cold, when long and uniformly continued by means of the current apparatus, I have found an efficient remedy in many such cases; but lower degrees of cold, carefully applied, might, under certain circumstances, prove successful, when a higher temperature would fail.

Brighton, Aug. 22, 1848.

Analyses
OF
COMMUNICATIONS IN MS. RECEIVED FOR PUBLICATION IN THE LANCET.

"L'auteur se tue à allonger ce que le lecteur se tue à abréger."

CHOLERA AND ITS TREATMENT.

Suggestions on the Prevention of Epidemic Cholera, with Notes on the influence of Locality in the production of that disease in India and elsewhere, and on the immunity attaching to the vicinities of Mineral Springs and other places where large quantities of Carbonic acid gas are evolved.

By J. Parkin, M.D., &c., London.

"In my last communication, (The Lancet, Aug. 19th,) it was remarked, that I had collected a great many examples, similar to those adduced in the interesting letter of your correspondent, Mr. Ritson, (The Lancet, Aug. 5th.) I now beg leave to forward a few of the facts then alluded to, together with some remarks, which were written with the express object of adding them to my little work on the Treatment of the Cholera; but which I, at the period of its appearance, suppressed, thinking that the evidence adduced was very indirect in proof of my proposition, that carbon and its compounds are antidotes, or specifics, for the epidemic cholera. As, however, these facts have been considered by others not only interesting but also important, I no longer hesitate to add my mite to the collection already made by your correspondent.

"I have perused the letter of Mr. Evans, contained in The Lancet, (p. 247,) in which he makes certain objections to the conclusions drawn by Mr. Ritson, that the exemption from the ravages of the disease at Marsala was due to the presence of carbonic acid gas in the atmosphere. It is not my intention, however, to answer these objections on the present occasion—thinking that the facts now adduced will be, to a certain extent, an answer; at the same time that it would seem right to allow Mr. Ritson to give his own explanation first.

"An attempt has been made, in a previous publication of my own, to prove that carbonic acid gas is an antidote to the poison which, I have inferred,* is productive of the epidemic cholera. I am induced to draw the conclusion that, if this agent be an antidote, it must also be a preservative or preventive of the disease. But to accomplish its object in this particular, it is of course necessary to bring the agent into contact with the poison; not a matter of much difficulty, if the latter be contained in the atmosphere—an opinion in which the majority of the profession concur.

"Although *individuals* be not infectious, we must conclude that *places* are; and that the poison productive of the disease is not only diffused in the atmosphere, but also that it accumulates in greater quantity in some situations than in others—so that, while one district is scourged, another is spared. This phenomenon has been frequently observed, and well understood by medical men and others in India. When the disease attacked the army of the Marquis of Hastings, encamped on the banks of the Sind, in Bundlecund, 5,000 perishing in the short space of five days, the troops were as soon as possible put into motion, and another encampment was sought out; and although they carried along with them their sick—and, it may be added, their dying also—hardly a case occurred, after reaching the high and dry banks of the Betwah at Erich, a place judiciously selected by those who, with only a twelvemonth's experience, had not failed to observe the different influences of locality in this disease. Again: it has occurred more than once that two battalions on march together have encamped for the night upon separate ground. The one has been severely attacked with the disease; the other has not presented a single case. Observing this, the infected battalion changes its encampment, and takes up a position alongside the other. The malady immediately ceases, neither is it communicated to the uninfected division, although the intercourse has been unrestricted, not only between the healthy of the two corps, but also between the healthy and the sick.

"Another fact is the following:—A frigate, 'the Undaunted,' left the Port of Canton for the purpose of conveying the Governor-general of India to this country. On her passage through the China Sea, a number of her crew were suddenly attacked with cholera asphyxia. This continued for several days, when the surgeon recommended the captain to change the course of the vessel, which, being done, the malady immediately ceased. It is worthy of remark, that the disease was not prevailing at the place which the ship had left, nor had it been observed in that part of the world for some time before.

"Nothing can show more forcibly than these and other such facts that *places*, and not *persons*, are infectious under these circumstances; nothing can better point out the expediency of disinfecting the contaminated air, if possible, or else of removing the sick and the healthy to other spots. The latter alternative, excepting with the affluent, or ships, or troops on march, is seldom or never practicable. Neither, on the other hand, is it prudent, unless during the first year of the invasion of a country by the disease, when it creeps on slowly and by degrees from place to place, and generally confines itself to particular lines of march. After this, and in the succeeding visitations, the disease appears to send out offsets, as it were, which, traversing the intermediate and uncontaminated districts, the irruption is witnessed, at the same time, at separate and distinct spots; so that an individual who quits an infected town to-day, may find the influence he flies from to-morrow in the place of his voluntary exile or temporary abode. If these deductions be correct, and if it be also true (as I have elsewhere inferred) that the different forms of carbon possess the power of neutralizing the poison productive of epidemic cholera, it would seem that the best plan, under the circumstances, would be to evolve a certain quantity of the gas into the atmosphere, and thus render the morbid matter inert. Of the possible efficacy of this plan there is, in my opinion, some evidence.

"In the first place, I would observe, it is a well attested fact that, since the first appearance of the epidemic in India, but more particularly during its march across the continent of Europe, a great many places possessing mineral waters have escaped the ravages of this unsparing and wide-spreading scourge. Thus Baku, on the borders of the Caspian sea, had not a single case, although the disease was prevalent to a terrific extent all around. The same exemption was observed at Baden; and, so far as I am aware, at all the towns in Germany celebrated for their mineral springs, the waters of which are impregnated largely with carbonic acid gas. It must also be familiar to many persons that in England the principal watering-places escaped the ravages of the disease. This was most remarkable at Cheltenham, in which not a single case occurred, although the disease prevailed so extensively in the surrounding district, and notwithstanding that the town appeared to be directly in the route which the malady took across the country.

"As the mineral springs at all the places here referred to are known to contain carbonic acid, and as this gas is constantly evolved from waters containing it in excess, I would ascribe to this evolution, and the presence of a certain quantity of this agent in the atmosphere, the immunity in question. This view receives support from the fact that, although many places in Spain, near mineral springs, containing in solution carbonic acid, were spared by the disease; yet in others, as in Chiclana, which possesses mineral waters, but unimpregnated with this gas, the same exemption was not witnessed.

"Again: it was noticed in one of the public papers, as a remarkable occurrence, that, in Glasgow, not one brewer's servant was attacked with the malady, although the other inhabitants suffered so severely from its effects. In London, also, I am enabled to state, from personal inquiries, that a similar exemption was observed, although two of the principal breweries were situated in the very centre of the pestilence. Only one of the men employed in these breweries, (and he confined to his house by an accident, or some other ailment,) was attacked with the disease, notwithstanding that from 400 to 500 belong to the establishments. This immunity I would ascribe principally to the quantity of carbonic acid constantly liberated in such manufactories, and partly to the effect of the same agent taken internally—it being pretty well known that brewers' men swallow a more than ordinary quantity of porter, and with it a proportionate quantity of the gas.

In Paris, where the disease was so extensive that few situations and no class of persons were exempted, with the ex-

* Remote Cause of Epidemic Diseases.

ception in the former case of the passages or arcades, and in the latter, of the charbonniers, or charcoal porters, we have another apparent confirmation of the above hypothesis. The arcades are lighted with gas, the combustion of which, and the extrication of a certain amount of carbonic acid gas, may, perhaps, account for an exemption, almost unique in that devoted city. As I am satisfied that recently prepared charcoal always contains more or less carbonic acid gas, which it gives out slowly and gradually, its place being supplied by atmospheric air, persons constantly handling and turning that fuel must inspire, to a greater or less extent, this gas, and hence their exemption.

"Such were the facts which I had collected previously to my journey to Spain; and I was afterwards induced to insert a paper in the *Boletin de Medecina y Cirugia* on the subject, recommending, at the same time, certain measures to be adopted for the prevention of the disease, by extricating carbonic acid gas into the surrounding air. In consequence of the publication of these facts, a number of communications were made to me, confirmative, as the narrators supposed, of the views I propounded, and I will here notice a few of these facts.

"It had been previously remarked by Dr. Sauch, that in one particular street of Barcelona, in which scarcely a house escaped without some of the inmates being attacked with the disease, all the men who worked in the blacksmiths' shops—and there were many in the street—entirely escaped. A more extended inquiry subsequently proved that this exemption was not singular; but that all those engaged in any craft or business, which, like the blacksmiths, required a charcoal fire to be kept constantly burning in the room or shop in which they worked, remained free from the disease.

"Two other circumstances of the same kind, which had been considered as remarkable, but which had not before received any explanation, were observed in Spain. It had been generally remarked, that although the Spanish infantry had been attacked with the disease to the same extent as other classes, the cavalry had almost entirely escaped. Now, it is the general custom, in that country, for the men to sleep in the stables; and as it is apparent that horses, and other animals of that size and class, give out, in expiration, a considerable quantity of carbonic acid gas, to this evolution I and others attributed their exemption.

"Another circumstance was, that in certain villages, principally inhabited by shepherds, not a case occurred, while every other town and hamlet in the surrounding district was attacked and scourged. It appeared, on inquiry, that the flocks of sheep which these men attend are sent out, during the day, to graze in the neighbouring mountains; but that they are all carefully brought back again at night, and penned in the village. If, therefore, the previous deduction be correct, we can have no hesitation in ascribing the escape of the inhabitants of these villages to a similar cause; for the atmosphere in which several thousand sheep were breathing must have been strongly impregnated with carbonic acid gas.

"A friend of mine, a Spanish physician, also informed me that he had seen, in one of the French papers, an account of the singular escape of a town in the south of France from the ravages of the epidemic, forming almost a solitary exception in that particular district. It appeared that the town in question contains one or more large breweries, as well as a number of manufactories, which consumed large quantities of charcoal, for it was stated that the large fires kept constantly burning in every part of the town were considered to be, in some way, the cause of this remarkable exemption.

"To show, however, that the presence of carbonic acid gas in the atmosphere is not only sufficient to neutralize the morbific matter, but that it will also check the progress of the disease, even after it has manifested itself in the system, the following case, narrated with the knowledge and consent of the individual concerned, is now added:—

"A pharmaceutist in Barcelona, who had just lost a near relative in the same house from the epidemic, had been labouring for several days under premonitory diarrhœa, to arrest which he had taken only simple diluents and gum-water. At this period, a sudden demand for the bi-carbonates of soda and potash, as well as soda-water, obliged the invalid to spend nearly the whole day in his laboratory preparing these medicines. The diarrhœa ceased entirely before the evening, although previously he had been passing seven or eight copious evacuations daily. As there was no other way of accounting satisfactorily for the sudden cessation of the purging, the individual himself ascribed it to the inhalation of a certain quantity of carbonic acid gas, the natural consequence of standing so many hours over vessels from which it was being evolved,—a conclusion to which I think others also must arrive.

"Now, with respect to the artificial diffusion of a certain quantity of carbonic acid into the atmosphere, a very large extrication of the gas would be necessary; and as this could only be accomplished in particular situations of limited extent, while also we have at present no guide to direct us as to the quantity that ought to be extricated, I do not feel justified in giving directions to others before I have made trial of the method myself. Should I be enabled, hereafter, to give the experiment a trial, I shall not only feel it to be my duty to make the result public, but, at the same time, to give publicity to all the particulars of the method by which the plan has been carried out."

On the Treatment of Cholera by Carbon and Carbonic Acid.

By W. Price Evans, Esq., Surgeon, Swansea.

Mr Evans, addressing the Editor of this journal remarks:—

"When I penned the letter you did me the honour to insert in The Lancet, *ante*, p. 247, I had not read the communication of Dr. Parkin recommending carbon, or rather carbonic acid, in the treatment of cholera. Either Dr. Parkin, or your humble servant has a very confused notion as to the respective properties of charcoal and carbonic acid. Quoth Dr. Parkin, 'Knowing that carbonic acid combines with, and renders innocuous, putrefactive and other substances injurious to animal life, it is neither unreasonable nor unscientific to conclude, &c.' It is evident, from what follows, that it is carbonic acid the Dr. means, and that it is no mis-print for charcoal. Now, as carbonic acid does *not* possess the properties ascribed to it by Dr. Parkin, I will, *meo periculo*, venture to assert that it is both unreasonable and unscientific 'to conclude that this gas neutralizes the effects of those noxious and excrementitious matters which always exist to a greater or less extent in such situations.'

"Fresh charcoal, on the other hand, possesses in the highest degree the power of absorbing the gases—a fact which, in connexion with others concurrent, induced me, in your last journal, to record my conviction that it had 'the property of absorbing the choleric virus.' According to Mr. J. C. Atkinson, (The Lancet, p. 220), napthaline also is endowed with the property of absorbing gases. The extract below, from Dr. Ure's Dictionary, will justify me in considering and recommending fresh charcoal as an important preventive and remedial agent, more especially now that the death tread of the fell cholera is daily heard approaching near and still nearer to our shores.

"The following is a tabular view of the volumes of the different gases which were absorbed in the course of twenty-four hours, by one volume of charcoal, in the experiments of M. Theodore de Saussure, which were conducted in a way likely to produce correct results.

Ammoniacal gas	90	Bicarburetted hydrogen	35.00
Muriatic acid gas	85	Carbonic oxide	9.42
Sulphurous acid	65	Oxygen gas	9.25
Sulphuretted hydrogen ...	55	Nitrogen	7.50
Nitrous oxide	40	Carburetted hydrogen	5.00
Carbonic acid gas	35	Hydrogen gas	1.75

"The introduction of coke as an article of fuel for household purposes, would ensure a regulated supply of it in the fresh state on the premises, so that all who used it, would in and about their houses have a surface of coke of more or less extent presented to the atmosphere.

"This view of the subject being admitted, it is obvious that the administration of fresh charcoal would be likely to prove useful in other cases, such as in those of cattle, after partaking largely of green food, where enormous distention ensues, consequent on the extrication of the gases."

Treatment of Cholera by Stimulants, Mercury, and Sesquichloride of Iron.

By J. R. Hancorn, Surgeon, Shoreditch, M.R.C.S., &c.

"It appears to me requisite to call upon the Royal College of Physicians, or the Central Board of Health, to come forward and propose some distinct line of treatment, for the guidance of the profession generally, the majority of whom are in of great uncertainty as to the best mode of meeting the enemy.

"In the absence of an authorized mode of treatment, it be hoves every practitioner who has had an opportunity of witnessing this direful disease, to come forward and show his experience for the guidance of others. This is my present object,