been induced to employ it in the earlier stages of that fearful malady—a malady, be it recollected, which has in many districts numbered its victims, not as in this and other favoured places, by mere tens and dozens, but by appalling hundreds and thousands.

Putney, Nov. 21, 1853.

BIBLIOGRAPHICAL NOTICES.

THE SCIENCE AND ART OF SURGERY; being a Treatise on Surgical Injuries, Diseases, and Operations. By JOHN ERICHSEN, Professor of Surgery in University College, and Surgeon to University College Hospital. pp. 944. London: 1853.

Mr. ERICHSEN holds the position at University College which has been held in succession by Sir Charles Bell, Mr. Samuel Cooper, and Mr. Liston; and his present work shews him to be not an unworthy successor of these distinguished surgeons. The last work which we recollect as embracing in a short compass the science and the practice of surgery, was that entitled *The First Lines of Surgery*, by the late Samuel Cooper; a book from which many surgeons of the present day have derived the soundest information, and which is still the text-book of numerous practitioners. The later works on surgery, written by English authors, have been chiefly monographs on some special department, or have been confined to the purely operative part of the subject, or have been abstracts of the existing knowledge of the science. A place was undoubtedly open for the publication of a comprehensive work on the theory and practice of surgery, written by a practical surgeon, who, deriving his preliminary information from such teachers as Liston, Samuel Cooper, Syme, and Quain, could illustrate his own views by the experience afforded at a metropolitan hospital. This vacancy, we think, has been satisfactorily filled by the work of Mr. Erichsen now before us; which will not only increase his own well earned reputation as an author and a practitioner, but will reflect credit upon the chair which he worthily fills.

The work is divided into three parts. The first division contains a treatise upon the first principles of surgery, including inflammation, and the general rules connected with operations. The second division contains the special history and treatment of surgical injuries, and their effects; such as traumatic delirium, gangrene, gunshot wounds, punctured and poisoned wounds, wounds of veins, injuries to arteries, of muscles and tendons, and of bones and joints; injuries of the head, of the spine, of the lung, and of the abdomen; burns, scalds, and frost-bites. The third division includes the various surgical diseases, such as abscesses, ulcers, mortifications, erysipelas, pyæmia, tumours, scrofula, syphilis, phlebitis, diseases of arteries, of nerves, of bones, of joints, distortions and other diseases of the spine, diseases of the bursæ, of the head and neck, of the jaws, of the throat, and of the breast, hernia, piles, diseases of the urinary organs, as stricture and calculus, and diseases of the male and female generative organs.

The first chapter is devoted to the consideration of increased vascular action as evinced in determination of blood, and in inflammation, with its consequences, suppuration, ulceration, and gangrene; but these subjects, though well described, offer no opportunity for special remark. In the second chapter, the author takes a practical view of operations; and many of his remarks are characterised by sound knowledge and good sense. The following passage is particularly worthy of commendation:—

“Manual skill and dexterity are necessarily of the first advan-

tage to a surgeon, and he should diligently endeavour to acquire the art of using his instruments with neatness, with rapidity, and with certainty: but, desirable as it doubtless may be to be able to remove a limb, or to cut out a stone, in so many seconds; important, in a word, as it is to become a dexterous operator, it is still of far greater importance to become a successful one. The object of every operation is the removal of disease that either threatens the life, or that interferes with the comfort and utility of existence; and the more certainly a surgeon can accomplish this, the better will he do his duty to his patients, and the more successful will he be in his practice. Success, then, in the result of an operation, whether that result be the preservation of life, or the removal of a source of discomfort, is the thing to aim at. To this, dexterity and rapidity in operating are in the highest degree conducive; but there are various other considerations, equally, or still more necessary, the solution of which can only be afforded by an intimate general acquaintance with the science of surgery and of medicine. The diagnosis of the nature and extent of the connexions of the local disease has to be made; lurking visceral affections must be detected, and, if possible, removed. The constitution of the patient must be prepared for the operation; the best time for its performance seized; and, after its completion, the general health must be attended to in such a way as shall best carry the patient through the difficulties he has to encounter, and any sequelæ or complications that arise must be met by, and must be subjected to, appropriate treatment. These, as well as the simple performance of the operation, are the duties of the operator; and on the manner in which these are performed, as much, or even perhaps more, than on the mere manual dexterity displayed in the operation itself, will the fate of the patient depend. It is well known that the results of operations differ much in the practice of different surgeons of acknowledged dexterity; and this variation in the proportionate number of recoveries cannot be accounted for by any difference in the degree of manual skill displayed in the operation itself, but must rather be sought in the greater attention that is paid by some surgeons to the constitutional treatment of their patients before and after the operation, and to their more perfect acquaintance with the general science and practice of surgery. Indeed, success in operative surgery depends greatly upon the selection of proper cases. The practice of operating in notoriously hopeless cases, with the view of giving the patient what is called a last chance, is much to be deprecated, and should never be done. It is by operating under such circumstances, especially in cancerous diseases, that much discredit has resulted to surgery; for in a great number of instances the patient's death is hastened by the procedure, which, instead of giving him a last chance, only causes him to be dispatched sooner than would otherwise have happened.” (p. 45.)

The mode of administering chloroform recommended by Mr. Erichsen is, to pour about a drachm of this fluid upon a piece of folded lint, about two inches square, and to hold it at a distance of about three inches from the nose of the patient, so as to admit the very free admixture of air with the first inhalations.

“After the lapse of about half a minute, the lint is brought nearer to the patient's nose, to within a distance of perhaps an inch, being never allowed to touch: at the same time, a porous towel is lightly laid over the face of the patient and the hand of the operator, so as to prevent the escape of the chloroform vapour, but not to interfere with the admission of air. During the whole time, it is the duty of the administrator to keep his hand on the pulse, and occasionally to examine the pupils of the patient.”

In discussing the question of amputation, Mr. Erichsen prefers the flap-operation, as might be expected of a pupil of Mr. Liston, who, as is well known, invariably employed that method with great success. The advantages which the flap-operation possesses over the circular are, the greater celerity in its performance, the more perfect coaptation of the opposite sides of the wound, and the greater tendency to union of the stump by the first intention.

In the Chapter on Amputations, Mr. Erichsen gives a tabular statement of the results of these operations at University College Hospital, in 140 cases. From this summary it appears, that out of 45 cases of operation required for injury, 31 cases recovered, and 14 died; and out of 95 cases of operation required by disease, 77 cases recovered, and 18 died; thus the mortality per cent. was in the first