practitioners, and with instruments not exactly suited for the purpose. Maw's apparatus is by far the easiest to use, and requires two persons only, while the others require three.

The object of this communication is to propose the use of serum instead of the saline solution. The superiority of this substitute is too apparent to need comment. The best mode of procuring it is from cow's milk, which can be readily obtained in any quantity, and may be deprived of its caseous substance in the following manner. To every quart of milk made hot, add eight grains of rennet (the gastric juice of the calf); as soon as the curd ceases to be separated, it may be strained and brought to the proper temperature for use; if it should be thought necessary, this might be further cleared of a small proportion of caseous matter yet remaining in solution, by adding to it the white of an egg beat up in a wine-glassful of the serum; or a few grains of tartaric acid, then boiling and straining it; however, this latter process would probably not be necessary.

I have had but one opportunity of trying the injection into the veins, which was performed under unfavourable circumstances, being hurried as to time; the milk was merely boiled once, skimmed, and strained, which deprived it of but a very trivial portion of its caseous substance, and not sufficient caution was observed to prevent the injection of air with the milk. The effects were, at the time, a sensation of nausea during a few minutes only, with this slight exception, the patient was tranquil until her decease: the profuse cold perspiration ceased, and the skin became warm, and remained so; the pulse became apparent at the wrist. She died between two and three hours afterwards, and, upon examination after the lapse of fourteen hours, the temperature within the pelvis was 89° ; there was no reaccumulation of the lymphoid fluid, either in the stomach or bowels, which generally occurs after the injection of the saline solution; the blood was fluid in the heart and large vessels; there was no appearance of coagulum, or of curd; the case, in all other respects, was the same as usual, whether before or after death.

Being convinced that nothing but perseverance is wanting to render the injecting plan more effective, I should be obliged to those who have gratuitous patients with cholera, to let me attend; but from other engagements, I cannot afford the time which these cases demand, to allow me opportunities of putting this practice fully to the test. I am, Sir, your obliged servant,

H. SEARLE.

8, Dean's Place, South Lambeth,
Aug. 10, 1832.

REMARKS ON THE DISINFECTING POWER OF HEAT,

*As an Agent for destroying Contagion or
Pestilential Miasmata;*

AND ON THE
SALINE TREATMENT OF CHOLERA,
*Plague, and Malignant Fevers; and on
the Use of Opium, &c., in such Disorders,*

By J. HANCOCK, M.D., London.

It has been with some surprise that I have observed, that the disinfecting power of heat is regarded by gentlemen of science as a new discovery. I considered it a very common and prevalent idea, and recollect seeing the method employed, many years ago, on clothing, which had been worn by persons in small-pox, being smoked and roasted, I might say, by nurses, before a strong fire, for the purpose of destroying infection. I do not say this to invalidate the experiments of Dr. Henry, who, it may be said, "improves whatever he touches." I have seen the same alluded to, or directed, I think in the old French Encyclopedia, and other works, which I cannot now call to mind; but I may refer, on this subject, to the letters of Dr. Lobb, addressed to Martin Folkes, Esq., president, and read at the meetings of the Royal Society, 1743-4. From these I beg leave to give a brief abstract. "I will take up no more time," says Dr. Lobb, "at present, than to mention two methods for removing the pestilential particles from infected goods or apparel, which may prove both effectual and expeditious. One is by airing them before brisk fires made in chimneys;" and he conceives that, "as water is carried off by heat, so the pestilential particles also, which are more volatile, must be speedily removed by the action of heat from infected goods; that although simple exposure to the air would in time effect the same purpose, yet the means proposed by heat is likely to do more in one hour, than the other in several days." On the same principle he recommends, that persons who have been exposed to the fumes of pestilences, should take the earliest opportunity of approaching a brisk fire, turning round before it to get rid of any infection received in their garments. This, he thinks, deserves the attention of all who have been exposed amongst the sick.

The other method of disinfecting is, by boiling all such articles as may not be spoiled by the process, by which means, as in the application of dry heat, the pestilential particles will be carried up the chimney; for he believed the miasma is not

destroyed or decomposed, but driven off by heat. *Lobb on the Plague*, p. 48—51; and this opinion would seem to have been borne out by experiments on small-pox, as cited in *Lyon's Treatise on the Prevention of the Plague*, where it is stated that the smoking of infected clothing conveyed the infection of small-pox to some distance, denying that fire will destroy the pestilential miasm; if confined, but he believes it extremely evanescent on the approach of heat, p. 359. I may observe that this book of Dr. Lobb, although abundantly mingled with the superstitious philosophy of his day, contains much sound sense and useful information, and that his pathological opinions are rational, and rather superior for one of his time.

It would appear that, in earlier times, ships, merchandise, and all, were frequently burnt to get rid of contagion, but the good Dr. Lobb, conceiving the *pestiferous particles* may be thus disseminated in the air, proposes another measure equally rational and efficient—that of “sinking the infected ships to the bottom of the sea! and burying infected goods deep in the earth,” which, he says, is likely to prove very effectual for preventing the propagation of *pestilence!*” See p. 366. This would put out of countenance, perhaps, even the most zealous and froward advocates for contagion and quarantine of the present day. The fact seems to be that, in those days, they actually believed in the vagaries which are now known, and acknowledged by most honest men, to be set up as mere *scarecrows*.

Although this author regards the great plague of 1665 to be so very contagious, there are many passages he has cited from the *Journal of the Plague*, which would seem like facts intended to prove quite the contrary; he says, that “through the whole course of the plague, there died in this great city and liberties, but two aldermen, five physicians, thirteen surgeons, and sixteen clergymen, which, considering their numbers, shows very manifestly God's special grace and protection of persons in the discharge of their duty;” and the author of the *Journal*, who appears to have been an honest and impartial man, says that charitable women, “pious ladies,” went about distributing alms, visiting the poor sick families in their infected houses, and that none of these suffered from it!

I may take the opportunity of citing here certain old authorities which tend to show that the famed *saline practice* in malignant distempers is not altogether so *fresh* as many seem to imagine, and would beg leave to suggest, that the reclamations of gentlemen lately put forth, respecting the *priority of the discovery*, appear to be founded on the mistaken view of its being a new

discovery, instead of a *revival* merely of former practice and opinions.

Hippocrates gave salt, sulphur, and wine, in the plague; and Van Helmont says, that the vital spirit is salt, not sour; and further on, that the *vital spirit* is *arterial blood*—an assertion not less true in his time than since it was pronounced by John Hunter! Why should we consider the opinions of the moderns as preferable to the *same* expressed by the ancients? He observes too he has found that *arcana* do operate as *salts*; “that hurtful matters are removed by resolving, cleansing, expelling, &c., which properties are agreeable unto salts.” *Oriatrike*, p. 195-6, and at p. 733. “The vital spirit is plainly salt, therefore balsamical, and a preserver from corruption.” *Salem esse antidotum prestantissimum, tam ad preservationem, quam ad curationem. Angenius*, lib. 9. *Joubertus*, tractatus *De Peste*, cap. 13. And according to Wittichius, the inhabitants of the island of Malta made use of salt as a *preservative* and most efficacious remedy against the *contagion of plague*. And thus Brudus Lusitanus (lib. 3. cap. 19. *De Febr.*):—“*Sal esse efficacissimum preservat. ac curat. in peste, et refert chirurgum quendam in anglia esse piscibus salitis peste laborantes feliciter nutrire.*”^{*} This antidote to pestilence may be ridiculed by some, but without drawing any inference, it might be remarked that the negroes in the colonies who eat much salted fish, are rarely attacked with pestilential or malignant fevers, to which the lower ranks of society are most obnoxious in Europe; and furthermore, that certain non-medical persons in Martinique, who had charge of patients in yellow fever, assured me they had found the greatest advantage in the use of *sea-water*, both by the mouth and by frequent ablution, applied at various temperatures, such as seemed most agreeable to the patient's feelings, and that it rarely failed if seasonably resorted to.

Such considerations give additional weight to the reports of Dr. Stevens, and the recent modification of his plan by means of *venous injection*, which modification, however, can hardly be entitled to any preference, and is not likely to be fully established in practice, since it has been found, that the operation of remedies is nearly identical, whether exhibited by the mouth or by venous injection, as proved by injections of tart. ant. and other emetics, cathartics, &c.

Experiment is certainly the touchstone of truth; but until the contrary be proved, I should consider the probability to be in

^{*} *Diermerbroek de Peste*, p. 170. *Lobb on the Plague*, p. 255.

favour of Dr. Stevens' method, along with the external use of salt in *baths*, as just noticed. In the yellow and remittent fevers of Demerara, we frequently employed *cold affusion* (of fresh water), but it never occurred to me to try the *salt water baths*,* or salt in any form, not at least as a *chemical alterative* agent, or for the purpose (as technically expressed) of *decarbonising* the blood. From all I have learnt here and in South America, I cannot but regard this problem as one of the utmost importance, and heartily join in the recommendations, so powerfully urged in *THE LANCET*, for the fullest possible investigation as to the real merits of *saline* treatment in malignant fevers, cholera, &c., and at the same time I would beg leave to hint, that from the hypercatharsis induced by the salts, it becomes especially necessary to guard their operation by restringents, and especially opiates, which are of the utmost avail in maintaining the force of the circulation, and the vital power, in the cold and collapsed state, which often characterise those disorders.

In addition to the foregoing it may also be observed, that as antidotes to the poisoned wounds, there are none, perhaps, more generally useful than common salt, (mur. of soda), and the great use of sal prunel. (nitr. potash) has long been recommended in putrid and spotted fevers, plague, and cholera, as also in leprosy and scorbutic affections, putrid sore throat, &c.

Unfortunately, amidst a vast farrago, the most valuable remedies are overlooked or neglected at the onset of disease, when they might be efficient: and here I consider it most unfortunate that the use of opium is so little appreciated, and that its due application is so misconceived: † those who have tried full doses at the onset of putrid diseases have seldom been disappointed. Although many, from mistaken theories and false *indications*, are led to condemn

the use of opium, excepting in the decline of the malady, it must be remembered that remedies become in a short time unavailing after the attack of malignant distempers, such as cholera, camp-dysentery, putrid fevers, &c. When such prevail, an opiate pill or potion ought ever to be kept in readiness to be swallowed at the instant that symptoms are approaching. After the disease is fixed, or the blood has lost its spring and mobility, or, retiring from the surface, stagnate, in the great vessels, medicine has little effect. It is not the choice of the weapons merely, but their ready employment, which must guard against the inroads of an insidious enemy. This matter, and the powers of nature, being duly considered, we discover why so many remedies get a reputation, and why some persons find one remedy to succeed, and some another. But, with respect to the use of opium, a pernicious idea prevails, that, in most diseases, although marked by excessive prostration of strength, yet that opium must be avoided till re-action flags, or the powers of life are fast declining: it is a fact not generally recognised, that the powers of opium are most pre-eminently efficient in the stage of depression, or at the very onset of those malignant distempers. Yet the golden moments and hours are often cast away in waiting for *medical assistance*.*

In the treatment of such untoward diseases as spasmodic cholera, jail and putrid fevers, so called, it is ever desirable to take advantage of a union of powerful remedies. The cordial and exhilarating effects of opium, are greatly exalted, and rendered more permanent, whilst its narcotism on the brain is corrected, by taking, soon after, a cup of strong coffee, or a glass of brandy or other spirit. By these means I have often known inveterate agues subdued, both in my own person and in others; some of which, too, in the Orinoko, were of a very malignant kind. It may not be out of place to mention here, that on one occasion (in Stabroek, now Georgetown, Demerara) I had for some months suffered under one of the most obstinate intermittent fevers, in which the fullest trials of the bark, arsenic, &c., had proved unavailing. On the fit approaching one day with severe rigors, I took 100 drops of laudanum in a glass of punch, and, soon after, a cup of strong coffee, covering myself warm in bed; the cold shivering soon ceased, and a warm perspiration came on. I slept for a short time, an hour or two perhaps, when I awoke in a profuse perspiration, quite free from fever and all uneasy sensations. At

* The water of the coast of Guiana is muddy, and brackish only, and is therefore seldom thought of for domestic purposes.

† It is curious to observe the inconsistencies of certain medical writers, who, at times, would seem to be utterly ignorant of the action of remedies. One gentleman has lately set forth *experiments*, which are termed the results of cholera cases, treated chiefly with *corrosive sublimate* and *acetate of lead*; these with half a grain of p. opi, and some other remedies he administered every *half hour*, but having no effect, he increased the dose of opiate power, making it *two and a half grains* every *half hour*. On this the patient rallied, and from a hopeless state of collapse recovered most rapidly. Such were the happy results of "Cases of cholera morbus treated chiefly by *corrosive sublimate* and *sugar of lead*." No doubt the statement is a faithful one; the result indeed is what might be expected from the use of opium given every half hour. We thus see the most valuable remedies pass for nothing, and daily resorted to for no other purpose than to support the fictitious claims of the most useless ones.

* Along with the opiate, or presently after, a few grains of calomel may be given, and saline diaphoretics, as nitrate of potash or ammonia, effervescing draughts; as also sudorific tisans, made with equal parts of rue, sage, mint, and hyssop.

the next return I was prepared to take the same course, but found no occasion for it. I had no return of ague for years afterwards. It is only by additions to opium that we can rationally expect to improve its virtues and modify its narcotic effects. The learned will before long, it is to be hoped, learn better than to waste their time in fruitless speculations on morphia and narcotine.*

If therapeutical indications are demanded, it is impossible to adduce stronger ones than may be offered for the employment of opium in cholera—a disease marked by excessive declension of the vital powers—the pulse, strength, and natural heat, failing, with colliquative sweats, diarrhœa, spasmodic pains of the bowels, and of all the muscles of the body; for all which affections opium is the most direct resource, if not the only one worthy of confidence; yet it is surprising to hear some gentlemen assert, that the necessity for opium appears not to be indicated in cholera. Again, the blood in this disease is found to be thick and grumous, as fully proved by dissections: it is generally supposed to be rarified and attenuated by opiates;† this is inferred from the great and full, though soft and slow, pulse, induced by a full dose; and it is asserted, that in Turks and Indians slain in battle whilst under its influence, the blood has been found in a fluid state for a day or two after death! (See Geoffroy Mat. Med.) Opium has long been esteemed as the most advantageous and effectual remedy for all inflammations, and is especially commended by Bate, Willis, Motherby, and others, in pleurisy. It has probably been too exclusively relied on, to the neglect of its requisite adjuncts; and, through the caprices of certain leading authorities of the last century, this valuable remedy fell in repute, and was totally proscribed in all cases of inflammation.

* Such speculative conceits are of no real value, but are exceedingly pernicious, deluding both young and old, under the specious misnomer of useful science. Our knowledge of natural bodies has been greatly improved by the march of chemical science; but in pharmacy, although many senseless fancies have been abrogated, it appears that the science has of late years rather retrograded in point of real and practical utility, notwithstanding a vast display has been made of the wonderful discoveries of some industrious Frenchmen, as Derosne, Serturner, and Robiquet. These conceits serve to occupy the pages of our new dispensatories, as most important discoveries, whilst no one undertakes to investigate their real or pretended value. It is right to observe here, that the black drop, and later pretended discoveries, the *liquor opii sedativus*, &c., are mere modifications of receipts known 300 years ago, or more, and subsequently under the name of Bate's *laudanum cydoniatum*, or opium fermented in the juice of quinces, with an addition of yeast; a preparation at least equal to any at present employed, whether English or foreign.

† Similar resolvent powers have, from the earliest times, been ascribed to divers herbs, especially to sage, rue, mint, and hyssop.

Dr. Armstrong again attempted to establish its use in fevers and inflammations; he has been ably seconded, but with little effect, however, such is the force of prejudice and early impressions. Motherby, who gave the collective opinions of his time, says it is anodyne, antispasmodic, that “it abates inflammation both internally and externally; it moderates the heat in fevers, and assists other medicines in producing a more speedy effect; it discusses stagnating fluids, removes obstructions arising from spasm, promotes the discharges through the skin, but retards all other evacuations; abates all kinds of pains, &c.”

As to the subsequent treatment of these disorders, when further developed, the use of baths, stimulant frictions, and other important measures, it is not my purpose to advert here, having, in a pamphlet on the subject, stated the result of my experience on the vomito prieto, and cholera of South America.

Respecting the alleged contagious nature of the present epidemic, it appears sufficient to remark, that were the disease really contagious, it would assail those chiefly who have been in company and in contact with the sick, or whose occupations expose them most frequently to its fomites; whereas it appears that people who are thus daily compelled to take the breath and handle the sick and dead bodies, are not more frequently attacked than others who have not seen or been near a case of it. This is proved by daily experience both in and out of the hospitals.

Turner-street, Commercial-road.

August 13th, 1832.

P.S. The important experiments of Dr. O'Shaughnessy on the conditions of the blood in health and disease, merit the serious consideration of the faculty, as calculated to throw much light, perhaps, on the nature of our disorganizations. They appear to indicate, that the morbid changes in the blood are rather the consequences than the cause of disease, at least with respect to cholera; no change being appreciable till the disease had made great advances. I would suggest the query, however, whether the latent germ of disease may not previously exist, and yet be totally incapable of detection by chemical agency, or by any mode of examination whatsoever. Those morbid states of the atmosphere which give rise to epidemic distemper, have, hitherto, eluded the researches of chemistry. Innumerable experiments had been made on mineral waters and that of the ocean, before the smallest traces or indications of iodine or bromine were discovered; and we know not what other principles may yet remain to be elicited from them. Ancient philosophers, we

are told, have opened the body to search for the soul, but we must not suppose that the *vital principle* is to be detected by chemical research, as if it were an alkali, an acid, or salt according to Helmont. It can only be said, in the present state of our knowledge, that the *observable* changes in the vital fluid, are in all cases, the results, and not the cause, of disease.

CALCULUS IN THE BLADDER.

To the Editor of THE LANCET.

SIR,—I have the honour of forwarding to you the history of another case treated with the *percuteur courbe à marteau*, begging you to give it insertion in your valuable Journal. I am, Sir, your obedient servant,]

BARON HEURTELOUP.

1, Vere Street, Cavendish Square,
Aug. 10, 1832.

Mr. M., of the East India Company, ætat. 63, of a tolerably good constitution, tall, but rather emaciated and weak, experienced for the first time, about twelve years ago, pain in the loins, which returned at different intervals, with more or less severity. These attacks were at first slight and of short duration, and were accompanied by the evacuation of red sand with the urine; but after some time they became more severe, and the patient frequently voided smooth, round, calculi, about as large as small peas. Besides these nephritic attacks, Mr. M. sometimes found great difficulty in making water, and occasionally felt considerable pain all along the urethra, after he had voided his urine. About six years after the first attack, Mr. M. finding that the symptoms increased in severity, and fearing that they were caused by the presence of a stone in the bladder, consented to be sounded; but although a very careful exploration was made, no stone could be discovered.

Quieted by the assurance that he was not labouring under stone in the bladder, Mr. M. pursued his usual occupations for nearly six years more, and paid but little attention to the inconveniences and painful sensations which he sometimes experienced. At the commencement of the present year, however, the symptoms assumed a much more severe and serious character; Mr. M. was much alarmed, and wished to be sounded again. A stone was distinctly felt in the bladder, and the patient immediately left his country seat, where he had taken up his abode with a view to improve his health, and came to London. He consulted

Mr. Green, who, finding the symptoms too indicative to consider it necessary to sound the bladder, did me the honour to recommend the patient to me.

I sounded with the *recto-curvilinear catheter*, and found the urethra rather narrow, especially at its anterior portion; the bladder moderately sensitive and dilatable, considering the size of the stone, which appeared to be rough and heavy, and about an inch thick, and from eighteen to twenty lines in its longest diameter; it was held by the sides of the inferior part of the bladder, but with the sound it was possible to turn it over. Notwithstanding the advantages to be derived from the employment of the *percuteur courbe*, this case was rendered difficult by the size of the stone, and the little physical force of the patient; I was undecided as to whether it would be well to operate, and I was only induced to do so by the anxious wish of the patient, and more especially by the resolution and moral energy which he displayed.

After having, by a small incision, enlarged the external orifice of the urethra, which was extremely narrow, and prevented the introduction of an instrument sufficiently large to fill up the remainder of that canal, I commenced the operation with a *percuteur courbe* of about three lines and a half in diameter. Having first, with the catheter, removed the stone from behind the neck of the bladder, where it was continually situated, I introduced the instrument, and immediately seized and broke this large calculus into fragments; two of the pieces, which the *percuteur* showed to be about twelve or fifteen lines in diameter, were afterwards comminuted in the same manner, and the instrument was then withdrawn. The patient passed a considerable quantity of the *debris* of the stone immediately, and during the three or four successive days. In four other applications of the *percuteur*, each of which, as well as the first one, lasted from three to four minutes, the patient was enabled to evacuate all the portions of stone contained in the bladder.

Mr. M., having naturally a small stream of urine, and but little repulsive power, found difficulty in voiding the fragments of stone, and I was consequently obliged to have recourse to the *evacuating catheter*.

Mr. Rose, the patient's medical attendant, saw the first operation, and Mr. Green was present at all of them.

Reflections.

This case is not only remarkable on account of the size and hardness of the stone, which was composed of oxalate of lime, but also on account of a deficiency of physical force in the patient; and it proves that cases may be prudently undertaken