RECOVERY FROM AN APPARENTLY HOPELESS STATE OF COLLAPSE IN CHOLERA, AFTET REPEATED INJECTIONS OF A SALINE SOLUTION INTO THE BASILIC VEIN, SUBSEQUENT DEATH FROM GASTRO-ENTERITIS.

By HENRY ANCELLE, Esq.

ELIZA MASON, aged 44 years, upper housemaid in a private family in Norfolk Crescent, one of the most airy situations at the west end of London, 78-41 feet above high water mark of the river Thames; an intelligent woman, of perfectly regular and sober habits, but nervous and often complaining, had more than once been under my care with slight dyspeptic and gastro-enteric symptoms, from which she recovered without being laid up. In the evening of August 14th, she stated to her fellow-tenant that she was not quite well, from a sense of fulness in the stomach; but she spent the day in the Crystal Palace with a party on Tuesday the 16th, having no diarrhœa, but still complaining of being poorly. The only refreshment taken was a glass of allspice’s ale and a sandwich. On her return home in the evening she had no appetite for her supper, but retired at her usual hour, and went to sleep. She awoke about half-past five in the morning of the 16th with violent purging, rapidly succeeded by vomiting, and at about nine o’clock severe cramps in the lower extremities set in, commencing in the thighs; after this she complained also of deafness; she took some brandy, and sent for a mixture to stop the vomiting and diarrhœa; but from the commencement nothing remained on her stomach.

Aug. 16th. I first saw her at half-past 11 a.m., six hours after the attack, in a state of complete collapse; there had been violent vomiting, with perfectly colourless fluid dejection, containing rice-like grains and white foœcul; violent cramps, and total suppression of urine; she was pulseless, with a feeble, scarcely audible, fluttering heart, lividity of the countenance, coldness and blueness of the extremities, coldness of the tongue and breath, and clammy perspiration. Frictions of the surface were ordered, and sinapisms to the arms, legs, and epigastrium. Brandy, ether, and ice, and several other remedies were given with a view to restore the circulation, all being rejected. Up to half-past two o’clock there had not been the slightest sign of reaction; the lividity and coldness of all the extremities increased, the respiration was hurried, the countenance more collapsed, and dissolution was manifestly impending, although her mental faculties were entire, her voice tolerably good, and she could reply to questions. A case in the neighbourhood, in which the collapse was not so complete, terminated fatally on the previous day, four hours after I saw it; and from my experience of the epidemic in the year 1832, my opinion was that under all ordinary modes of treatment, or if left to itself, this case would probably terminate in an hour or two, and could not be much longer protracted.

Under these circumstances, with the cooperation of my friend Mr. Lane, I proposed the injection of a saline fluid into the blood. The patient at first withdrew her arm and feebly objected, having always had a prejudice against bleeding and operations of every kind; but was soon over-
of which appeared to do any good except ice, which was most grateful, and was taken in considerable quantity. In the meantime the urine was continued. The urine was intensely red under the microscope, it presented a very decided morbid appearance, having far less colour than blood-proper, and the red corpuscles being irregular in shape, unequal in size, and apparently imperfect, dissolved, or otherwise damaged. The gall-bladder was distended with dark-brown bile, the whole, by much bloody dilution, and the ductus choledochus filled by concreted bile. Spleen healthy. Kidneys healthy, except that in one a very small quantity of an apparently purulent fluid could be pressed from the tubuli uriniferi. The bladder was completely collapsed. A trisulphite twice the size of a large orange replaced one of the stones. The blood in the large vessels generally was tawny and gelatinous.

**Remarks.** I have related the circumstances of this case precisely as they occurred, believing that considerations of the deepest interest at the present moment are involved in them. In the first place, I have to explain the causes of some of the mummifications in the proceedings narrated. Called upon suddenly, in a case of the utmost severity, where no time was to be lost, occurring in a private house, I had to obtain as quickly as possible the necessary assistance; and, in the absence of any proper injecting apparatus, the best instrument I could contrive. My fear was that the patient would die before the operation could be performed. The salts were dissolved in distilled water, and the solution filtered; but it had to be warmed before it would be freely drawn into a syringe, and the solution kept in the house. I was unprepared with a thermometer at the time of the first two injections, and the temperature was judged of by my own sensation. Mr. Talbot, of St. Mary's Hospital, and myself, made the post mortem examination, without any other assistance; and, from circumstances relating to the family, we were limited to time. It was accordingly done imperfectly, at least in my view of the points which ought to be made out in such a case. If my own opportunities of investigating the remedial powers of the direct admixture of substances with the blood in this fearful malady were greater than they are, I should postpone the publication of this case until I had made a series of experiments, not only more carefully and exactly, but on a less empirical—a more systematic principle. I have adopted the other course, because I believe the facts are eminently suggestive, and calculated to give other opportunities, in the conduct of this important inquiry.

Here is a case in which the patient was perfectly restored from the collapse stage of cholera in its most intense degree. Although eight pints of a saline solution, by no means of the most efficient character, had been . . . buoyant lungs, the lungs were specimens of healthy lungs; and the intellectual faculties were perfect until the patient was moribund from the fully developed disease. Then, what an interesting tale does this case unfold of the sequel to the collapse. Whoever has had an intermittent fever will remember the bluness of the nails, the acering of the fingers' ends, the state of the features and of the surface of the body, the miniature collapse that constantly preceded the rigor; and here we have the intense collapse of cholera apparently overcome by an antidote, and followed immediately by a rigor. This rigor was said to "usher in" various diseases, but it is almost always a secondary phenomenon, the

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*A fear justified by a very sad case that occurred this morning. Mr. Burdett was called at 3 o'clock to relieve a patient who he found him in the collapse of cholera; no remedies appearing to produce effectuation, a little after six, the patient was brought to the patient together. Mr. Burdett thought him a little better than an hour previously, and expressed that opinion before the attenuates; I considered the case as not so intense as in the case of Jasper, but in these circumstances we were not justified in not proceeding to what was considered an extreme measure, but at half-past 8 o'clock, and before we could meet again, the patient died.
The reaction established, we find, in the case before us, all the symptoms of the miasma, and the symptoms of poison, and more prominent of which had, indeed, existed from the commencement, and from their intensity had aggravated that collapse which is the primary effect of many poisons, and particularly animal poisons introduced into the blood. Even the mineral poisons, as, for instance, arsenie, so deadly do they however introduced into the blood, produce effects very closely resembling the symptoms of cholera. We see in this particular case, also, the extraordinary intensity of the gastro-enteritis, exhausting and destroying the patient, but not until pretty clear indications had been given as to what had have the result been, and had life been still further prolonged; the clean tongue of the stage of rapid and sudden collapse was succeeded by a white fur, as soon as the vomiting abated; and this was very rapidly followed by the dry brown tongue of typhoid fever. To comprehend these remarkable circumstances, we must avail ourselves of the little that is known of the effects of poisons introduced into the blood. In Gaspard's experiments, recent pus injected into the blood of dogs produced abundant urine, retarated vomiting, foetid stools, tenesmus and other symptoms, and death in a few hours. We have the same in the stage of the reaction, and the colon especially inflamed. Among the symptoms resulting from the injection of fatal pus were great prostration, vomiting a blackish liquid, and extremely foetid dejections; or, when the quantity was larger, frequent whitish very foetid stools, ardent thirst, great prostration, hiccous, dyspepsia, violent palpitation, etc.; and after death the blood was very corrosible with petechie, etc. Animal putridation produced bilious, gastroenteritis, and then bloody vomiting, glutinous and bloody dejections, or the most violent dysentery, or black vomiting; and in small quantities, all the symptoms of malignant fevers; and, after death, the stomach, duodenum, or rectum, were inflamed. Vegetable putridation produced the symptoms of dysentery, malaria, and low fever, and the mucous membrane of the intestines, especially of the duodenum, rectum, and some of the small intestines, were of a violet-red colour, and inflamed.

The more minute details of the experiments indicate that each distinct poison produces a specific effect in the blood and tissues, and is attended with its peculiar symptoms, among which prostration, partial or general gastro-enteritis, and the symptoms of typhoid or malignant fever, are the most common. There is sufficient analogy in the symptoms of cholera to lead to the inference that it is a poison in the blood, producing more intense sedative effects in the blood itself, and a more violent determination to the gastro-enteric surface, than any known poison; and sufficient distinction, to lead to the inference that it is a poison quite distinct from all other poisons, whether known only by their effects, or otherwise. Our present knowledge of the physiology and pathology of the blood renders both the analogy and the distinction quite intelligible. Although in some cases of cholera the recovery from the stage of collapse may be quickly followed by health, inasmuch as the poison may have expended its virulence, and the gastro-enteric mischief may be slight, yet in these cases of fearful intensity such a result is scarcely to be hoped for; the recovery from the collapse is only the recovery from the early stage of the disease, and we may expect it to be followed by gastro-enteritis; or by pneumonia, or some other result of local congestion or disorganisation; or by typhoid or malignant fever, complicated with some of these local effects; and a remedy for the collapse ought not to be regarded as a remedy for the disease. The purging and irritation, the doubt and the effect of disorganisation of the blood; and the intestinal canal is the outlet both of the poison and of the devitalised portions of the blood; but I conceive that it would be an error in pathology to regard these symptoms, even from a very early period, in this point of view simply; they depend also upon the irritation which is the result of the elimination of the poison; hence dejections, even from the commencement, contain a large portion of epithelium scales, and the disorganisation begins to some extent to the intestines the intensity of the poisoning. In Mason's case, I conceive the quantity of the poison originally received into the blood must have been very large; but for the remedy employed, it would have destroyed life in less than twelve hours by its direct effect on the blood; failing this, it produced this result by the intensity of the reaction, and probably, in part, by the poison not having been completely eliminated. Had the quantity of the poison originally received been less, the probability is, cæteris paribus, the gastro-enteritis would have been less, but on recovery from the stage of collapse and vomiting, to contend with. On the other hand, had the quantity of the poison been less, and had it also been completely eliminated, during the progress of the collapse, (I believe, a frequent result), there would have been a less complicated gastro-enteritis to deal with. As recovery often takes place very rapidly, even after collapse in a slight degree, it is probable that the gastro-enteritis set up during the elimination of the poison, or any effect produced during the collapse, is, in such cases, comparatively trifling. I have since witnessed the autopsy of a fine young woman, aged 23 years, who had life been still further prolonged; the intestinal affection, although well marked and general, was still slight in degree; and, no other organ being materially affected, the suggestion presented itself, that could she have been carried through the collapse, her recovery would have been rapid. In the slighter cases, the moisture received into the blood is very small, producing diarrhoea only, the poison is probably very quickly eliminated, and the blood not being so extensively disorganised, nor so quickly insipidised, if the elimination by the bowels be checked, as it usually is, by the remedies we employ, the remaining poison of the poison is quickly destroyed or discharged by other outlets, and the collapse, with all the other consequences, are averted; and even where the quantity of the poison is larger, the greatest advantage results from arresting the purging in the early stage before the blood becomes insipidised, inasmuch as the rapid loss of the fluid parts of the blood is doubtless concerned in preventing the elimination of the poison by other organs.

We know little of the laws which regulate the action of poisons received into the blood, either upon the blood itself, or upon the whole animal economy. Nevertheless, it appears that each has its specific effect, while there are effects common to nearly all. The choleraic poison appears to act in the blood as a sedative. There is some reason to think that it arrests the ascending functions of the albuminose, so that the albuminose of the blood may be rapidly and completely developed, so that the latter will not permeate living membrane, which the former does. That it acts by an arrest of development in the materials of the liquor sanguinis, rather than upon the blood proper, appears plausible also from this—the retention of the urea in the blood is the usual result of the kidneys failing to separate this substance; and not only does this take place in cholera, but according to some of the best analyses, the urea accumulates, indicating the continuance of those metamorphoses in the blood by which nitrogenous compounds are converted into urea. Again, it appears that the liver is not so much affected as the kidneys, and the latter will not permeate living membrane, which the former does. That it acts by an arrest of development in the materials of the liquor sanguinis, rather than upon the blood proper, appears plausible also from this—the retention of the urea in the blood is the usual result of the kidneys failing to separate this substance; and not only does this take place in cholera, but according to some of the best analyses, the urea accumulates, indicating the continuance of those metamorphoses in the blood by which nitrogenous compounds are converted into urea. Again, it appears that the liver is not so much affected as the kidneys, and the latter will not permeate living membrane, which the former does. That it acts by an arrest of development in the materials of the liquor sanguinis, rather than upon the blood proper, appears plausible also from this—the retention of the urea in the blood is the usual result of the kidneys failing to separate this substance; and not only does this take place in cholera, but according to some of the best analyses, the urea accumulates, indicating the continuance of those metamorphoses in the blood by which nitrogenous compounds are converted into urea. Again, it appears that the liver is not so much affected as the kidneys, and the latter will not permeate living membrane, which the former does. That it acts by an arrest of development in the materials of the liquor sanguinis, rather than upon the blood proper, appears plausible also from this—the retention of the urea in the blood is the usual result of the kidneys failing to separate this substance; and not only does this take place in cholera, but according to some of the best analyses, the urea accumulates, indicating the continuance of those metamorphoses in the blood by which nitrogenous compounds are converted into urea. Again, it appears that the liver is not so much affected as the kidneys, and the latter will not permeate living membrane, which the former does.
CASE OF CHOLERA IN WHICH RECOVERY TOOK PLACE.

By ALFRED HILL, Esq.

The following particulars of a case of cholera may interest the readers of the Association Journal.

CASE. Heber Smith, aged 16 years, of sanguine temperament, living with and apprenticed to a butcher, had been generally healthy, but for the last two months had suffered from irritable bowels, though not so severely as to incapacitate him for his employment, or to compel him to obtain medical assistance. On Saturday, June 17th, notwithstanding the irritable state of his bowels, he imprudently ate a pint of raw gooseberries, without at once experiencing any ill effects. On Sunday, June 18th, he was called up at 6 o'clock by his landlord; and as he was descending the stairs he suddenly fell, from sheer inability to support himself, and quietly slipped down stairs, without confusion or any other physical injury. He immediately afterwards felt a desire to evacuate the bowels, and voided an immense quantity of matter "like water." He then returned to bed. At 12 o'clock, he was sent in a cab to the house of his father, a little in the country, having previously had a second watery evacuation. When he arrived at home, he was blue and cold. I was immediately sent for, but owing to the message not being urgent, I did not see the patient until 3 o'clock, when the following symptons presented themselves.

The entire surface was blue and cold, with that peculiar unyielding feeling characteristic of the dead body. He had cramps in the lower extremities; the toes were firmly flexed. There was tenderness on pressure in the right side of the chest, but in no other part of the abdomen. The respiration was irregular; the tongue and breath were much below the normal temperature. He had a pinched expression of countenance; his eyes were deeply sunken and surrounded with very dark areoles; his voice was scarcely audible, and resembled that of an infant. There was total suppression of urine, and he was in a state of constant tossing and listlessness. In addition, his mother stated that he had had a third evacuation, since his arrival at home, which she described as being "just like whey." It contained no fecal matter, but evidently consisted of the characteristic rice-water evacuations of cholera. I had not an opportunity of seeing it, as it had been removed; but from the symptoms present, and from the statements of mother and son, both intelligent persons, no doubt remained as to the nature of the malady. I immediately ordered him a hot bath, and brandy mixed with an equal quantity of hot water, to be given frequently. After the bath, sinapisms were applied to the abdomen and calves of the legs, hot water bottles to the axillae, groins, and feet, and hot flannels to every part of the body. The following pills and mixture were prescribed.

A. Pile saponis cum opio gr. x.
B. Amazonia sesquicarb. zi.
C. Spiritus estheris sulph. sii,
M. Mistura camphoro hyiss. M.
D. Mistura cujus capit uli quem omni hora.
E. Pili saponis cum opio gr. v.
Quintà quique hora sumatur.

At half-past 9, I again visited the patient. All the symptoms were subsiding; the surface was becoming warm; the skin had resumed its natural colour; the pulse was restored; the eyes had lost their sunken appearance; the pains and cramps had disappeared; the extremitites were warm; and the voice had become perfectly natural. I ordered one more pill to be given, with one dose of the mixture, and then their administration, together with that of the brandy, to be discontinued.

June 19th, 11 A.M., I again visited the patient. The bladder had resumed its function, and a considerable quantity of pale urine had been passed. Not only had the patient rallied from the state of collapse, but there was now reaction, which threatened to become fever. Perfect quiet and light farinaceous diet were enjoined; and the following antacid diaphoretic mixture was prescribed.

F. Soda sesquicarbonatius qss.:
G. Vinii ipecacuanhi 3os.
M. Mistura camphoro Dios. M.
H. Mistura cujus caput i. et quique hora.

The case has since rapidly and favourably progressed, and the patient is now convalescent.

REMARKS. Among the many cases of cholera which have come under my observation, I have seen none benefited by internal remedies alone, although the materia medica has been ransacked to supply them. Some practitioners pin their faith upon venescence, some upon calomel, some upon opium, some upon astringents. It has always been my opinion, that in that stage of collapse when so prominent a feature of Asiatic cholera, the indication is, to restore the equilibrium of the circulation, to derive from the internal organs, and particularly the bowels, which are evidently congested, and so under this congestion pour out immense quantities of serum, by which the system is prostrated and unable to rally. The most effective method of bringing about this reaction appears to me to consist in the application of heat in every available form to the surface of the body, with which may be conjoined sinapisms to cause revulsion, the internal administration of stimulants, and opium in full (but in these cases stimulating) doses; which seems to act by allaying gastric and intestinal irritation, checking the exhausting effusion, and stimulating and supporting the powers of life. At all events, this plan of treatment was followed in the above case by complete recovery; and, I believe, it may be said to have effected a cure.

Of the two remedies, heat externally, and opium internally, I attach most value to the former; and though I consider opium highly useful, in conjunction with heat and stimulants, I believe it would be useless alone.

Birmingham, June 30th, 1854.

[This case duly reached us, but was accidentally lost sight of: otherwise it would have appeared six weeks ago. Editor.]